Quiz Questions

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1 Introduction

Quiz questions are questions asked by an MC of a quiz show to contestants or by a teacher to students as in (1) and (2).

(1) Where is the capital of Germany?

(2) Is 9431 a prime number?

Quiz questions are pragmatically non-canonical. In view of Sealean (1969) theory of speech acts, when asking a canonical question, the speaker is ignorant regarding φ? and the speaker assumes that the addressee knows the answer to φ?.[1] When asking a quiz question, in contrast, the speaker already knows the answer and the speaker does not take it for granted that the addressee knows the answer. This pragmatic property of quiz questions reveals interesting facts about questions in general including both canonical and non-canonical ones. In Section 3.1, for instance, we will see that quiz questions are regarded as one kind of non-canonical questions that do not give rise to universal projection of presuppositions. Both Schwarz & Simonenko (2018) and Theiler (2021) propose pragmatic principles for questions which account for why some non-canonical questions such as quiz questions do not give rise to universal projection.

The next question pertains to: Are quiz questions syntactically/semantically non-canonical? In other words, is there any special syntax or semantics for quiz questions? The answer is yes and no. As for English, there seem to be no special constructions involved in the syntax of quiz questions as can be seen in (1) and (2). Thus, in the analyses of Schwarz & Simonenko (2018) and Theiler (2021), the semantics of a quiz question is a set of possible answers. Different interpretations such as absence of universal projection are pragmatically derived. Similarly, Japanese KA questions presented in Section 2.1, can be used for quiz

[1] Searl's (1969) felicity conditions of questioning can be formulated as follows:

(i) The speaker S questions the hearer H about φ is felicitous iff:
   a. S does not know the truth about φ,
   b. S wants to know the truth about φ, and
   c. S believes that H may be able to supply the information about φ that S wants. (modified from Huang, 2007, 431)

questions, but their semantics, as I speculate, is the same as other canonical questions, i.e., a set of possible answers. Thus, KA questions do not syntactically encode their quiz-question interpretations, but they are interpreted as quiz questions in non-canonical contexts where the questioner already knows the answer. However, Japanese has another construction that is felicitous only as a quiz/exam question, *deshoo ka*↑. Hara (2023) and Csipak & Eckardt (2021) offer compositional analyses that derive its quiz-question interpretation from the semantics of its components, i.e., the modal auxiliary *daroo*, the honorification that changes *daroo* into *deshoo*, the question particle *ka* and the Final High (↑/H%).

This chapter is structured as follows. Section 2 starts with empirical data on Japanese questions. There are at least two constructions that may be uttered as quiz questions, KA questions and *deshoo ka*↑ questions. In Section 2.1, KA questions are contrasted with NOKA questions. KA questions can be uses as quiz questions while NOKA questions are not. Section 2.2 presents the basic data of *deshoo ka*↑ reported in Hara (2023) and Miyake (2010). Section 3 reviews formal analyses on quiz questions. Section 3.1 goes over two semantic studies, Schwarz & Simonenko (2018) and Theiler (2021), which investigate the absence of universal projection of non-canonical *wh*-interrogatives that include quiz questions. Section 3.2 summarizes two compositional studies of *deshoo ka*↑ questions. Section 4 concludes the chapter.

2 Two kinds of Japanese quiz questions

Japanese has two interrogative constructions that can be used as quiz questions. Section 2.1 introduces the contrast between KA and NOKA questions. In the literature of Japanese traditional grammar, it has been observed that KA questions are used to check with the addressee the facts about the world, whereas NOKA are used to ask the addressee's intention or plan or to request some explanations about the addressee's previous judgment. Thus, I speculate that KA questions are default questions with normal semantics as a set of possible answers, which can be quiz questions. On the other hand, NOKA questions semantically encode an extra speech act which is incompatible with quiz-question contexts. Section 2.2 presents *deshoo ka*↑ questions, which unlike KA questions, their compositional makeup end up having the quiz question interpretation. In other words, *deshoo ka*↑ questions linguistically encode the quiz-question interpretation.

2.1 KA vs. NOKA questions

Before looking into examples, the introduction of the morphological variations of KA and NOKA questions is in order. *Ka* is a sentence final particle that marks an interrogative clause while *noka* has been analyzed as an interrogativized form of so-called *noda* sentences (McGloin, 1980; Koza, 1989; Noda, 1997; Ijima, 2011). *No* in a *noda* sentence is a nominalizer which has many linguistic functions and can be phonologically reduced to the moraic nasal *n* in speech. *Da* in *noda* is a

copula, and its polite form is *desu*. Thus, *noda* and *noka* are sometimes realized as *nodesu* and *nodesuka*, respectively. The possible realizations of KA and NOKA questions are summarized in Table 1.

Table 1: KA and NOKA questions

KA-questions	ka, des-u ka (COP.POLITE-PRES Q), V-mas-u ka (V-POLITE-PRESENT Q)
NOKA-questions	noka, n(o)-ka (NML-Q), n(o)-des-u-ka (NML-COP.POLITE-PRES-Q)

It has been observed that NOKA questions are more suitable for canonical questions than KA questions. For example, following Minami (1985) and Adachi (1999), Iori (2022) assumes that in asking a canonical question p?, it is presupposed that the questioner is ignorant regarding p and that the respondent is more knowledgeable regrading p.

