

Conventionally Implicated Questions

Satoshi Tomioka and Jooyoung Kim
University of Delaware

Abstract: Japanese and Korean can embed interrogative sentences without any predicates that semantically select questions. This paper examines the semantics and pragmatics of one type of such questions, which we call Speaker-Oriented Embedded Questions (SOEQs). We propose that SOEQs contribute to the level of the Conventional Implicatures (CIs) tier in the sense of Potts (2005) but they do so as questions, not as propositions. We further argue that SOEQs are best analyzed as self-addressing questions that seek explanations for the propositions denoted by the clauses that host them. A variety of restrictions, such as speakers' biases and embedding, follow naturally from our proposal. By expanding the territory of CIs to questions, this paper advocates the view that not-at-issue content is richer and more diverse than the previous literature has assumed.

Keywords: Conventional Implicature, embedded questions, self-addressing questions, biases, rhetorical relations

1 Unselected Subordinate Questions in Japanese and Korean

Recursion is one of the defining features of human language. Sentences, including interrogative sentences, can be parts of larger structures. Typically, an embedded interrogative sentence requires the presence of a predicate that semantically selects a question. In the following examples, the underlined predicates select interrogative clauses as their arguments.

- (1) a. Anna asked Bertha *what time it was*.
b. Dora knows *who wrote the poison letter*.
c. *Who will win the election* depends on *who secures Erika's support*.

We say 'typically' because there are some cases of embedded questions (abbreviated as EQs) that are not selected by any predicates. This paper focuses on a particular type of unselected EQ in Korean and Japanese, which is exemplified in (2) and (3).

- (2) [Pi-ka w-ass-nun-ci] matang-i ceceiss-ta. (Korean)
rain-Nom come-Past-Ind-Q ground-Nom wet-Decl
Lit.: '[Whether it was raining], the ground is wet.'
- (3) [Ame-ga hut-ta-no-ka] jimen-ga nurete-iru. (Japanese)
rain-Nom fall-Past-NML-Q ground-Nom wet-Prog
Lit.: '[Whether it was raining], the ground is wet.'

Unlike canonical ‘selected EQs’, there are no question-selecting predicates in these sentences. This type of unselected EQ is not limited to polar questions like the examples above: wh-questions and disjunctive questions can also appear unselected. (4a) and (4b) are relevant examples from Korean.

(4) a. Wh-question

[Totaychay nwu-ka mwul-ul ppwuly-ess-nun-ci] matang-i ceceiss-ta.
 on.earth who-Nom water-Acc sprinkle-Past-Ind-Q ground-Nom wet-Decl

Lit.: ‘[Who on earth sprinkled the water], the ground is wet.’

b. Disjunctive question

[Pi-ka w-ass-nun-ci] [nwukwunka-ka mwul-ul ppwuly-ess-nun-ci]
 rain-Nom come-Past-Ind-Q somebody-Nom water-Acc sprinkle-Past-Ind-Q
 matang-i ceceiss-ta.
 ground-Nom wet-Decl

Lit.: ‘[Whether it rained or somebody sprinkled water], the ground is wet.’

In all of these examples, the EQs have a particular semantic relation with the matrix clauses. In the speaker’s mind, the answers to the EQs are likely causes of the events described by the matrix clauses. In (2) and (3), for instance, the speaker speculates that the ground is wet because it rained. Importantly, however, the speaker is not certain whether it indeed rained. Thus, the meaning of a sentence with an unselected EQ can be summarized as follows.

- (5) When the speaker *S* utters a sentence of the form ‘*Q, p*’, where *Q* is an unselected embedded question and *p* a declarative sentence;
- a. *S* asserts *p*,
 - b. *S* does not know (for sure) the correct answer to *Q*,
 - c. *S* speculates that the answer to *Q* is a likely cause of the event described by *p*.

We call this construction ‘Speaker-oriented Embedded Question’ (SOEQ), as its meaning is tied to the speaker’s attitude towards the main proposition. To represent this meaning in the English translation, we use a bracketed root question for the meaning of an SOEQ (e.g., ‘{Was it raining?}, the ground is wet.’ for (2) and (3)) in all the subsequent Korean and Japanese examples.

It should be pointed out that the semantic/pragmatic contributions of SOEQs in Japanese and Korean make it clear that the construction in question cannot be analogized to the two attested types of unselected interrogative sentences, shown below, which are superficially similar but have completely different meanings.

(6) EQs as Unconditionals in English (cf. Gawron 2001; Rawlins 2008)

Whether Tom leaves or not / whether Tom leaves or stays / whatever Tom does, Jon won’t stay past midnight.

(7) Question-Answer Clause in ASL (cf. Caponigro and Davidson 2011)

[_{Q-constituent} JOHN BUY WHAT] [_{A-constituent} BOOK]
 ‘What John bought was a book.’

In (6), the question has a function similar to the concessive conditional clause: regardless of the answer(s) to the question, the main clause holds. This meaning is definitely different from that of an SOEQ in Japanese and Korean. In the ASL example (7), a question and its answer are put together within the same sentence, and the result is akin to the pseudo-cleft construction. Again, it is semantically far removed from what an SOEQ means.

The challenges that SOEQs bring about are two-fold. First, it must be demonstrated that an SOEQ can be successfully integrated in the matrix clause without any overt predicate that semantically selects it. Second, one must find a way to derive the semantic/pragmatic contributions of an SOEQ, the speaker's ignorance of the answer to the EQ (= (5b)) and the speaker's speculation about a possible causal link between the EQ and the main clause (= (5c)). Before tackling these challenges, however, we feel it necessary to justify our assumption that SOEQs are indeed embedded clauses. So far we have not ruled out the possibility that an SOEQ is not really embedded but is a root question that is juxtaposed with a declarative sentence. It is a legitimate concern, but we believe that there is enough evidence for the embedded status of SOEQs.

First, an SOEQ can be placed practically anywhere within its host sentence as long as it precedes the matrix predicate.

- (8) [Dare-ni kiita-no-ka] Mana-wa [dare-ni kiita-no-ka] sono-uwasa-o
 [who-Dat head-NML-Q] Mana-Top [who-Dat head-NML-Q] the-rumor-Acc
 [dare-ni kiita-no-ka] moo sitte-ita.
 [who-Dat head-NML-Q] already know-was
 ‘{Who did she hear it from?}, Mana already knew the rumor.’

This distributional property patterns together with that of other typical adjunct clauses, such as temporal adjuncts and *because*-clauses, and such freedom is not commonly observed with two root clauses combined.

Second, one of the clearest distinctions between root and embedded clauses in Japanese and Korean is the morphological marking for politeness. (9a) is a grammatical root question in Korean with the politeness particle *-sup*. (9b) shows that a selected embedded question cannot host the particle. Japanese shows the same pattern.

- (9) a. Secay-ey ilk-kosip-un chayk-i iss-sup-ni-kka?
 study-Loc read-want-Adn book-Nom be-Polite-Ind-Q
 ‘Is there a book you want to read?’
 b. Ku-nun [secay-ey nwukwunka-ka iss-(*sup)-ni/nun-ci]-lul al-koiss-ta.
 he-Top [study-Loc somebody-Nom be-Polite-Ind-Q]-Acc know-Prog-Decl
 ‘He knows whether somebody is in the study.’

SOEQs also fail to have the politeness marker, as illustrated in the Korean example (10). Thus, SOEQs pattern with subordinate questions, rather than with root questions in this regard.

- (10) * [Pi-ka w-ass-sup-ni/nun-ci] matang-i ceceiss-ta.
 rain-Nom come-Past-Polite-Ind-Q ground-Nom wet-Decl
 ‘{Was it raining?}, the ground is wet.’

It should also be pointed out that two root clauses that have heterogeneous styles in politeness often lead to a stylistic anomaly. In the Japanese example below, for instance, a sentence in the plain style is followed by another in the polite form. The result is a stylistically very odd sequence.

- (11) # Dooro-ga totemo konde-i-ta. Dakara densya-de ki-mashita
 Street-Nom very congest-Prog-Past(plain) Thus train-Inst come-Past(polite)
 ‘The traffic was bad, so I came here by train.’

However, there is no oddness whatsoever in the SOEQ case (11), in which the same stylistic mismatch between the two clauses is observed. The felicity of this sentence would be left unaccounted for if an SOEQ were a root clause.

