

Negative Wh-constructions in Korean: A Discourse-based Approach*

Okgi Kim** · Jong-Bok Kim***

(University of Wisconsin-Milwaukee · Kyung Hee University)

Kim, Okgi and Kim, Jong-Bok. 2022. **Negative Wh-constructions in Korean: A Discourse-based Approach**. *Studies in Generative Grammar*, 32-1, 49-74. This paper concerns so-called negative *wh*-questions (NWHCs) in Korean in which a limited set of *wh*-words is used to express the speaker's negative attitude (e.g., disapproval) toward the previous utterance. The construction displays quite idiosyncratic properties, which are not observed in either interrogative *wh*-questions or rhetorical *wh*-questions. This paper offers a discourse-based analysis, arguing that NWHCs are treated as a special type of rhetorical question, rather than as interrogative *wh*-questions (Cheung 2008, 2009). Specifically, it is suggested that NWH-words function to grammatically mark polar questions they modify as rhetorical questions by asserting the reverse polarity of the salient proposition evoked from the previous utterance. This direction, formalized in the framework of HPSG, allows us to account for the unique distributional and semantic properties of Korean NWHCs.

Keywords: negative *wh*-construction, rhetorical *wh*-question, interrogative *wh*-question, polarity reversal effect, Question-Under-Discussion

* An earlier version of this paper was presented at *The 29th Joint Workshop on Linguistics and Language Processing*, held online on June 4, 2021, and *Korean Linguistics in Crosslinguistic Context*, held online on June 4-6, 2021. We are grateful to the audiences of these two conferences as well as three anonymous reviewers for their insightful comments and suggestions. All remaining errors are of course our own.

** First author, PhD Candidate

*** Corresponding author, Professor

1. Introduction

The key function of a *wh*-question is to ask a possible value of the variable referred by the *wh*-word. However, there is another function where a *wh*-expression is used to express the speaker's negative attitude (e.g., disapproval) toward some previous utterance. Such a usage can be found in languages like Chinese, Japanese, and Korean, as illustrated in the following:

- (1) keoi bindou/bin/me/dim hoji lo ngo di cin aa3?! (Chinese)
 he where/which/what/how can take I CL money QUE
 'No way can he take my money.' (Cheung 2008: 91)
- (2) A: kare-ga taoreteru yo. (Japanese)
 he-NOM fall.down C
 'He has fallen down.'
 B: **nani-ga/doko-ga** kare-ga taoreteiru tte.
 what-NOM/where-NOM he-NOM fall.down C
 'Why do you say that he has fallen down? (He has not fallen down)'
 (Saruwatari 2015: 21)
- (3) A: Mimi-ka yeyppe-e. (Korean)
 Mimi-NOM pretty-DECL
 'Mimi is pretty.'
 B: Mimi-ka **mwe-ka/eti/ettehkey** yeyppe-ni?!
 Mimi-NOM what-NOM/where/how pretty-QUE
 'No way is Mimi pretty.'
- (4) A: nay-ka kulen mal-ul ha-yss-e. (Korean)
 you-NOM such word-ACC do-PST-QUE
 'You said such a thing.'
 B: nay-ka **encey** kulen mal-ul ha-yss-ni?!
 I-NOM when such word-ACC do-PST-QUE
 'No way did I say such a thing.'

As indicated by the English translations, the *wh*-phrase here has no *wh*-meaning as in interrogative *wh*-questions, but contributes to asserting the negation of the sentential proposition in question (Cheung 2008, 2009, Saruwatari 2015, 2018, Kim 2020, Park and Kang 2020).¹ Sentences including such a usage are called the

¹ The abbreviations for glosses and feature attributes used in the paper include ACC (accusative), NOM (nominative), MOD (modifier), DECL (declarative), TOP (topic), LOC (locative), COP (copular), DGB (discourse game board), MAX-QUID (maximal question under discussion), PARAMS

negative *wh*-constructions (NWHCs).