Thus, in a usual situation where the questioner has less knowledge than the respondent, a *noka* question is used:

(3) Looking at the new camera in Tanaka's hands:

a. Tanaka-san-wa sono kamera-o Shinjuku-de kat-ta
Mr.Tanaka-top that camera-acc Shinjuku-at buy-PAST
n-desu-ka?
NML-COP.POLITE-Q
'Did you buy that camera at Shinjuku, Mr. Tanaka?' (NOKA)

b. #Tanaka-san-wa kamera-o Shinjuku-de kai-masi-ta ka?
Mr.Tanaka-top camera-acc Shinjuku-at buy-POLITE-PAST Q
'Did Mr. Tanaka buy a camera at Shinjuku?' (KA)

(Iori, 2022, 11)

On the other hand, in a quiz-show context, where the questioner has more knowledge than the respondent, KA questions are preferred over NOKA questions:

(4) After showing a video titled "A day of Mr. Tanaka", a quiz master asks to contestants:

a. #Tanaka-san-wa sono kamera-o Shinjuku-de kat-ta
Mr.Tanaka-top that camera-acc Shinjuku-at buy-PAST
n-desu-ka?
NML-COP.POLITE-Q
'Did you buy that camera at Shinjuku, Mr. Tanaka?' (NOKA)

b. Tanaka-san-wa kamera-o Shinjuku-de kaimasita ka?
Mr.Tanaka-top camera-acc Shinjuku-at buy-POLITE-PAST Q
'Did Mr. Tanaka buy a camera at Shinjuku?' (KA)

(Iori, 2022, 11)

At first glance, thus, it appears that NOKA is a linguistic marker for a canonical question while KA is designated as a marker of quiz question.

However, as we will see below, KA questions are used for other information-seeking questions other than quiz questions while NOKA lexically encodes the

questioner's request for information about the addressee's plan or reasoning.

2.1.1 KA-question as a default question

Yoshida (1994) points out that KA questions are "institutional questions", that is, "questions asked in situations where there are no exceptions to the questioning process" (page 7) such as police interrogation (5), taking orders at restaurant (6) and classroom quiz/exam questions (7).

In (5), if the police officer is simply collecting information about the suspect, KA is preferred over NOKA:

(5) A police officer interrogates a witness:

a. Sono otoko-wa donnna fukusoo-o site imasita ka?
that man-TOP what clothes-ACC do PROG-POL-PAST Q
'What clothes was that man wearing?' (KA)

b. #Sono otoko-wa donnna fukusoo-o si tei-ta
that man-TOP what clothes-ACC do PROG-PAST
n-desu-ka?
NML-COP.POL-Q
'What clothes was that man wearing?' (NOKA)

(Yoshida, 1994, 8)

Similarly, in (6), the waitress simply wants to know the fact, i.e., what the addressee wants to have, and KA is preferred over NOKA. If she uttered a NOKA question as in (6-b), it would sound rude as if she forces the addressee to answer the question.

(6) A waitress at a cafe asks:

a. Nani-ni nasai-masu ka?
what-DAT do.HON-POL Q
'What would you like to have?' (KA)

b. #Nani-ni nasaru n-desu-ka?
what-DAT do.HON NML-COP.POL-Q
'What are you having?" (NOKA)

(Yoshida, 1994, 10)

Finally, in a quiz/exam-question context like (7), KA is preferred over NOKA, too. The teacher is simply checking whether the class including Mr. Nakagawa understood the result of the experiment. If Mr. Nakagawa were forever fumbling and unable to answer the question, the teacher might ask the same question again using NOKA as in (7-b) to urge him to answer.

(7) After completing the experiment in the science lab, the teacher summarized the class:

a. Nakagawa-kun, suiyooeki A-ni suiyooeki B-o
Nakagawa-Mr. aqueous.solution A-DAT aqueous.solution B-ACC

mazeta-ra nani iro-no chinden-ga deki-masi-ta ka?
mix-PAST-if what color-GEN precipitate-NOM form-POL-PAST Q
'What color precipitate was formed when aqueous solution A was mixed with aqueous solution B?' (KA)

b. #Nakgawa-kun, suiyooeki A-ni suiyooeki B-o
Nakagawa-Mr. aqueous.solution A-DAT aqueous.solution B-ACC
mazeta-ra nani iro-no chinden-ga deki-ta
mix-PAST-if what color-GEN precipitate-NOM form-PAST
n-desu-ka?
NML-COP.POL-Q
'What color precipitate was formed when aqueous solution A was mixed with aqueous solution B?' (NOKA)
(Yoshida, 1994, 8)

In short, when the questioner is simply collecting information or checking the fact about the world, KA questions are used. In other words, the speech act linguistically encoded in a KA-question is nothing more than a simple act of questioning. KA-questions may be used as quiz/exam questions in specific contexts where the questioner is an authority that knows the answer.

2.1.2 *Noka*-question as an intervention of the addressee's intentional content

While a KA-question simply marks a default act of questioning, a NOKA question encodes some intention of the speaker in addition to the simple act of questioning. More specifically, as Ijima (2011) puts, by asking a NOKA question, the speaker attempts to intervene the addressee's intentional content. Ijima (2011) assumes that the propositional content of a *noda* sentence denotes "some intentional content of some attitude-holder". Since NOKA questions are interrogativized versions of *noda* sentences, a NOKA question inquires over the intentional content of the addressee" (page 85).

Ijima's (2011) analysis is largely based on Yoshida's (1994) observations. Yoshida (1994) states that *noka* questions are "spontaneous questions", i.e., used as questions in everyday discourse. In a context depicted in (8), NOKA questions are more appropriate as the speaker not only requests information about the addressee's next fishing place, but the speaker asks where the addressee *intends* to go for fishing.

(8) An acquaintance asks with a look of disbelief to an enthusiastic fisherman.

a. #Kondo-no oyasumi-niwa doko-ni tsuri-ni iki-masu ka?
next-GEN holiday-DAT.TOP where-DAT fishing-DAT go-POL Q
'Where will you go for fishing on your next vacation?' (KA)

b. Kondo-no oyasumi-niwa doko-ni tsuri-ni iku
next-GEN holiday-DAT.TOP where-DAT fishing-DAT go

no-desu-ka?
NML-COP.POL-Q
'Where are you planning to go for fishing on your next vacation?' (NOKA)

(Yoshida, 1994, 10)

Now recall from (5) that NOKA questions are unnatural for police interrogation. Yoshida (1994) shows that if some context is added, the same NOKA question can be used as in (9). In (9), the police requests the witness to provide the reasons why the witness thought that man is dressed in a distinctive way, hence is suspicious. In other words, the police is intervening the witness's intentional content.