- (12) Dooro-ga totemo konde-i-ta-no-ka. Mika-wa densya-de
 Street-Nom very congest-Prog-Past(plain)-NML-Q Mika-Top train-Inst
 ki-mashita
 come-Past(polite)
 ‘{Was the traffic bad?}, Mika came here by train.’

Thirdly, the question marker for an SOEQ in Japanese must be *-ka*. This restriction applies to all the other embedded questions in Japanese. Although *-ka* appears frequently with root questions in the polite speech style, it is quite rare in the plain speech style.

- (13) (#) Ame-ga hut-ta-no-ka?
 rain-Nom fall-Past-NML-Q
 ‘Did it rain?’

On the other hand, root questions allow a variety of question particles, such as *-no*, *-no-kai* for a polar question, or *-n-dai* for a wh-question.¹ None of those ‘root’ endings are allowed in either selected embedded questions or SOEQ. The following are examples with *-no-kai*.

- (14) a. Mako-wa moo kaetta-no-kai?
 Mako-Top already went.home-NML-Q
 ‘Did Make go home already?’
 b. *Boku-wa [Mako-wa moo kaetta-no-kai] sir-anai
 I-Top [Mako-Top already went.home-NML-Q] know-Neg
 ‘I don’t know whether Make went home already.’
 c. * [Mako-wa moo kaetta-no-kai] kuruma-ga nai
 [Mako-Top already went.home-NML-Q] car-Nom Neg
 ‘{Did Make already go home?}, the car is not there.’

Therefore, the restriction on question particles strongly suggests that SOEQs are indeed subordinate questions.

The question-morphemes in Korean also indicate the embedded status of SOEQs. The root ending *-ci* and the embedded ending *-ci* differ in terms of the compatibility with the indicative marker *-(n)un*. As illustrated in (15) and (16), *-ci* as a root ender must not occur with *-(n)un*, whereas *-ci* as an embedded ender requires it.

- (15) a. Pi-ka w-ass-Ø-ci?
 rain-Nom come-Past-Q
 ‘Did it rain?’

¹The latter two endings are found in dialects in and near Tokyo. See Yoshida (1999) for discussion.

- b. * Pi-ka w-ass-nun-ci?
rain-Nom come-Past-Ind-Q
- (16) a. * Ku-nun [pi-ka w-ass-Ø-ci]-lul al-koiss-ta.
he-Top rain-Nom come-Past-Ind-Q-Acc know-Prog-Decl
'He knows whether it rained.'
- b. Ku-nun [pi-ka w-ass-nun-ci]-lul al-koiss-ta.
he-Top rain-Nom come-Past-Ind-Q-Acc know-Prog-Decl

Once again, SOEQs pattern with embedded questions, as the presence of *-nun* is obligatory.

- (17) * [Pi-ka w-ass-Ø-ci] matang-i ceceiss-ta.
rain-Nom come-Past-Ind-Q ground-Nom wet-Decl
Intended: '{Was it raining?}, the ground is wet.'

To summarize, there is compelling evidence from the morpho-syntax of SOEQs that they are indeed subordinate questions.

2 Speaker-oriented Embedded Questions as Conventional Implicatures

2.1 Semantics of Supplements

In the first section, we presented the three components of the meaning of SOEQs. However, native speakers have the intuition that those parts do not carry equal weight. The declarative part seems to be the main function of the sentence whereas the part related to the embedded question is secondary to the declarative part. For instance, in uttering (2a) or (2b), the speaker, first and foremost, asserts that the ground is wet. The other meaning components – the speaker's ignorance of whether it rained or not and her speculation that the ground is wet because it rained – constitute some kind of supplementary information. In our pursuit of the semantics of SOEQs, we address this issue of the primary/secondary division first.

There are some expressions that have been characterized as 'expressions of supplementary information'. Non-restrictive relative clauses and nominal supplements are among such expressions and are extensively discussed in Potts (2005).

- (18) a. Ephesus, which is near present-day Selcuk, Turkey, is one of the best-preserved ancient Roman cities.
- b. Andy Murray, the first local Wimbledon champion in 77 years, is actually not English but Scottish.

In the influential theory of Potts (2005), the semantic contributions of those supplemental expressions are considered *Conventional Implicatures (CI)*. The following is the bullet-point summary of his analysis.

- (19) a. The meaning of a sentence is divided into two major categories; at-issue meaning and not-at-issue meaning. The former corresponds to what Grice (1975) called 'what is said'. Conventional Implicature (CI) is one of the not-at-issue meaning types.

- b. ‘CIs are commitments, and thus give rise to entailments’ (Potts, 2005, p.11, (2.10.b)). In other words, unlike conversational implicatures, they cannot be cancelled.
- c. CIs come about because the speaker has chosen the lexical items that have those CIs. Therefore, they are speaker-oriented.
- d. CIs are independent of the at-issue entailments. In a declarative sentence, for instance, a CI of that sentence is not a part of the truth condition of the sentence.
- e. CIs are interpreted compositionally into the CI tier, which is independent of the at-issue tier.

Potts (2005) provides several diagnostic tests to identify CIs, and they are all applicable to SOEQs in Japanese and Korean as well. First, CIs are speaker-oriented, and so are the meanings of SOEQs. The two semantic contributions of a SOEQ, namely the ignorance of the answer and the speculation on the causal relation, are both from the speaker’s point of view.²

Second, the CI content cannot be targeted for negation or denial. The following example exemplifies the deniability contrast between at-issue content and CIs.

- (20) Andy Murray, an Englishman, was the Roland Garros champion in 2013.
 - a. No, that’s not true. He didn’t win there; he won Wimbledon that year.
 - b. # No, that’s not true. He is a Scotsman.

Since an EOEQ is a question, the notion of negation or denial may not be easily definable. It can be nonetheless argued that SOEQs pattern like CIs in this respect as well.

- (21) A: [Pi-ka w-ass-nun-ci] matang-i ceceiss-ta.
rain-Nom come-Past-Ind-Q ground-Nom wet-Decl
‘{Was it raining?}, the ground is wet.’
- B: # Aniya, [nwukunka-ka mwul-ul ppwuly-ess-nun-ci] matang-i ceceiss-e.
No, somebody-Nom water-Acc sprinkle-Past-Ind-Q ground-Nom wet-Decl
‘No, {did someone sprinkle water?}, the ground is wet.’

The intended reading of (21B) is ‘No, (whether it was raining is not the right question to wonder), it is whether someone sprinkled water that one must consider here.’ Such a response is completely infelicitous.

Third, CI contents are anti-backgrounded. This is the property that clearly separates CIs from presuppositions. For instance, the Andy Murray example (18b) cannot be uttered after we have discussed the result of Wimbledon 2013 and its historical importance. Similarly, SOEQs cannot be ‘familiar questions’ that have been addressed at the time of the utterance. For instance, imagine a situation where a group of students meet and talk about their friend Mina. The result of the test Mina took a week ago has been announced, but they don’t know the outcome. They are talking among themselves about whether she has passed or not. In this context, it is very awkward to say