There have been relatively few studies, except for Cheung (2008, 2009) and Park and Kang (2020). To our knowledge, there is no comprehensive investigation of Korean NWHCs using the four different NWH-words that discusses their syntactic as well as semantic properties.²

To fill this research gap, in this paper we first look into the various grammatical properties of Korean NWHCs that distinguish them from interrogative *wh*-questions and rhetorical *wh*-questions. We then critically review Cheung's (2009) analysis of NWHCs and discuss some theoretical and empirical issues relevant to the analysis. We then present an alternative, discourse-based analysis within the framework of HPSG, and in particular suggest that an NWH-word modifies a polar question by asserting the reverse polarity of the salient proposition evoked from the previous utterance. This novel view, as we will see, can account for the regular as well as idiosyncratic properties of Korean NWHCs.

2. Grammatical Properties of Korean NWHCs

2.1. Differences from Interrogative *Wh*-questions and Rhetorical *Wh*-questions

There are several grammatical properties that distinguish NWHCs from interrogative *wh*-questions and rhetorical *wh*-questions. First, as noted by Cheung (2008, 2009), unlike interrogative *wh*-phrases, NWH-phrases cannot be modified or paraphrased:

- (5) a. i kes-tul-cwung mwe-ka yeppu-ni?
 this thing-PL-among what-NOM pretty-QUE
 'Among these things, what is pretty?'
 b. *Mimi-ka i kes-tul-cwung mwe-ka yeppu-ni?!
 Mimi-NOM this thing-PL-among what-NOM pretty-QUE
 'No way is Mimi pretty.'

(parameters), POS (parts of speech), FUT (future), PST (past tense), PRES (present), COMP (complimentizer), CL (classifier), CONN (connective), PL (plural), QUE (question), SAL-UTT (salient utterance), SEM (semantics), and SYN (syntax).

² Park and Kang (2020) focus on only the NWH-phrase *mwue(-l)*, which they call a *rhetorical question marker*.

- (6) a. *mwe-ka/etten kes-i yeppu-ni?*
 what-NOM/which thing-NOM pretty-QUE
 'What/Which thing is pretty?'
 b. *Mimi-ka mwe-ka/*etten kes-i yeppu-ni?!*
 Mimi-NOM what-NOM/which thing-NOM pretty-QUE
 'No way is Mimi pretty.'

As shown in (5a), the interrogative *wh*-phrase *mwe-ka* 'what-NOM' can be modified by the preceding NP *i kes-tul-cwung* 'among these things', but this is not possible when the *wh*-phrase is used in the NWHC, as in (5b). The contrast between (6a) and (6b) further shows that in the interrogative uses, the *wh*-phrase is interchangeable with the discourse-linked expression *etten kes-i* 'which one-NOM', but this is not possible in the NWHC uses.

Another key difference between NWHCs and interrogative *wh*-questions concerns the fact that unlike the latter, the former exhibit what Cheung (2008, 2009) calls the adjunct doubling, a phenomenon where a *wh*-adjunct cooccurs with another adjunct of the same kind in the same clause. Consider the following:

- (7) a. *nay-ka ettehkey i pangpep-ulo ton-ul pe-l swu.iss-ni?!*
 I-NOM how this way-in money-ACC earn-CONN can-QUE
 'No way can I earn money in this way.'
 '*How can I earn money in this way?'
 b. *wuli-ka encey il-nyen cency kyelhon-ul ha-yss-ni?!*
 we-NOM when one-year ago marriage-ACC do-PST-QUE
 'No way did we get married a year ago.'
 '*When did we get married a year ago?'

In (7a), the appearance of the manner adverbial *i pangpep-ulo* 'in this way' forces the *wh*-phrase *ettehkey* 'how' to be construed as an NWH-adverbial, but not as a manner *wh*-adjunct. The same line of reasoning applies to (7b).