(9) A: Sono otoko-ga ayashii to omotta ndesu ne?
'So you thought that man is suspicious, right?'
B: Hai, hitome-ni tsuku kakkoo-o site imashita kara
'Yes, because he was dressed in an eye-catching way.'
A: Sono otoko-wa donnna fukusoo-o si tei-ta
that man-TOP what clothes-ACC do PROG-PAST
n-desu-ka?
NML-COP.POL-Q
'What clothes was that man wearing?' (NOKA)

(Yoshida, 1994, 9)

Similarly, recall also that NOKA questions are not appropriate for a waitress to take orders. As Ijima (2011) shows in (10), however, the same NOKA question can be used if it is uttered by a friend to ask what the addressee *intends* to have.

(10) The speaker goes to a restaurant for lunch with their boss and asks:
a. Nani-ni nasai-masu ka?
what-DAT do.HON-POL Q
'What would you like to have?' (KA)
b. Nani-ni nasaru n-desu-ka?
what-DAT do.HON NML-COP.POL-Q
'What are you having?" (NOKA)

(Ijima, 2011, 84)

Furthermore, as we have already seen above in (7), NODA questions are inappropriate in the quiz-show context, as the questioner is merely checking whether the respondent has the correct answer rather than intervening their intentional content. Ijima (2011) provides another example of the same contrast as in (11).

(11) a. kamakura-bakufu-wa nannnen-ni
Kamakura.Shogunate-TOP which.year-at
seiritsu-simasita ka?
establishment-do-POLITE-PAST Q

'In what year was the Kamakura shogunate established?' (KA)

b. #kamakura-bakufu-wa nannnen-ni seiritsu-si-ta
Kamakura.Shogunate-TOP which.year-at establishment-do-PAST
n-desu ka?
NML-COP.POLITE Q
'In what year was the Kamakura shogunate established?' (NOKA)
(unnatural as a quiz question) (Ijima, 2011, 85)

To sum up, unlike a KA question, which only marks a simple act of questioning, a NOKA question additionally encodes that the questioner's intention to intervene the addressee's intentional content. The semantics of a Japanese quiz/exam question (i.e. a KA question) is thus an ordinary set of possible answers à la Hamblin (1973) and Karttunen (1977) (See also Section 3.1). A KA question may be uttered as a quiz/exam question in a context where the questioner is the classroom teacher or the MC of a quiz and hence knows the answer. Explaining the distribution of KA and NOKA questions requires an extensive review of vast literature of *noda* sentences (Noda, 1997; McGloin, 1980; Komada, 1986; Yoshida, 1988a,b; Koganemaru, 1988; Koza, 1989; Tanomura, 1990; Mizuno, 1990; Makihara, 1995; Okabe, 1995; Kikuchi, 2000; Ijima, 2010, 2011; Iori, 2013, 2022, to name a few) and is beyond the scope of the current chapter, but I note in passing that the pragmatic blocking effect in the sense of Optimality Theory Pragmatics (Blutner & Zeevat, 2004) might be at work. In a nutshell, since NOKA questions have an extra function, the intervention of the addressee's intentional content in addition to the normal act of questioning that is shared by *ka* questions, NOKA questions are semantically stronger than KA questions. Thus, when the context is such that the questioner attempts to intervene the addressee's intentional content as in (8), a NOKA question is preferred over a KA question, i.e., NOKA blocks the use of default KA.

2.2 *Deshoo ka*↑

The previous section shows that KA questions, which can be used as quiz questions, do not lexically encode the meaning of quiz questions. This section introduces another Japanese interrogative construction, *deshoo ka* with Final High (H%), which may be designated to denote quiz/exam questions.

In Hara (2023), I show that Japanese final modal *daroo* cannot be used in a question uttered with Final Rise (L%H%) as in (12).

(12) *Marie-wa wain-o nomu daroo ka?
Marie-top wine-acc drink daroo Q.L%H%
"I'm wonrdering if Marie drinks wrine, right?"' (Hara, 2023, 96)

However, as noted in footnote 42 in Hara (2023, 131), if *daroo* in a *daroo ka* question is changed to its polite form *deshoo* and the construction is uttered with Final High (H%) instead of Final Rise (H%L%), it becomes felicitous and interpreted as a quiz question.

(13) Doitsu-no shuto-wa doko deshoo ka?
Germany-GEN capital-TOP where DAROO.POLITE Q.H%
'Where is the capital of Germany?' (Hara, 2023, 131)

(14) 9431-wa sosuu deshoo ka?
9431-TOP prime.number DAROO.POLITE Q.H%
'Is 9431 a prime number?' (Hara, 2023, 131)

Miyake (2010) also notes that *daroo ka* questions are used in quiz questions.[2]

(15) gaisenmon-to jiyuu-no-megami-dewa dochira-ga saki-ni
Arc.de.Triomphe-and Statue.of.Liberty-TOP which-NOM first-DAT
tsukurareta deshoo?
made DAROO.POLITE
'Which one is made earlier, Arc de Triomphe or Statue of Liberty?'
(Miyake, 2010, 65)

(16) 4-gatsu 4-kka-wa dare-no tanjoobi deshoo?
April 4th-TOP who-GEN birthday DAROO.POLITE
'Who was born on April 4th?" (Miyake, 2010, 65)

According to Miyake (2010), *daroo ka* questions signify "weak questions, which leave room for the listener to make an indeterminate response" (Miyake, 2010, 63). Since quiz questions do not presuppose that the addressee has a definite answer, they are part of Miyake's "weak questions".