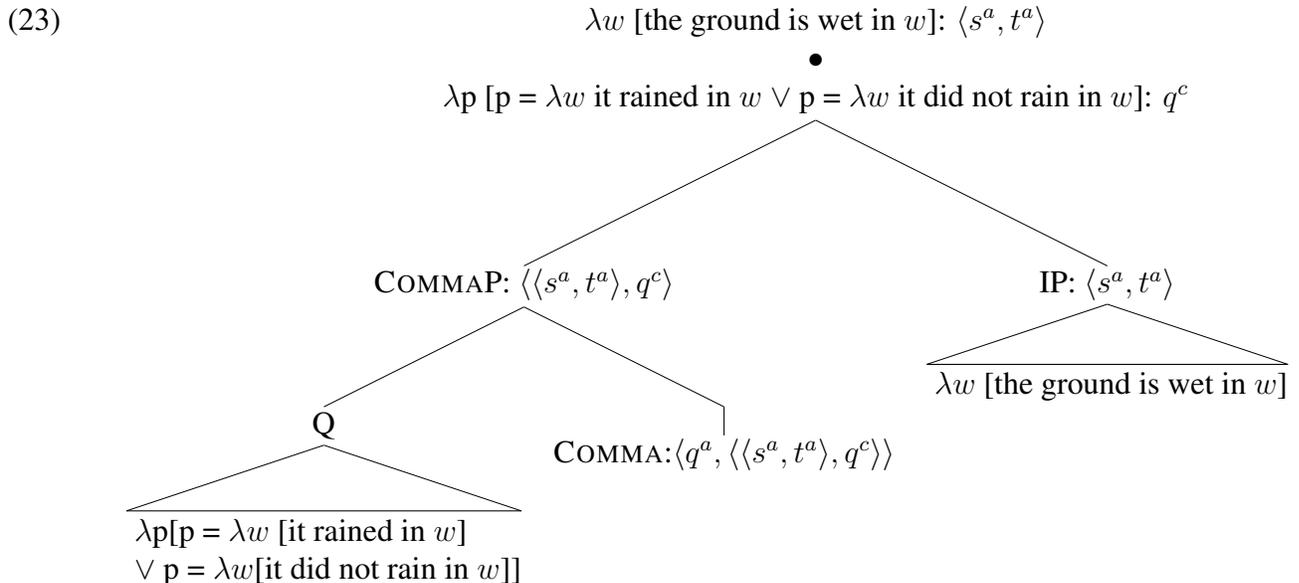
²One natural question that arises in connection to the speaker-orientation is what happens when an SOEQ is embedded under an attitude verb. A supplement in English, like a non-restrictive relative clause or a nominal supplement, can appear under the scope of an attitude verb. Potts (2005) claims that these expressions are always speaker-oriented in such an environment although his generalization has been challenged (e.g., Amaral et al. 2008). Perhaps surprisingly, SOEQs are actually not licensed at all under the scope of an attitude verb. We will discuss the (un)embeddability of SOEQs in Section 5.

a sentence like (22) since the embedded question has already been discussed (although it has yet to be resolved).

- (22) # [Sihem-ey hapkyekha-yss-nun-ci] Mina-ka achim-ey misocic-koiss-ess-ta.
 test-Loc pass-Past-Ind-Q Mina-Nom morning-Temp smile-Prog-Past-Decl
 ‘{Did she passed the test?}, Mina was smiling in the morning.’

Finally, CI-inducing supplements and SOEQs share the same lexical trigger: what Potts (2005) calls *COMMA*, an intonational morpheme. While CIs are conventional in the sense that they are associated with particular lexical items, one does not find overt expressions that can carry such information in the supplementary expressions. Potts (2005) assigns the relevant convention to an intonational property, whose lexical specification triggers the shift from the at-issue tier to the CI tier. SOEQs in Japanese and Korean also require the comma intonation, and this intonational property functions as a marker for speaker-oriented reading in Japanese and Korean.

Our analysis closely follows Potts’ treatment of supplements, but there is one crucial difference. The supplemental expressions analyzed in Potts (2005) are predicates which select at-issue arguments and return not-at-issue propositions. The compositional steps we envision for SOEQs are different. While questions are, technically speaking, functions as well, SOEQs do not interact with any at-issue elements (= the matrix clauses to which they attach) via functional application. Thus, we propose that (i) the *COMMA* morpheme first attaches to an SOEQ, (ii) the SOEQ + *COMMA* denotes a constant function such that, regardless of the argument it gets, it returns the question meaning of the SOEQ as a not-at-issue tier, as illustrated below. In this derivation, we abbreviate the question type $\langle\langle s, t \rangle, t \rangle$ as the type q .³



2.2 SOEQs as CI elements

The idea that SOEQs in Japanese and Korean belong to the CI tier raises a new set of questions. First, with our standard understanding that implicatures are propositions, it is not clear what it

³We have decided to use this abbreviation because we are unsure what semantic type should be assigned to a CI question. The possible candidates are $\langle\langle s^a, t^a \rangle, t^c \rangle$, $\langle\langle s^a, t^c \rangle, t^c \rangle$, and $\langle\langle s^c, t^c \rangle, t^c \rangle$. We leave this as an open question.

means to have questions as CIs. The actual effects of SOEQs can be stated as propositions: (i) the speaker does not know the answer for sure (the speaker’s ignorance), and (ii) the speaker speculates that the answer to an SOEQ is a likely cause of the main clause event (the speaker’s causal speculation). Is it feasible, then, to ‘propositionalize’ SOEQs? Such a strategy would require the addition of an implicit question-selecting predicate (i.e., *I don’t know*) and a hidden *because*, which we believe is rather ad hoc and is hard to justify conceptually.⁴ We propose instead that SOEQs remain as questions in the CI tier. Thus, a declarative sentence that embeds an SOEQ has two discourse functions. It asserts the proposition denoted by the main clause and at the same time poses a question that corresponds to the SOEQ. One property of SOEQs which is derived directly from the current analysis is the speaker’s ignorance/uncertainty. If the speaker is asking a question by embedding an SOEQ, it follows that the speaker does not know the answer to it. The speaker’s ignorance of the answer is one of the Preparatory Conditions for a question act in Searle (1969).

We believe that the other half of the meaning – the speaker’s causal speculation – is also derivable simply by assuming that an SOEQ is a question that the speaker asks. However, let us shelve this issue for the time being and move on to the more urgent issues: What contribution to the conversation does an SOEQ make, and how does it differ from that of an ordinary root question? To answer these questions, let us first review what CI propositions do in Potts’ theory. As a non-backgrounded proposition, a CI represents new information. Adding new information updates the collective knowledge/beliefs of the conversation participants, in other words, the Stalnarkarian Context Set, which is a set of possible worlds in which all the propositions that the participants believe are true. However, the update effect by a CI is “de-emphasized” (Potts, 2005, p.33), compared to its ‘at-issue’ counterpart. We propose to make a parallel case for CI questions. They perform the same function as ordinary ‘at-issue’ questions do, albeit in a de-emphasized way. We will present a formal analysis of de-emphasized questions in the following section, but before doing so, we point out that the de-emphasized nature of an SOEQ can be clearly seen by how a sentence with an SOEQ can be followed. As the example below illustrates, one can comment on the asserted proposition or provide an answer to the SOEQ.

- (24) [Ame-ga hut-ta-no-ka] jimen-ga nurete-imasu-ne.
[rain-Nom fall-Past-NML-Q] ground-Nom wet-Prog-DM
‘{Was it raining?}, the ground is wet.’
- a. Aa, demo sugu kawaku-desyoo.
Ah, but soon dry-Evid
‘Ah, but it will dry up in no time.’
- b. Ee, tasikani ame huri-masita-yo
yes, indeed rain fall-Past-DM
‘Yes, it rained indeed.’

However, it is important to stress that the optionality between the two does not mean that the two meanings (the ‘at-issue’ asserted meaning and the ‘not-at-issue’ question meaning) are of equal importance. By choosing to answer to the SOEQ, as in (24b), the speaker implicitly accepts the asserted proposition so that it is now common knowledge that the ground is wet. With (24a), on

⁴There are some serious empirical problems for such a theory as well, and we will revisit them when we discuss biased questions in a later section.

the other hand, the speaker is totally uncommitted to either answer to the question of whether it rained or not. Such a response seems neither uncooperative nor incomplete, and the speaker of the SOEQ-containing sentence should not be disappointed or offended that the SOEQ was not answered. This asymmetry clearly shows that the assertion of the proposition is more prominent than the posing of the SOEQ.

2.3 CI Questions as Self-Addressing Questions

The idea of SOEQs as de-emphasized questions matches our intuition. The difficulty is to give a formal definition to it. The act of asking a question can be characterized as an updating operation on a set of questions that “represents issues which the conversation will, ideally, resolve (Portner, 2004, p.237).” This set has been called by various names; *Discourse Topics* (von Stechow, 1994), *Questions Under Discussion or QUD* (Roberts, 1996), *Question Set* (Portner, 2004). An SOEQ is added to this set of questions in the context. As a de-emphasized question, it is a less urgent question, and the discourse would not stall if it is left unanswered. Then, let us seek a way to capture this lack of urgency. In her influential theory of discourse, Roberts (1996) defines QUD as follows.