In Section 3.2, I will review two formal analysis that attempt to compositionally derive the quiz-question interpretation from *deshoo ka*↑.

[2]In Japanese *wh*-questions, the interrogativizer *ka* can be dropped, since the question feature [Q] is realized by the *wh*-word (see also Hara, 2023, 132). We obtain the same quiz question interpretation when we insert *ka* in Miyake's examples:

(i) gaisenmon-to jiyuu-no-megami-dewa dochira-ga saki-ni tsukurareta
Arc.de.Triomphe-and Statue.of.Liberty-TOP which-NOM first-DAT made
deshoo ka?
DAROO.POLITE Q
'Which one is made earlier, Arc de Triomphe or Statue of Liberty?'

(ii) 4-gatsu 4-kka-wa dare-no tanjoobi deshoo ka?
April 4th-TOP who-GEN birthday DAROO.POLITE Q
'Who was born on April 4th?'

In contrast, (14) is a polar question, thus if *ka* is removed, it will be a decratative that asserts the speaker's bias or a biased question:

(iii) 9431-wa sosuu deshoo↓/↑
9431-TOP prime.number DAROO.POLITE Q
'Probably, 9431 is a prime number.' or '9431 is a prime number, right?'

3 Formal Analyses of Quiz Questions

The rest of the chapter focuses on formal analyses of quiz questions. Section 3.1 reviews two studies that discuss quiz questions in relation to universal projection of presuppositions in *wh*-interrogatives, Schwarz & Simonenko (2018) and Theiler (2021). Quiz questions are special in that they do not give rise to universal projection. However, both studies do not posit special/non-canonical semantics for a quiz question but its semantics is the same as a canonical information-seeking question, i.e., a set of possible answers, which is in line with the semantics of Japanese KA, which can be used for a quiz/exam question in Section 2.1. Schwarz & Simonenko (2018) and Theiler (2021) differ in the way how they formulate their pragmatic principles and how the contexts of quiz questions are characterized. Finally, Section 3.2 presents two compositional analyses of a *deshoo ka* question with Final High (H%) which can only be uttered as quiz questions.

3.1 Universal Projection and Quiz Questions

Schwarz & Simonenko (2018) and Theiler (2021) both discuss quiz questions as one example of non-canonical questions that do not give rise to universal projection of presuppositions.

Presuppositions of a *wh*-interrogative used as a canonical information-seeking question are known to universally project (Schlenker, 2008; Abrusán, 2014; Nicolae, 2014). To illustrate, in (17), the presupposition triggered by the factive verb *regret* projects universally, thus the question presupposes that Bill invited all ten people.

(17) Who among these ten people does Mary regret that Bill invited?
⇝Bill invited all ten of these people. (Abrusán, 2014, 61)

However, in some contexts, where interrogatives are used non-canonically, universal projection is not attested. Both Schwarz & Simonenko (2018) and Theiler (2021) propose pragmatic principles that account for the presence of universal projection for canonical information-seeking questions and the absence thereof for non-canonical questions. The current chapter discuss their accounts since a quiz/exam question is one example of the non-canonical questions that do not give rise to the universally projected presuppositions.

3.1.1 Schwarz and Simonenko (2018)

Schwarz & Simonenko (2018) propose three violable felicity conditions for canonical questions. To illustrate, let R and S be the *wh*-restrictor property and its scope, respectively:

(18) Who $[_R$ among these ten people $]$ $[_S$ does Mary regret that Bill invited $]_?$

Restrictor Homogeneity (19-a) requires that the extension of the *wh*-restrictor is invariable across the context set. That is, the interlocutors can determine the set of possible answers. In example (18), the speaker and the addressee can idenfity all the ten boys in question. *No Accommodation* (19-b) demands that a questioner aims for the context where accommodation of the presuppositions of possible answers is neither necessary nor possible. That is, the presuppositions of possible answers are either entitled by the context set or incompatible with it. In case of (18), for each x among the ten people, the common ground guarantees that Bill invited x or it guarantees that Bill did not invite x. *Restrictor Economy* (19-c) mandates that the presuppositions of possible answers are compatible with the context set. In (18), for each person x of the ten people, it is compatible with the common ground that x was invited by Bill.

(19) a. *Restrictor Homogeneity*: $\forall v, w \in C.[\![R]\!](v) = [\![R]\!](w)$
b. *No Accommodation*: $\forall x(x \models R(x) \rightarrow (c \models \neg S(x) \vee c \models S(x)))$
c. *Restritor Economy*: $\forall x(c \models R(x) \rightarrow c \not\models \neg S(x))$

When all the conditions are met, a universally projected presupposition obtains.[3] In case of (18), the common ground entails that all of the ten people are invited by Bill.

(20) *wh-R S* is felicitous in c only if
$c \models \forall x(R(x) \rightarrow S(x))$

Now, according to Schwarz & Simonenko (2018), quiz questions are among non-canonical questions which do not give rise to universal projection because quiz questions do not satisfy *Restrictor Homogeneity*. To illustrate, in a quiz show situation, the host can pose (21) to contestants under the scenario described in (22).

(21) Which [$_R$ Japanese Nobel Prize winner] [$_S$ died last month]?
(Schwarz & Simonenko, 2018, 370)

(22) It is common knowledge that there are some Japanese Nobel Prize winners, but there is no x such that it is common knowledge that x is a Japanese Nobel Prize winner. (Schwarz & Simonenko, 2018, 370)

Under this context, there is no individual x in the context set such that x is a Japanese Nobel Prize winner. Thus, the common ground vacuously satisfies *No Accommodation* and *Restrictor Economy* since the restrictor of universal quantification is False for any x. The common ground violates *Restrictor Homegeneity* since it cannot identify the set of Japanese Nobel Prize winners.