- (25) **QUD**, the questions-under-discussion stack, is a function from M (‘moves’ in the discourse) to ordered subsets of $Q \cap \text{Acc}$ (= Accepted moves) such that for all $m \in M$:
- a. for all $q \in Q \cap \text{Acc}$, $q \in \text{QUD}(m)$ iff
 - i. $q < m$ (neither m nor any subsequent questions are included), &
 - ii. $\text{CG}(m)$ fails to entail an answer to q and q has not been determined to be practically unanswerable.
 - b. $\text{QUD}(m)$ is (totally) ordered by $<$.
 - c. for all $q, q' \in \text{QUD}(m)$, if $q < q'$, then the complete answer to q' contextually entails a partial answer to q .

It seems rather complicated, though perhaps not impossible, to encode the notion of a non-urgent question in this definition of QUD. The most recently added question should be the first on the QUD stack, and it won’t be removed until it is answered or deemed unanswerable. Intuitively speaking, asking a non-urgent question may be considered a discourse move which places the question somewhere in the middle of the question stack. It is not clear, however, whether such a move can be formally integrated into Robert’s theory, as it did not envision a scenario in which a proposition is asserted with a question accompanying it as a secondary move. We therefore do not formalize the notion of a secondary update and leave it as informal as in Potts’ description of ‘de-emphasized’ update.

We nonetheless believe that there is a different aspect of the indirectness of an SOEQ that is formalizable. We argue that SOEQs are not presented as ‘community’ questions for all interlocutors to discuss but rather as ‘self-addressing’ questions. Thus, strictly speaking, SOEQs do not affect the QUD stack directly. However, the speaker makes it public that she has some question in mind, which indirectly encourages the addressee to entertain the question without feeling obliged to answer.⁵ We believe that this way of characterizing SOEQs strikes the right balance; SOEQs are the kind of questions that the speaker would be happy if they were answered but would not be

⁵Self-addressing questions may be related to what Little et al. (2010) calls *Conjunctural Questions*.

overly disappointed if they were ignored. The idea of an SOEQ as a self-addressing question is based on the intuition that the function of an SOEQ is close to the English expression *I wonder Q*.

(26) The ground is wet, and I wonder whether it rained.

The relevance of the comparison is quite obvious. The second conjunct of *I wonder Q* is a performative sentence with a first person singular subject. Therefore, it is naturally speaker-oriented. It is also uttered to indicate that the speaker is posing herself a question and acknowledges it publicly. Thus, it can be easily regarded as an instance of self-addressing question that is made public. Its semantic/pragmatic effects are also very similar. The example above (without *or not*) indicates that, just like the SOEQ cases in Korean and Japanese, (i) the speaker does not know (for sure) that it rained, and (ii) but the speaker thinks that, if it did, it would be a reasonable cause of the ground being wet.⁶ We will return to the comparison between an SOEQ and *I wonder Q* in the next section, which will reveal some interesting asymmetries between the two structures. At this point, however, we focus on their interpretive similarities to motivate the idea of SOEQs as self-addressing questions.

In order to analyze SOEQs as self-addressing questions, we adopt the proposal by Hara and Davis (2013), who make use of *Inquisitive Update* (Groenendijk, 1999; Isaacs and Rawlins, 2008, among others). Inquisitive semantics is a branch of dynamic semantics (Stalnaker, 1975; Karttunen, 1976; Heim, 1982; Groenendijk and Stokhof, 1991), which treats the meaning of an expression as its context change potential (CCP). Unlike the standard Stalnakerian understanding of the context set as a set of possible worlds in which all the beliefs shared by the conversation participants are true, the Inquisitive semantic version is a set of ordered pairs of possible worlds that are compatible with the propositions which all the conversation participants believe. When an assertion is made and the participants accept it, the context undergoes “informative update” or “assertive update”, in which all the pairs of worlds where the asserted proposition is false are eliminated. This process, illustrated in (27a), has the same updating effect as the traditional Stalnakerian model. On the other hand, the impact of asking a question is quite different in the two models. Since a question is neither true or false, asking a question is not a proposal to eliminate any possible worlds from the context set. In the traditional model, therefore, the context set is affected only after the question is answered and the answer was accepted. What a question changes is the set of relevant questions (i.e., QUD), rather than the context set itself. In the system of Inquisitive semantics, however, a question also affects the context set, albeit in a way different from an ordinary assertion. It leads conversation participants to consider possible answers for the question, which in turn means that the speaker asks the interlocutor(s) to partition the context into equivalence classes of possible worlds “where the answers to the question are the same (Groenendijk, 1999, p.112).” This process is “inquisitive update” and is defined as in (27b).

(27) (Isaacs and Rawlins 2008, (4–5), reformulated from Groenendijk 1999)

⁶Interestingly, this expression seems anti-backgrounding, just like SOEQs.

- (1) A: Has anyone broken the news to Mari?
B: I don't know, but she already knows. ?? I wonder if anyone has told her.

a. **Assertive update (\oplus) on contexts**

For any context (set) c and clause ϕ :

$$c \oplus \phi =_{\text{def}} \{ \langle w_1, w_2 \rangle \in c \mid \llbracket \phi \rrbracket^{w_1, c} = \llbracket \phi \rrbracket^{w_2, c} = 1 \}$$

b. **Inquisitive update (\otimes) on contexts**

For any context c and clause ϕ :

$$c \otimes \phi =_{\text{def}} \{ \langle w_1, w_2 \rangle \in c \mid \llbracket \phi \rrbracket^{w_1, c} = \llbracket \phi \rrbracket^{w_2, c} \}$$

Putting it informally, a question is asked in order to prepare for a forthcoming assertive update. For instance, by asking the question ‘Did Anna attend the meeting?’, the speaker tells the interlocutor to be ready for the context set to shrink either by losing all the worlds in which Anna attended the meeting or those in which she didn’t. This notion of ‘preparation for an upcoming assertive update’ is reflected on the context set itself in the Inquisitive framework.

Hara and Davis (2013) presents an Inquisitive semantic analysis of self-addressing questions in Japanese which takes the form of *darou*, a type of modal particle, followed by the question marker *ka*.

(28) ashita hareru darou ka.

tomorrow sunny DAROU Q

‘I wonder if it will be sunny tomorrow.’ (part of Hara and Davis 2013, (11))

Hara and Davis (2013) argue that a self-addressing question like (28) does not update the ‘global’ context set but rather the speaker’s belief worlds: $\text{Dox}_{\text{spkr}}(c)$. We adopt this analysis for SOEQs but with a slight modification: A real self-addressing question can be uttered as a monologue without audience. The main clause that embeds an SOEQ is a declarative sentence which as a whole assertively updates the context. In other words, the main function of the sentence presupposes the existence of an audience, and an SOEQ, embedded under such a sentence, should also presuppose an audience. Therefore, we suggest that SOEQs are self-addressing questions that update, not just the speaker’s belief worlds, but the speaker’s public belief worlds that are made public. This is called the speaker’s *commitment set* in Gunlogson (2001). The following is an illustration of the context update by our very first SOEQ sentence.⁷

(29) Context Update by ‘{was it raining?}, the ground is wet’

a. Primary Update: $c \oplus \llbracket \text{the ground is wet} \rrbracket = \{ \langle w_1, w_2 \rangle \in c \mid \llbracket \text{the ground is wet} \rrbracket^{w_1, c} = \llbracket \text{the ground is wet} \rrbracket^{w_2, c} = 1 \}$

b. Secondary Update: $\text{Commit-Set}_{\text{spkr}}(c) \otimes \llbracket \text{whether it rained} \rrbracket = \{ \langle w_1, w_2 \rangle \in c \mid \llbracket \text{it rained} \rrbracket^{w_1, c} = \llbracket \text{it rained} \rrbracket^{w_2, c} \}$

2.4 Summary

We have argued that SOEQs are questions that belong to the category of conventional implicature (CI). While a question as a CI may sound unusual, the system developed in Potts (2005) can accommodate such a concept. The secondary nature of the update function of an SOEQ is a result of its being a self-addressing question: An SOEQ inquisitively updates the speaker’s commitment set. In other words, it signals the speaker’s public acknowledgment of having a question in mind.

⁷It is certainly possible to consider the primary update (the assertive update) is also on the speaker’s commitment set as the first step. However, we are not concerned with the distinction between the global update and the personal update.