Now, (21) does not contain a presupposition trigger. Thus let us consider (23), a variant of (21). Since Restrictor Homegeneity is violated, it is predicted that the question does not engender universal projection.

(23) Which [$_\mathrm{R}$ Japanese Nobel Prize winner] [$_\mathrm{S}$ accused one of his Australian

[3]See appendix of Schwarz & Simonenko (2018, 373) for the proof.

collaborators of plagiarism last month]?
(Schwarz & Simonenko, 2018, 371)

Indeed, (23) does not presuppose that all Japanese Nobel Price winners have Australian collaborators.

Now the central goal of the current chapter is to reveal the semantics and pragmatics of quiz questions. As can be seen, for Schwarz & Simonenko (2018), a quiz question obtains when *Restrictor Homogeneity* is violated, i.e., the context set fails to determine the set of the restrictor. This way of characterizing quiz questions only applies to *wh*-questions, but a quiz question can be a polar question as in (2) or an alternative question as in (15). Moreover, even with *wh*-questions, in asking (1), the show host can assume that they and the contestants share the set of possible answers, i.e., the set of German cities.

Of course, the goal of Schwarz & Simonenko (2018) is not to characterize the semantics and pragmatics of quiz questions but to characterize the properties of universal projection. What we learn here is that some quiz questions do not obey Schwarz and Simonenko's *Restrictor Homogeneity*, to which Schwarz & Simonenko (2018) attribute the absence of universal projection. Theiler (2021) in contrast characterizes quiz questions in a more comprehensive way: A quiz question is asked when the questioner knows the true answer.

3.1.2 Theiler (2021)

Theiler (2021) also discuss quiz questions as an example of non-canonical *wh*-questions which do not engender universally projected presuppositions. Theiler (2021) first critically reviews Schwarz & Simonenko's (2018) analysis and provides another pragmatic analysis which is based on Stalnaker's (1974) bridge principle.

The central idea is that the questioner aims to prevent a scenario where the common ground cannot be properly updated since updating it with the true answer would be infelicitous. In other words, the context set should entail the presuppositions of all possibly true answers, which Theiler (2021) coins "Epistemic Bridge".[4]

To formally implement *Epistemic Bridge*, the approach to handle questions and a few additional concepts are introduced. First, the semantics of a question is treated as a set of possible answers à la Hamblin (1973) and Karttunen (1977). Each member of the set, however, is not a single proposition but a pair of propositions as depicted in (24), where p_α is the at-issue entailment and p_π is the presupposition of p (Champollion et al., 2017).

(24) $p = \langle p_\alpha, p_\pi \rangle$

[4]Original Stalnaker's Bridge does not directly address the felicity of asking a question in relation to its answers. Guerzoni (2003) offers another bridge principle which does aim to characterize the felicity of a question but it only predicts existential projection of presuppositions, thus it fails to account for the robust cases of univeral projection. See Theiler (2021) for discussions.

Thus, supposing that there are three zebras, **a**, **b** and **c**, (25) is analyzed as a set of pairs of propositions: the at-issue proposition that zebra x escaped and the presupposition that zebra x is female for each $x \in \{\mathbf{a}, \mathbf{b}, \mathbf{c}\}$ as in (26).

(25) Which of these three zebras let herself out? (Theiler, 2021, 261)

(26) $[\![(25)]\!] = \{\langle \lambda w.\text{ESCAPED}(w)(\mathbf{a}), \lambda w.\text{FEMALE}(w)(\mathbf{a})\rangle,$
$\langle \lambda w.\text{ESCAPED}(w)(\mathbf{b}), \lambda w.\text{FEMALE}(w)(\mathbf{b})\rangle,$
$\langle \lambda w.\text{ESCAPED}(w)(\mathbf{c}), \lambda w.\text{FEMALE}(w)(\mathbf{c})\rangle\}$

Theiler (2021) further defines a set $Q \restriction \sigma$, which excludes the answers to a question Q the at-issue content of which are inconsistent with the speaker's information state σ:

(27) $Q \restriction \sigma := \{p \in Q | p_\alpha \cap \sigma \neq \emptyset\}$ (Theiler, 2021, 261)

With these notions, Theiler (2021) formalize their *Epistemic Bridge* as follows:

(28) *Epistemic Bridge*
A question Q is felicitous relative to a context set c only if the presuppositions of all answers that the speaker considers possibly true are entailed by the context set (i.e., only if $\forall p \in Q \restriction \sigma : c \subseteq p_\pi$)
(Theiler, 2021, 262)

Let us see how Theiler's *Epistemic Bridge* derives universal projection from canonical information-seeking questions. According to Theiler (2021), we need to consider two scenarios: the first one is where the questioner is entirely ignorant regarding the question Q and the second one is where the questioner possesses some prior knowledge regarding Q. In the first scenario, all possible answers to Q are consistent with the speaker's information state σ. Thus, $Q \restriction \sigma = Q$. This means, *Epistemic Bridge* demands that $\forall p \in Q : c \subseteq p_\pi$. That is, the presuppositions of all possible answers should be entailed by the context set c, which is equivalent to universal projection. To illustrate with a more concrete example, when (25) is posed without any prior context, it is presupposed that all zebras are female.

Now, let us consider the second scenario where the questioner has some prior knowledge, hence $Q \restriction \sigma \subset Q$. For instance, the questioner already knows that escaped zebras are female but does not know which female zebra has escaped. *Epistemic Bridge* requires only that the presuppositions of all members of $Q \restriction \sigma$ (i.e., not the entire Q) should be entailed by c. Thus, the presuppositions do not project universally. Furthermore, uttering (29) induces an implicature that the questioner considers only female zebras as possible answers.

(29) (It is common knowledge that not all salient zebras are female.)
Which of our zebras let herself out of her enclosure?
(Theiler, 2021, 262)

Turning to quiz questions, Theiler (2021, 263) states that "[t]he characteris-

tic property of a quiz question like [(30)] is that the speaker (but not the hearer) already knows the answer".