3 SOEQs as Explanation-Seeking Questions

3.1 More on *p*, and *I wonder Q*

We have so far identified the meaning of an SOEQ as a question in the CI tier. The primary discourse function of a sentence containing an SOEQ is the assertion of the main clause, and we have argued that an SOEQ inquisitively updates the speaker's public belief as the secondary discourse function of the sentence. In this regard, we have compared SOEQ sentences in Korean and Japanese with English examples of the form *p*, and *I wonder Q*.

- (30) The ground is wet, and I wonder whether it rained.

The second conjunct indicates the speaker's ignorance as well as her speculation of a causal link between the first conjunct and a positive answer to the embedded question. The presence of the second meaning is a good indication that such a meaning can be generated by simply introducing into the context a question relevant to the main assertion. We therefore argue that an SOEQ, a self-addressing question that belongs to the CI tier, elicits the causal meaning without the implicit presence of CAUSE or any predicate of a similar sort.

Although we believe that *I wonder Q* is a reasonably comparable counterpart to an SOEQ in Japanese and Korean, there are a few important differences between them. First, the update effect of the English *p*, and *I wonder Q* seems more prominent than that of SOEQs. Its meaning is most likely in the domain of the at-issue tier, and the expression often serves as an indirect and polite invitation to consider the question as a common question to be discussed (i.e., QUD). The native English speakers we consulted find it rather uncivil to ignore the question posed by *I wonder Q* completely, while Japanese and Korean speakers find no such ill effects in not addressing the question raised by an SOEQ. It is not easy to compare this type of pragmatic judgment across languages, but we are inclined to believe that the contrast is real and should be attributed to the 'de-emphasized' status of the update function of SOEQs. In other words, the indirectness of an SOEQ cannot be attributed solely to its status as a self-addressing question, and we should maintain the 'primary vs. secondary update' distinction that Potts (2005) proposed. Secondly, the English *p*, and *I wonder Q* can host a question that means something like "what will happen, given *p*", but such a question cannot take the form of an SOEQ.

- (31) a. The meeting has been canceled, and I wonder what will happen now.
b. # *Kore-kara doo-naru-no-ka, kaigi-wa kyanseru-ni natta.*
this-from how-become-NML-Q, meeting-Top cancel-Dat became
'{What will happen?}', the meeting got canceled.'

A question of this sort may be called a 'subsequent question', which is derivative of the previous assertion, and an SOEQ cannot be a question of this type. A SOEQ is what we may call a 'concurrent question' with the main clause, and as such a question, an SOEQ has a narrower range of possible interpretations than *p*, and *I wonder Q*, which leads to the second pragmatic effect of the speaker's speculation of the correct answer to the SOEQ being the cause of the event. We propose to relate this effect to the notion of 'Explanation', one of the rhetorical relations in Lascares and Asher (1993) and Asher and Lascares (2003).⁸

⁸The relative order of sentences is significant in defining rhetorical relations. If the order of the two sentences in (32a) is reversed, the relation is 'Result'. The naming practice of Lascares and Asher (1993) is based primarily on what

- (32) a. Max fell. John pushed him. (= Lascarides and Asher 1993, (2))
 b. Max's car is in the driveway. He has come back from work.
 c. Max fell. Did anyone push him?

The second sentence explains why the event in the first sentence took place. Although many cases of explanations may also be called 'causes', the former is arguably a more inclusive notion. In (32b), for instance, the second sentence explains but perhaps did not cause Max's car being in the driveway. Of course, an SOEQ is a question, and as such, it itself does not explain anything. In this sense, (32c) corresponds to an SOEQ more directly. One can say that the second sentence in (32c) is an 'explanation-seeking' question, and we believe that this is the rhetorical-relational function that an SOEQ has.

Why is the relation between an SOEQ and its host clause limited to explanation? Although we do not have a firm answer to this puzzle, we speculate that the contrast is rooted in the temporal sequence of speech acts. A subsequent question arises as a consequence of the assertion of some proposition. Thus, the natural order is to assert the proposition first and then ask the subsequent question. Explanation-seeking questions, on the other hand, seem to enjoy more freedom in this respect, contrary to what Lascarides and Asher (1993) and Asher and Lascarides (2003) would predict. Imagine, for instance, that you find out that Maria knows a secret that she is not supposed to know. You confront those you suspect could be the source of the information. In such a case, either order in (33) is natural.

- (33) a. Has anyone told Maria our secret? She isn't supposed to know, but she does!
 b. Maria is not supposed to know our secret, but she does! Has anyone told her?

Subsequent questions work differently in a similar discourse situation. In (34), the assertion-question order is more natural, and the other order is more marked. Although it can be used, it elicits extra discourse effects, such as being more dramatic or surprising.

- (34) a. ? What will happen now? The Chancellor has just resigned.
 b. The Chancellor has just resigned. What will happen now?

We consider the contrast between the two question types very suggestive. The syntax of an SOEQ sentence places the question within the main clause. This means that the two clauses are linearly unordered; neither of them follows the other, and this structural property imposes a restriction on what kind of question can be an SOEQ. More specifically, a subsequent question is barred from this construction because the intrinsic order is an assertion followed by a question. While subsequent questions of the sort we have looked at are unsuitable due to the syntax of SOEQs, it is still unclear whether SOEQs as 'concurrent questions' are necessarily explanation-seeking. In fact, there are some instances of EQs that are very much like SOEQs but do not seek explanation. We will discuss them in Appendix.

relation a sentence has with the previous sentence. However, the essence of the two relations is practically the same, with the only difference being the order of presentation. We believe that this 'unordered' nature of Explanation/Result fits very nicely with the syntax of SOEQs. We will come back to this issue later in this subsection.

3.2 SOEQs and Biases

If SOEQs are explanation-seeking questions, it is expected that polar SOEQs are *biased* (cf. Ladd 1981; Romero and Han 2001, and van Rooy and Šafářová 2003). One diagnostic for a bias in a polar question is the addition of *or not*, as in(36).

(35) Tell me, is Maria an EU citizen (or not)?

(36) A: Maria says that she saw David last night at the gym.

B: Oh? Is David back from Toronto (#or not)?

If a polar question is a purely information-seeking question, the issue at hand would be resolved either by the positive or the negative answer. One's need to know the answer would then be satisfied, as far as that particular question is concerned. In (35), for instance, the speaker is filling out some form for Maria, and one of the questions on the form asks whether the applicant is an EU citizen or not. In such a situation, either answer settles the issue. If a polar question is an explanation-seeking question, on the other hand, one answer would give an explanation, but the negation of it wouldn't. In (36), for instance, if David is back from Toronto, it would explain Maria's witnessing him last night at the gym. If it turned out that the answer is negative, on the other hand, another explanation must be sought after. Perhaps David has cancelled his Toronto trip in the first place. Or maybe Maria mistook his younger brother for David, as they look so much alike. In a situation like (36), only the positive answer will resolve the issue, which means that the speaker must be biased towards the positive proposition.

The presence of biases in polar questions is morpho-syntactically visible in Japanese. A polar question in Japanese can take two forms: the ordinary indicative form or the nominalized clause + copula (*no-da/desu*) form. As the example below clearly shows, only the latter can express a biased question.

(37) A: Mina says that she saw Hana last night at the gym.

B: E, soo? Jaa, Hana-wa Toronto-kara kaette-kita-n-desu-ka? /
oh really then Hana-Top Toronto-from return-came-NML-Cop-Q
#kaette-kimashita-ka?
return-came(Ind)-Q
'Oh really? Then, did Hana come back from Toronto?'

It is expected, therefore, that polar SOEQs in Japanese must take the *no* form, instead of the ordinary indicative form. This prediction is borne out.

(38) * [Ame-ga hut-ta-ka] jimen-ga nurete-iru.
rain-Nom fall-Past-Q ground-Nom wet-Prog
Intended: '{Did it rain?} the ground is wet.'

The presence of biases in SOEQs is conclusive evidence against the idea of including the speaker's ignorance in the semantic representation. Indeed, many native speakers we consulted reported that they feel the presence of hidden *I don't know* in an SOEQ sentence. However sensible this intuition may appear, such an idea is not tenable. Groenendijk and Stokhof (1984)'s analysis of embedded interrogatives with the verb *know* makes the embedding environment by *know* totally 'unbiased'. For instance, the following sentences are semantically equivalent, and they all represent the same knowledge state of Anna.

- (39) a. Anna knows whether Maria passed the test.
 b. Anna knows whether Maria passed the test or not.
 c. Anna knows whether Maria failed the test.

Adding negation to those sentences does not change the fact that those embedded questions are unbiased. The lack of bias is also observable in the examples that are minimally altered from the SOEQ structure. In the sentence below, the expression *sir-anai-ga* ‘(I) don’t know, but’ is added. Unlike its SOEQ counterpart, the presence of the nominalizer is no longer required, and *or not* can be added as well.

- (40) [Ame-ga hut-ta-ka-(doo-ka)]-(wa) sir-anai-ga, jimen-ga nurete-iru.
 rain-Nom all-Past-Q-(how-Q)]-(Top) know-Neg-but ground-Nom wet-Prog
 ‘I don’t know whether it rained (or not), but the ground is wet.’

The paradigm observed above shows, therefore, that there is no deletion or implicit structure of *I don’t know* in an SOEQ sentence, which renders further support for the idea that the speaker’s ignorance comes from an SOEQ being functionally equivalent to a root question.

Since the bias in an SOEQ is due to its explanation-seeking function, it is predicted that an SOEQ can take the form of an alternative question when all the alternatives refer to plausible causes for the main event.

- (41) [Ame-ga futta-(no)-ka] aruiwa [dareka-ga mizu-o maita-(no)-ka]
 rain-Nom fell-NML-Q or.else someone-Nom water-Acc sprinkled-NML-Q
 jimen-ga nurete-iru.
 ground-Nom wet-Prog
 ‘{Did it rain or did someone sprinkle water?}, the ground is wet.’

It is also noteworthy that the nominalizer *no* is merely optional in this Japanese example. It is expected in our analysis, as the speaker does not have a bias within each alternative.

An SOEQ can even be a polar question of the ‘A or not A’ form when certain conditions are met. Consider the following Korean example.

- (42) John-un [nay mam-ul [al-ass-nun-ci] [moll-ass-nun-ci]] ttenass-ta.
 John-Top my heart-Acc know-Past-Ind- not.know-Past-Ind-Q left-Decl
 ‘John, {did he know my heart or not?}, left.’

(42) is a rare case in which both the positive and the negative answers can explain the main clause event. The speaker is entertaining the two possible scenarios: John left because he knew the speaker’s feeling for him (thus, he does not love the speaker) or he left because he was unaware of it (thus, possibly he loves the speaker).

3.3 Some Restrictions on Matrix Clauses

The idea of SOEQs as explanation-seeking questions also plays a crucial role in restricting the possible clause types of SOEQ-embedding sentences. First, a clause that contains an SOEQ must be a declarative sentence. Other clause types, such as imperatives, interrogatives, exhortatives, and promissives, are not allowed. Here are some illustrations of this restriction in Japanese.

- (43) [Konban ame-ga huru-no-ka],
 [Tonight rain-Nom fall-NML-Q],
 ‘{Will it rain tonight?},’
- a. * kasa-o motte-iki-nasai.
 umbrella-Acc have-go-Imp
 take an umbrella with you.’
 - b. * kasa-o motte-ikimasu-ka.
 umbrella-Acc have-go-Q
 are you going to take an umbrella with you?’
 - c. * kasa-o motte-ikima-shoo.
 umbrella-Acc have-go-Exh
 let’s take umbrellas with us.’

Furthermore, not all declarative sentences qualify. In particular, sentences with epistemic modals and priority modal involving subjective judgments of the speaker are not capable of hosting SOEQs.

- (44) [Dareka byooki-ni natta-no-ka],
 [someone illness-Dat became-NML-Q]
 ‘{Has someone fallen ill?},’
- a. * Masa-wa ashita shukkin-suru-ni chigai-nai.
 Masa-Top tomorrow work-do-Dat wrong-Neg
 Masa must(epistemic) work tomorrow.’
 - b. * Masa-wa ashita shukkin-su-beki-da
 Masa-Top tomorrow work-do-should-Copula
 Masa should(priority) work tomorrow.’
 - c. Masa-wa ashita shukkin-shi-nakereba nara-nai
 Masa-Top tomorrow work-do-if.not be-Neg
 Masa must(priority) work tomorrow.’

The contrast between the two priority modals is due to the presence of the speaker’s point of view. *Beki* necessarily encodes the speaker’s opinion/judgment or the speaker’s personal interpretation of some rules or regulations while with *nakereba nara-nai* the speaker can be simply reporting an outcome of some obligation based on external regulations. Epistemic modals make use of the speaker’s knowledge state at the time of the utterance. Therefore, what separates legitimate examples of SOEQs from illegitimate ones is the presence vs. absence of the speaker’s point of view; when it is there, SOEQs cannot be embedded.

This restriction may look mysterious at first, but with the assumption that SOEQs are explanation-seeking questions, it is easily accounted for. Consider the following examples, where non-declaratives and modalized declaratives are followed by declaratives that function as explanations.

- (45) a. Don’t take that freeway. It is always congested at this time of the day.
 b. What are you doing tonight? I have an extra ticket for the Celtics–Lakers game.
 c. Matt must be back from school. His car is in the driveway.

In each of these cases, the explanation is not about what happened or is happening. In (45a), it states the reason why the speaker believes the freeway should be avoided. The second sentence in (45b) is about why the speaker asked the preceding question. (45c) indicates that the presence of Matt's car is used by the speaker to infer that Matt is back from school. In short, they are all about the speaker's belief, act, or state of knowledge.

Turning back to SOEQs, their incompatibility with these sentence types is not surprising. By combining an SOEQ with a non-declarative sentence or a modalized sentence, the speaker indicates that she is still seeking an explanation for what she has just said. Uttering such a sentence without knowing the explanation may not be rational behavior. With an imperative, for instance, the speaker says that she is urging the hearer to do something without knowing how she has come to that preference. Equally strange is the combination of an epistemic modal and a SOEQ. The speaker is making an epistemic statement but cannot explain how she has come to that particular epistemic state or what evidence she used.

4 Embedding SOEQ-containing Sentences

The final puzzle concerning SOEQs is embedding. An SOEQ can serve as an explanation seeking question under embedding, but it is subject to the following restrictions.

- (46) a. An SOEQ is a comment on the proposition denoted by the smallest (= the most local) finite clause that embeds the SOEQ.
 b. An SOEQ is an extensional phenomenon: It cannot serve as a comment on a proposition that is not entailed by the matrix sentence.

The following examples illustrate these restrictions.

- (47) a. * Yumi-nun [[pi-ka w-ass-nun-ci] ttang-i ceceiss-ta-ko]
 Yumi-Top rain-Nom come-Past-Ind-Q ground-Nom wet-Decl-Comp
 mit-koiss-ta.
 believe-Prog-Decl
 Intended: 'Yumi believes that, {was it raining?}, the ground was wet.'
 b. * Yumi-wa [[ame-ga hut-ta-no-ka] jimen-ga nurete-iru-to] omot-ta.
 Yumi-Top rain-Nom come-Past-Ind-Q ground-Nom wet-Prog-Comp think-Past
 Intended: 'Yumi thought that, {was it raining?}, the ground was wet.'

With (46a), the SOEQs in these examples are assumed to be adjoined to the embedded clauses. However, they are under the scope of the attitude verbs, and the speaker does not necessarily believe them. Therefore, the appearance of those SOEQs is not supported. In contrast, sentences embedded under *because* can host SOEQs.

- (48) a. [[Pi-ka w-ass-nun-ci] ttang-i ceceiss-ese] Yumi-nun reinputsu-lul
 rain-Nom come-Past-Ind-Q ground-Nom wet-because Yumi-Top rain.boots-Acc
 sin-ess-ta.
 wear-Past-Decl
 'Yumi wore rain boots because, {was it raining?}, the ground was wet.'

- b. [[Ame-ga hut-ta-no-ka] jimen-ga nurete-ita-node] Yumi-wa nagagutsu-o
rain-Mon fall-Past-no-Q ground-Nom wet-was-because Yumi-Top long.boots-Acc
hai-ta.
wear-Past
'Yumi wore rain boots because, {was it raining?}, the ground was wet.'