(30) Which of the five zebras at Franklin Park Zoo gained fame last year by letting herself out of her enclosure and roaming downtown Boston?
(Theiler, 2021, 263)

Assuming that a proposition p^* is the true answer to Q, since the questioner already knows the answer, it follows that $Q \restriction \sigma = \{p^*\}$. *Epistemic Bridge* merely demands that c entails the presupposition of p^*, i.e., $c \subseteq p^*_\pi$. Indeed, (30) does not presuppose that all salient zebras are female, but it implicates that the correct answer should be one of the female zebras.

3.1.3 Summary

Neither Schwarz & Simonenko (2018) nor Theiler (2021) proposes non-canonical semantics for a quiz question, but it simply denotes a set of possible answers as a canonical question does. This is in accordance with the semantic property of Japanese KA questions demonstrated in Section 2.1. A KA questions denotes a simple act of questioning and it is used as a quiz question in certain contexts. As for the characterization of quiz-question contexts, Schwarz & Simonenko (2018) assume that quiz-question contexts are ones where *Restrictor Homogeneity* is not satisfied, i.e., the set of *wh*-restrictors is not determined. Thus, Schwarz and Simonenko's characterization only applies to quiz questions with *wh*-words, though as mentioned above, a polar question (2), an alternative question (15) and a *wh*-question with the determined set of restrictors (1) can be a felicitous quiz question. Theiler (2021), on the other hand, characterizes a quiz-question context in a more intuitive and comprehensive way. In a quiz-question context, the speaker knows the answer and the speaker does not presuppose that the addressee has the answer. This is again in accordance with the description of the scenarios where KA questions are felicitously used as quiz questions as in (4), (7), and (11). Under these scenarios, the questioner, the master of a quiz show or the classroom teacher, is indeed an authority who has the answer.[5]

3.2 Semantics of Japanese *deshoo ka*↑ questions

The previous sections discussed English quiz questions that do not lexically encode the meaning of quiz questions, but they simply denote a set of possible answers, which also applies to Japanese KA questions. They are used as quiz questions in non-canonical contexts, i.e., when the speaker knows the answer. As demonstrated in Section 2.2, however, Japanese has quiz questions that are linguistically non-canonical. *Deshoo ka*↑ questions are felicitous only when they

[5]The pragmatic account proposed by Theiler (2021) also makes better predictions than the one proposed by Schwarz & Simonenko (2018) regarding universal projection of presuppositions. As argued by Theiler (2021), there are cases where *No Accommodation* and *Restrictor Economy* are not satisfied, yet we obtain a universally projected presupposition. See Theiler (2021) for discussions.

are uttered as quiz/exam questions. This section briefly reviews two studies, Hara (2023) and Csipak & Eckardt (2021), which compositionally analyze the quiz-question interpretation of *deshoo ka*↑.

3.2.1 Hara (2023)

Hara (2023) investigates the paradigm of *daroo*-sentences, with clause types (i.e., declarative or interrogative) and intonation (i.e., with or without Final Rise (↑/L%H%)) in (31). (31-a) indicates that the speaker is strongly biased toward the prejacent proposition, (31-b) expresses a self-addressing question, (31-c) serves as a tag-question, and (31-d) is judged ungrammatical:

(31) a. Marie-wa wain-o nomu daroo
Marie-TOP wine-ACC drink DAROO
'Marie drinks wine, I bet./Probably, Marie drinks wine.'
(Falling declarative)

b. Marie-wa wain-o nomu daroo ka.
Marie-TOP wine-ACC drink DAROO Q
'I wonder if Marie drinks wine.' (Falling interrogative)

c. Marie-wa wain-o nomu daroo↑
'Marie drinks wine, right?' (Rising declarative)

d. *Marie-wa wain-o nomu daroo ka↑
'I'm wondering if Marie drinks wine, right?' (Rising interrogative)
(Hara, 2023, 96)

Hara (2023) derives the interpretations and grammatical judgments of *daroo*-sentences as follows. First, the modal auxiliary *daroo* is a kind of ASSERT act operator that yields a use-conditional meaning (Gutzmann, 2015). The content of the assertion contains an entertain modal E_{SPKR_c} in the framework of inquisitive epistemic logic (IEL) (Ciardelli & Roelofsen, 2015):

(32) Hara's Proposal 1
Daroo is a use-conditional assertion act operator. The assertoric content of *daroo* includes an entertain modal E_{SPKR_c} in inquisitive epistemic logic (IEL), which expresses epistemic issues associated to the speaker in context c, SPKR_c. (modified from Hara, 2023)

The key to the analysis is the following fact in IEL: If E_{SPKR_c} applies to a declarative sentence α, $E_{\text{SPKR}_c}\alpha$ becomes equivalent to $K_{\text{SPKR}_c}\alpha$, which corresponds to the knowledge modality in standard epistemic logic. Thus, α-*daroo* is a use-conditional sentence that means 'the speaker believes in α'.

Second, Japanese has three kinds of question operators that change a declarative clause into an interrogative one: *ka*, *ka*↑ and ↑:

(33) Hara's Proposal 2
a. *Ka* and *ka*↑ are morpho-syntactically integrated within the utterance, while ↑ is paratactically associated to the entire utterance.

b. *Ka* is a complementizer that returns a truth-conditional interrogative while *ka*↑ and ↑ are utterance operators that return a use-condition of question acts.

(modified from Hara, 2023)

Thus, a falling *daroo*-interrogative like (31-a) indicates that the speaker asserts that they believe that Marie drinks wine. A falling interrogative like (31-b) expresses that the speaker entertains an issue whether Marie drinks wine. A rising declarative like (31-c) yields a pair of meanings, the assertion that the speaker believes that Marie drinks wine and the question whether it is true, resulting in the tag-question-like interpretation. Finally, a rising *daroo*-interrogative is ungrammatical due to type mismatch: α-*daroo* is a use-conditional sentence of type u while *ka*↑ needs to take an at-issue proposition of type $\langle\langle s,t\rangle t\rangle$ as its argument. The interpretations and semantics types of *daroo*-sentences are summarized as in (34).