Because p , q entails both p and q . Therefore, it is correctly predicted that SOEQs can appear within *because*-clauses. Other embedded environments that can have SOEQs include relative clauses.

- (49) [Kaze-o hiita-no-ka] masuku-o site-iru otoko-no hito-ga aruite-i-ta.
[cold-Acc caught-NO-Q] mask-Acc do-be male-Gen person-Nom walk-be-Past
'A man was walking, who, {did he have a cold?}, was wearing a surgical mask.'

This sentence satisfies the second restriction above because it entails that the man who was walking was wearing a surgical mask.⁹ Interestingly, if the above sentences are negated or intensionalized (e.g., *I wanted to see a man, who...*), an embedded SOEQ is no longer supported. Such examples do not entail the proposition that there is anyone who was wearing a surgical mask, leaving the restriction (46b) unsatisfied.

It is noteworthy that these environments correlate the possibility of adding *I wonder Q* in English as well.

- (50) a. # George believes that Anna left early. I wonder if she was ill.
b. The party was rather boring because both Anna and Maria left early. I wonder if they were feeling ill.
c. I saw a guy who was walking on a freeway. I wonder if something happened to his car.

Being an independent sentence, the syntactic behavior of *I wonder Q* is different from an SOEQ in Korean and Japanese. However, the two constructions share the function as a self-addressing question that seeks an explanation, and this similarity leads to the same 'extensionality' requirement of the propositions that they are intended to comment on.

5 Conclusion

Korean and Japanese can embed semantically unselected interrogative sentences that relate to the speaker's attitude towards the matrix clause propositions. We have advocated a multi-dimensional analysis in which these questions (SOEQs) belong to the conventional implicature tier in the sense of Potts (2005) and are interpreted independently alongside the matrix clauses to which they are adjoined. The semantics of an SOEQ remains as that of a question, and as a conventionally implicated question, its update function is secondary to that of the main assertion. In this regard, an SOEQ mimics the behavior of supplements discussed in Potts (2005).

⁹This example, however, presents one complicated technical issue. Assuming that an SOEQ is attached to a sentence within the relative clause and the relative clause contains a trace left by the relative operator movement, the proposition that the SOEQ modifies has a free variable. We leave it as an open question exactly how the the meaning of such an SOEQ is computed.

We have further identified some important features of SOEQs. First, they are self-addressing questions, the meaning of which is easily characterizable by extending the analysis of Hara and Davis (2013) of *darou*-questions. We also compared SOEQs in Japanese and Korean with *I wonder Q* in English and revealed some important similarities and differences between the two self-addressing strategies. The most notable difference is their possible rhetorical relations: SOEQs seek possible explanations for the propositions denoted by the sentences they attach to, whereas the use of *I wonder Q* is more varied. Analyzing SOEQs as explanation-seeking questions makes it possible to account for the restrictions on the kinds of sentences that can embed SOEQs.

The current paper presents the first formal grammatical account of SOEQs and the previously unexplored idea of ‘questions as conventional implicatures’. The latter may sound unusual, but with the development of a multi-dimensional system, the concept of a question in the not-at-issue category should not be too surprising. However, we are the first to admit that this paper, like any other exploratory project, leaves many issues unresolved. In the Appendix, we will briefly discuss two types of EQs that are closely related, and possibly equivalent, to SOEQs. In addition, the following is a non-exhaustive list of the issues we will have to set aside for future research.

- (51) a. Are there other languages that allow SOEQs?¹⁰ What makes it possible for Korean and Japanese to embed a speaker-oriented question?
- b. Are there other clause-types (e.g., imperatives) that can be embedded in a similar way?
- c. The multi-dimensional analysis of supplements by Potts (2005) has been challenged, and uni-dimensional/dynamic alternatives have been proposed (cf. Schlenker (2009a,b), Koev (2012)). Can our analysis of SOEQs be couched within such alternative analyses?
- d. Recently, it has been argued that *wh+ka* indefinites in Japanese generate a sense of the speaker’s ignorance, a signature property of so-called *epistemic indefinites* (cf. Sudo (2010), Alonso-Ovalle and Shimoyama (2013)). Can an SOEQ be in any way connected to them, as it also generates the speaker’s ignorance?

Proper analyses of these issues will present a fuller and more complete portrayal of SOEQs. They will also relate SOEQs to other areas of syntax-semantics-pragmatics interfaces, in particular in the area of embedded root phenomena (cf. Heycock 2005, Dayal and Grimshaw 2009, Haegeman 2012). It has been reported that many ‘main clause phenomena’, such as argument fronting, verb second or subject-verb inversion, are actually found under embedding. The main question for embedded root phenomena is primarily about how to license root syntax with (seemingly) embedded semantics. SOEQs are the mirror image of that. Their syntax is clearly that of subordinate clauses, but their semantic and pragmatic functions are root-like. The inclusion of SOEQs in the

¹⁰Italian has a relative clause structure that seems capable of expressing what Korean and Japanese SOEQs mean. The following is an example taken from Cinque (2006):

- (i) Tuo padre, il quale potr mai perdonarci per quello che abbiamo fatto?, non si sarebbe mai
Your father, by whom we.will ever be.forgiven for that Comp we.have done?, Neg SI never behaved
comportato cos.
like that
‘Your father, {will we ever be forgiven by him for what we have done?}, would have never behaved like that.

discussion of embedded root phenomena presents a novel and unique perspective to this intriguing research topic.

Acknowledgements

To be written.

Appendix

In this appendix, we will briefly discuss two cases related to SOEQs that were set aside in the main sections. One important aspect of an SOEQ is its rhetorical relation with the main clause. We have argued that it is a question that seeks an explanation for the event depicted by the matrix clause. In most SOEQ instances, this characterization seems correct, but there are some cases where the notion of explanation does not apply. Here are some examples.

- (52) a. [Ikes-ul ne-eykey malhaycwue-yaha-l-ci (mal-ci)] ... cip-i pul-ey
this-Acc 2sg-Dat tell-should-Fut-Q not.do-Q house-Nom fire-by
tapeli-ess-e.
burn.out-Past-Decl
'{Should I tell you this (or not)?} ... the house was burnt out.'
- b. [Ano subarasisa-o doo hyoogen-si-tara ii-ka], tonikaku,
that wonderfulness-Acc how express-do-if good-Q at.any.event
ano-eega-o zehi mite-kudasai
that-movie-Acc definitely see-please
'{How should I explain how wonderful it is?}, at any event, please see that movie!'
- c. [Nan-to oree-o it-tara ii-ka]... hontooni arigatoo-gozaimasita.
What-with thanks-Acc say-if good-Q, truly thank.you-be.polite
'{How can I express my gratitude properly?}, I truly thank you.'

Clearly, the EQs in these examples are not explanation-seeking, and their rhetorical relational roles are hard to pin down.¹¹ One curious fact of these EQs is that they contain some speech-act-related expressions, such as 'tell', 'express', etc., that correlate with the illocutionary force of the main clauses. This property is reminiscent of some instances of 'biscuit conditionals' (cf. Siegel 2006 and references therein).

- (53) a. If I can make a suggestion, why don't you make an appointment with my doctor? She is really wonderful.
b. If I can ask you a favor, could you call the restaurant and cancel our reservation?

To the extent that one can find a similar semantic relation in the conditional structure, it is not too surprising that there is an EQ version of it. This type of EQ shares some central properties with the

¹¹Notice that in (52), the polar question can be of the form of 'whether p or not', indicating the lack of the speaker's biases. Also, the main clauses that embed this type of EQ need not be declarative sentences. These facts are expected, as the EQ of this type is not explanation-seeking.

SOEQs that we have analyzed. The speaker-orientation is one of them, and it also passes the CI tests that we went through in Section 2. There are a few further issues that need to be raised for this type of EQs. For instance, this type of unselected EQ does not enjoy as much positional freedom as an SOEQ of the explanation-seeking type does. The type exemplified in (52) is typically situated at the beginning of the whole sentence. While it may follow a topic-marked phrase (i.e., XP-(n)un/-wa), it cannot be easily located after other constituents. There also appears to be a longer break after the EQ in (52). Indeed, one can often find the notation ‘...’ after this kind of EQ in written texts. We leave as an open question whether these differences are significant enough to justify a new category for this type of EQ.