(34) Interpretations and types of *daroo*-sentences[6] (Hara, 2023)

	Falling	Rising
Declarative	α-*daroo* $\text{ASSERT}(K_{\text{SPKR}_c}\alpha) : u$	α-*daroo*↑ $\text{ASSERT}(K_{\text{SPKR}_c}\alpha)\blacklozenge\text{QUEST}(\langle ?\rangle\alpha) : u \times u$
Polar Interrogative	α-*daroo ka* $\text{ASSERT}(E_{\text{SPKR}_c}\langle ?\rangle\alpha) : u$	$^{*}\alpha$-*daroo ka*↑ Type-mismatch b/w u & $\langle\langle s,t\rangle t\rangle$

As noted above in Section 2.2, α-*daroo ka* with a different prosody (i.e., Final High (H%) instead of Final Rise (L%H%)) becomes acceptable as a quiz question:

(35) Doitsu-no shuto-wa doko deshoo ka↑
Germany-GEN capital-TOP where DAROO.POLITE Q
'Where is the capital of Germany?'

(36) 9431-wa sosuu deshoo ka?
9431-TOP prime.number DAROO.POLITE Q
'Is 9431 a prime number?'

In footnote 42 in Hara (2023, 131), I speculate that the Final High acts as a modifier of *daroo*. It shifts the knowledge holder of the entertain modality E from SPKR to ADDR. Thus, α-*daroo ka*↑$_{\text{FH}}$ translates to $\text{ASSERT}(E_{\text{ADDR}_c}\langle ?\rangle\alpha)$, which can be paraphrased as 'I assert that you are wondering whether α is true'. In the context of a quiz show as in (35) and (36), the questioner indeed has the authority to force the addressee to entertain the question.

3.2.2 Csipak and Eckardt (2021)

Csipak & Eckardt (2021) also provide an explanation of the quiz/exam question interpretation of *deshoo ka* questions. The main goal of Csipak & Eckardt (2021) is to show why *deshoo ka* questions are interpreted as self-addressing questions

[6] ◆ is a metalogical operator that separates two logical expressions (see McCready, 2010).

by arguing that the particle *ka* presupposes that the addressee is overtly marked in the utterance. To illustrate, information-seeking questions with *ka* usually co-occur with a honorific marker as in (37-a). Otherwise, the question becomes "ungrammatical" as in (37-b).[7]

(37) a. Taro-wa sushi-o tabe-mas-u ka↑
Taro-TOP sushi-ACC eat-HON-PRES ka
'Does Taro eat sushi?' (Inofrmation-seeking qustion ISQ)
b. *Taro-wa sushi-o tabe-ru ka↑
Taro-TOP sushi-ACC eat-PRES ka
Unavailable: 'Does Taro eat sushi?' (ISQ)
(Csipak & Eckardt, 2021, 1)

According to Csipak & Eckardt (2021), (37-b) is ungrammatical because a rising *ka* question requires that the addressee is explicated, that is, the addressee needs to be linguistically encoded in the utterance, but the addressee is not overtly marked in (37-b). In order to implement their analysis, Csipak & Eckardt (2021) define a metalinguistic relation EXPAD, which relates individuals to utterances:

(38) If used in utterance u, uttered in context c:
EXPAD$(ad(c), u)$ is true iff there is at least one morpheme in the sentence uttered in u that denotes $ad(c)$.
(modified from Csipak & Eckardt, 2021, 10)

As in (39), then, a rising *ka* question is analyzed as a question that engenders an expressive meaning that the speaker requests the addressee to answer the question.[8] In addition, the rising *ka* question presupposes that the addressee needs to be explicated, i.e., EXPAD$(ad(c), u)$:

(39) If used in utterance u, uttered in context c:
$[\![ka\uparrow]\!]^c = \lambda Q.Q \bullet (sp(c)$ requests $ad(c)$ to answer $Q)$.
Presupposition: EXPAD$(ad(c), u)$
(modified from Csipak & Eckardt, 2021, 10)

Now, the verbal honorific suffix *mas* in (37-a) is analyzed as an expressive marker of the addressee who is socially higher than the speaker:

(40) If interpreted as part of utterance u in context c,
$[\![$HON-$p]\!] = p \bullet$ EXPAD$(ad(c), u)$
Presupposition: $sp(c) < ad(c)$ (Csipak & Eckardt, 2021, 10)

Thus, (37-a) is acceptable because the addressee is properly explicated as presupposed by *ka*↑. On the other hand, (37-b) is unacceptable because of the

[7] As a native speaker of Japanese, I disagree with the grammatical judgment of (37-b). It may require a certain context where for example, the speaker is an old male, who is addressing his inferiors, but I do not find it grammatically unacceptable.

[8] $\bullet$ is a metalogical operator that connect at-issue and expressive contents (Potts, 2005).

presupposition failure.

Turning to *deshoo ka* questions, when *deshoo* (i.e., *daroo*+honorific) is used in a question with falling intonation, it has two interpretations. One is a self-addressed question as discussed by Hara (2023) and above. The other is a so-called flip question where the speaker invite the addressee to offer their "answer assumptions instead of secure knowledge" (Csipak & Eckardt, 2021, 7).[9]

(41) Taro-wa sushi-o taberu deshoo ka↓
Taro-TOP sushi-ACC eat daroo.HON ka
a. 'I wonder whether Taro eats sushi.' (SAQ)
b. 'Does Taro eat sushi? What do you think?' (FLIPQ)
(Csipak & Eckardt, 2021, 7)

As for the semantics of *daroo*, Csipak & Eckardt (2021) adopt Hara and Davis's (2013) analysis. In a declarative sentence, *p-daroo* yields an expressive meaning that the attitude-holder x (the speaker by default) assumes that p is true:

(42) If used in utterance u and context c
$[\![daroo]\!]^c = \lambda p.p \bullet \textsc{Assume}(x.p, w)$
Presupposition: $(x = sp(c)) \vee (x = ad(c) \& \textsc{ExpAd}(x, u)$
The value of x is determined by anaphor resolution. It must either be the speaker or an explicated addressee in the ongoing utterance.