On the other hand, there is one type of unselected EQ in Korean and Japanese that we consider categorically different from SOEQs. The following sentences exemplify what we call ‘Agent-oriented EQs’ (AOEQs).

- (54) a. [Pi-ka w-ass-nun-ci] Paul-un pakk-ul naytapo-ass-ta.
rain-Nom come-Past-Ind-Q Paul-Top outside-Acc look-Past-Decl
‘Paul looked outside to find out whether it had been raining.’
- b. Mari-wa [mado-ga zenbu simatte-iru-ka], ie-zyuu-o aruite-mawat-ta.
Mari-Top window-Nom all closed-be-Q, house-whole-Acc walk-round-Past
‘Mari walked around inside the house to check whether all the windows are closed.’

We believe that ‘agent’ is the relevant notion, rather than the ‘subject’, because the implicit agent of a passive sentence can be the person who has this type of question in mind.

- (55) [Matigai-ga nai-ka] sono-syorui-wa nan-nin-mo-no kensain-niyotte
[error-Nom Neg-Q] that-document-Top how.many-CL-even-Gen examiner-by
yom-are-ta.
read-Pass-Past
‘Whether it contains any errors, that document was read by many examiners.’

The EQs in these examples above describe what purpose the agents had in mind when the main clause events took place. In (54a), for instance, Paul’s wish to know the answer to the EQ caused him to look outside. While these EQs (AOEQs) share with SOEQs the involvement of ‘cause’ or ‘explanation’, the two types differ in the perspective to which the question is relevant; the speaker’s perspective in an SOEQ, and the agent’s in a sentence like (54). The semantic relations between the questions and the matrix clauses are also subtly different. In an SOEQ sentence, the presumed answer to it may explain for the occurrence of the main clause event. The AOEQ type, on the other hand, states the causal link between the main clause event and the agent’s desire to know the answer to the question. We believe that these differences give ground for our decision to treat them as different constructions.

References

- Alonso-Ovalle, L. and Shimoyama, J. (2013). Expressing ignorance in the nominal domain: Japanese *wh-ka*. In *Proceedings of the 31st West Coast Conference on Formal Linguistics*.
- Amaral, P., Roberts, C., and Smith, E. A. (2008). Review of the logic of conventional implicatures by chris potts. *Linguistics and Philosophy*, 30:707–749.

- Asher, N. and Lascarides, A. (2003). *Logics of Conversation*. Cambridge: Cambridge University Press.
- Caponigro, I. and Davidson, K. (2011). Ask, and tell as well: Question–Answer clauses in American Sign Language. *Natural Language Semantics*, 19:323–71.
- Cinque, G. (2006). Two types of appositives. In *University of Venice Working Papers in Linguistics*, volume Volume 16, pages 7–56. University of Venice.
- Dayal, V. and Grimshaw, J. (2009). Subordination at the interface: A quasi-subordination hypothesis. Ms. Rutgers University.
- Gawron, J. (2001). Universal concessive conditionals and alternative NPs in English. In Condoravdi, C. A. and Lavalette, G. R. d., editors, *Logical Perspectives on Language and Information*, pages 73–106. CSLI Publications.
- Grice, P. H. (1975). Logic and conversation. In Cole, P., editor, *Syntax and Semantics 3: Speech Acts*, pages 41–58. Academic Press.
- Groenendijk, J. (1999). The logic of interrogation. In Matthews, T. and Strolovitch, D., editors, *Proceedings of SALT IX*, pages 109–26. Ithaca, NY: Cornell University.
- Groenendijk, J. and Stokhof, M. (1984). *Studies on the Semantics of Questions and the Pragmatics of Answers*. PhD thesis, University of Amsterdam, Amsterdam.
- Groenendijk, J. and Stokhof, M. (1991). Dynamic predicate logic. *Linguistics and Philosophy*, 14(1):39–100.
- Gunlogson, C. (2001). *True to Form: Rising and Falling Declaratives as Questions in English*. PhD thesis, University of California at Santa Cruz.
- Haegeman, L. (2012). *Adverbial Clauses, Main Clause Phenomena, and Composition of the Left Periphery: The Cartography of Syntactic Structures, Volume 8*. Oxford University Press, Oxford.
- Hara, Y. and Davis, C. (2013). *Darou* as a deictic context shifter. In *Proceedings of Formal Approaches to Japanese Linguistics 6 (FAJL 6)*, pages 41–56.
- Heim, I. (1982). *The Semantics of Definite and Indefinite Noun Phrases*. PhD thesis, University of Massachusetts, Amherst.
- Heycock, C. (2005). Embedded root phenomena. In Everaert, M. and van Riemsdijk, H., editors, *The Blackwell Companion to Syntax*. Blackwell.
- Isaacs, J. and Rawlins, K. (2008). Conditional questions. *Journal of Semantics*, 25:269–319.
- Karttunen, L. (1976). Discourse referents. In McCawley, J. D., editor, *Syntax and Semantics 7: Notes from the Linguistic Underground*, pages 363–85. Academic Press, New York.

- Koev, T. (2012). On the information status of appositive relative clauses. In Aloni, M., Kimmelman, V., Roelofsen, F., Sassoon, G. W., Schulz, K., and Westera, M., editors, *Amsterdam Colloquium 2011, Lecture Notes in Computer Science*, volume 7218, pages 401–10.
- Ladd, R. (1981). A first look at the semantics and pragmatics of negative questions and tag questions. In *Proceedings of Chicago Linguistic Society*, volume 17, pages 164–71.
- Lascarides, A. and Asher, N. (1993). Temporal interpretation, discourse relations and common-sense entailment. *Linguistics and Philosophy*, 16(5):437–493.
- Little, P., Matthewson, L., and Peterson, T. (2010). On the semantics of conjectural questions. In Peterson, T. and Sauerland, U., editors, *Evidence from Evidentials*, pages 89–104. University of British Columbia: Working Papers in Linguistics.
- Portner, P. (2004). The semantics of imperatives within a theory of clause types. In Watanabe, K. and Young, R., editors, *Proceedings of Semantics and Linguistic Theory*, volume 14, pages 235–52. Ithaca, NY: Cornell University.
- Potts, C. (2005). *The Logic of Conventional Implicatures*. Oxford University Press, Oxford.
- Rawlins, K. (2008). *(Un)conditionals: an investigation in the syntax and semantics of conditional structures*. PhD thesis, University of California at Santa Cruz.
- Roberts, C. (1996). Information structure in discourse: Towards an integrated formal theory of pragmatics. In Yoon, J.-H. and Kathol, A., editors, *Ohio State University Working Papers in Linguistics 49*, pages 91–136. The Ohio State University Department of Linguistics.
- Romero, M. and Han, C. (2001). Negation, focus and alternative questions. In Megerdumian, K. and Barel, L., editors, *Proceedings of the West Coast Conference in Formal Linguistics 20*, pages 262–75. Somerville, MA: Cascadilla Press.
- Schlenker, P. (2009a). Supplements within a unidimensional semantics I: Scope. In Aloni, M. and Schulz, K., editors, *Proceedings of the 18th Annual Amsterdam Colloquium*, pages 74–83. Springer.
- Schlenker, P. (2009b). Supplements within a unidimensional semantics II: epistemic status and projection. In *Proceedings of the North East Linguistic Society*, volume 40.
- Searle, J. R. (1969). *Speech Acts*. Cambridge University Press, Cambridge.
- Siegel, M. (2006). Biscuit conditionals: Quantification over potential literal acts 167–203. *Linguistics and Philosophy*, 29:167–203.
- Stalnaker, R. (1975). Indicative conditionals. *Philosophia*, 5(3):269–86.
- Sudo, Y. (2010). *Wh-Ka* pronouns in Japanese and the semantics of indeterminate pronouns. Handout for talk at the *Workshop on Epistemic Indefinites*, University of Goettingen.
- van Rooy, R. and Šafářová, M. (2003). On polar questions. In *Proceedings of Semantics and Linguistic Theory*, volume 13, pages 292–309. Ithaca, NY: Cornell University.

von Stechow, P. (1994). *Restrictions on Quantifier Domains*. PhD thesis, University of Massachusetts-Amherst.

Yoshida, T. (1999). Lf subjacency effects revisited. In *MIT Working Papers in Linguistics*, volume 34, pages 1–34. MITWPL.