Unlike rising *ka* questions, falling *ka* questions do not engender expressive meanings nor presuppositions:

(43) $[\![ka \downarrow]\!]^c = \lambda Q.Q \bullet \varphi$,
where φ are the speaker intentions that are contributed by other cues.

Now let us see how Csipak and Eckardt's analysis derives the two interpretations of (41). The attitude-holder of ASSUME can be either the speaker $sp(c)$ or $ad(c)$ because the addressee is explicated by HON. If it is $sp(c)$ as in (44-a), the question is understood as a self-addressing question with an acknowledgment that the speaker speaks formally or is aware of a socially higher addressee. Alternatively, if the subject of ASSUME is $ad(c)$ as in (44-b), then the semantic content of the question is a set of propositions which the addresee assumes to be true. In other words, it is a flip question that can be paraphrased as "what is the answer to Q, what do you think?" (Csipak & Eckardt, 2021, 12).[10]

(44) $[\![daroo\text{-HON-}Q\text{-}ka \downarrow]\!]^c$
a. $= \{p \bullet \textsc{Assume}(sp(c), p, w) : p \in [\![Q]\!]^c\} \bullet \textsc{ExpAd}(ad(c), u)$
Presupposition: $sp(c) < ad(c)$

[9] The flip-question reading of falling *daroo ka* questions is also noted by Hara (2023) in footnote 6 on page 100.

[10] In Csipak & Eckardt's (2021) original notation, not only $\textsc{Assume}(sp(c), p, w)$ but also other non-at-issue contents such as $\textsc{ExpAd}(ad(c), u)$ and $sp(c) < ad(c)$ are included in the specification of question Q.

b. $= \{p \bullet \textsc{Assume}(ad(c), p, w) : p \in [\![Q]\!]^c\} \bullet \textsc{ExpAd}(ad(c), u)$
Presupposition: $sp(c) < ad(c)$

Finally, Csipak & Eckardt (2021) note that their analysis can predict the quiz interpretation of rising *deshoo ka* questions such as (13) and (14), although they do not provide specific examples nor a full derivation as the judgments of native speakers vary.[11] Since rising *ka*↑ has an expressive meaning that the speaker requests the explicated addressee to answer the question, the whole construction denotes the speaker's request for an answer to the question from the addressee based on what the addressee assumes to be true:

(45) $[\![$ *daroo*-HON-Q-*ka* ↑$]\!]^c$
$= \{p \bullet \textsc{Assume}(ad(c), p, w) : p \in [\![Q]\!]^c\} \bullet \textsc{ExpAd}(ad(c), u)$
$\bullet(sp(c)$ requests $ad(c)$ to answer $Q)$
Presuppositions: $sp(c) < ad(c)$, $\textsc{ExpAd}(ad(c), u)$

3.3 Summary

Although Hara (2023) and Csipak & Eckardt (2021) assign a different denotation for each component of a *deshoo ka*↑ question, both of the analyses arrive at similar paraphrases: 'I assert that you are wondering whether α is true' and 'I request you to answer the question based on what you assume to be true'. In both analyses, the *quiz-question-ness* of *deshoo ka*↑ questions seem to arise from the speaker's force to impose the question to the addressee. In classroom or quiz-show scenarios, the teacher or the MC indeed has the power to force students or contestants to respond based on their knowledge. I speculate that this "forceful" connotation comes from the Final High (H%), which shifts the seat of knowledge of the entertain modal E denoted by *daroo* from the speaker to the addressee. Csipak & Eckardt (2021) assume that the honorification also plays an important role by explicating the addressee of the utterance context.

4 Conclusion

It is not difficult to see that quiz questions are pragmatically non-canonical. English interrogative clauses and Japanese default KA questions become quiz questions in non-canonical contexts, i.e., when the questioner is an authority who knows the answer and wants to check whether the addressee knows the answer rather than to elicit new information. There is no need to add any non-canonical syntactic or prosodic markers to render them into quiz/exam questions. However, quiz questions can be syntactically hence semantically non-canonical, too. In Japanese, a *deshoo ka*↑ question, an intricate combination of the modal auxiliary *daroo*, the honorific morpheme, the question particle *ka* and the Final prosody H% is only allowed to be a quiz question.

[11] As mentioned in Hara (2023) and Section 3.2.1 above, I assume that the quiz question interpretation is obtained with Final High (H%), while *deshoo ka* questions with Final Rise (L%H%) are judged ungrammatical.

This chapter has demonstrated that investigating syntax, prosody, semantics and pragmatics of quiz questions shed new light on questions and information exchange in general. First, as noted in Section 2.1, the distribution of Japanese KA and NOKA questions calls for a pragmatic explanation such as Horn's (1984) division of pragmatic labor or the blocking effect in OT pragmatics (Blutner & Zeevat, 2004). Second, in Section 3.1 we have seen that examining the pragmatics of non-canonical questions such as quiz questions reveals how universally projected presuppositions arise from canonical questions and helps formulate pragmatic principles that apply to all questions, such as Theiler's (2021) *Epistemic Bridge*. Finally, Japanese *deshoo ka*↑ questions discussed in Section 3.2 showcased the discourse markers such as the honorific morpheme and the final prosody that can shift the holder of knowledge or even affect the speech act.

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