Unlike interrogative *wh*-questions, rhetorical *wh*-questions convey assertions and can be preceded by introductory expressions like *solcikli malhayse* 'honestly speaking' (see Sadock 1971, 1974 and Han 2002 for English data):

- (8) *solcikli malhayse, nwu-ka yeppu-ni?*
 honestly speaking who-NOM pretty-QUE
 'Honestly speaking, who is pretty?'

In the above, the *who*-question can only be interpreted as an assertion with the meaning such that no one is pretty.

The examples in (9) illustrate that NWHCs can occur with the same type of introductory expression:

- (9) a. solcikhi malhayse, Mimi-ka mwe-ka/ettehkey yeypu-ni?!
 honestly speaking Mimi-NOM what-NOM/how pretty-QUE
 ‘Honestly speaking, Mimi is not pretty.’
 b. solcikhi malhayse, John-i eti/ettehkey selun sal i-ni?!
 honestly speaking John-NOM where/how 30 years.old COP-QUE
 ‘Honestly speaking, John is not 30 years old.’

These examples indicate that the utterance of NWHCs counts as assertions, just like rhetorical *wh*-questions (see Cheung 2008, 2009 for Chinese data).

NWHCs, however, differ from rhetorical *wh*-questions in terms of their discourse distribution. Rhetorical *wh*-questions can be uttered discourse-initially or out of the blue, as illustrated in (10a), but NWHCs cannot, as illustrated in (10b).

- (10) [Context: Mimi approaches John and says:]
 a. pi-ka ilehkey manhi o-nun-tey nwu-ka o-keyss-ni?
 rain-NOM so much come-PRES-but who-NOM come-would-QUE
 ‘No one will come because of the heavy rain.’
 b. #pi-ka mwe-ka o-ko iss-ni?!
 rain-NOM what-NOM come-CONN be-QUE
 ‘No way is it raining.’

Since NWHCs are used to convey the speaker’s negative attitude (i.e., disapproval) toward the previous utterance, they should be uttered after the addressee’s utterance (Yang 2015, Kim 2020).

2.2. Distributional Constrains of NWH-phrases

There are several distributional constraints of NWH-phrases, not observed in both interrogative and rhetorical *wh*-questions. First, note that the NWH-phrase *mwe-ka* ‘what-NOM’ needs to be associated with a (maximal) NP:

- (11) a. [_{NP} maywu ikicekin Mimi-ka] mwe-ka/eti chakha-ni?!
 very selfish Mimi-NOM what-NOM/where honest-QUE

- 'No way is Mimi who is very selfish honest.'
- b. *[_{AP} maywu ikicekin] mwe-ka/eti Mimi-ka chakha-ni?!
 very selfish what-NOM/where Mimi-NOM honest-QUE
 'No way is Mimi who is very selfish honest.'
- c. *[_{AdvP} maywu] mwe-ka/eti ikicekin Mimi-ka chakha-ni?!
 very what-NOM/where selfish Mimi-NOM honest-QUE
 'No way is Mimi who is very selfish honest.'

As observed here, the NWH-phrase can be preceded by an NP, but not by an AP or AdvP.

Second, the NWH-phrase *mwe-ka* 'what-NOM' has a strict ordering constraint: it must follow its associated NP:³

- (12) a. Mimi-ka mwe-ka chakha-ni?!
 Mimi-NOM what-NOM honest-QUE
 'No way is Mimi honest.'
- b. *mwe-ka Mimi-ka chakha-ni?!
 what-NOM Mimi-NOM honest-QUE
 'No way is Mimi honest.'

The sentence (12b) is ruled out because of the NWH-phrase preceding its associated NP *Mimi-ka*.

Third, the NWH-phrase *mwe-ka* 'what-NOM' and its associated NP must have a compatible case marking:

- (13) a. Mimi-ka mwe-ka/*l chakha-ni?!
 Mimi-NOM what-NOM/ACC honest-QUE
 'No way is Mimi honest.'
- b. Mimi(-ka)/*nun/*to mwe-ka chakha-ni?!
 Mimi-NOM/TOP/also what-NOM honest-QUE
 'No way is Mimi honest.'
- (14) a. Mimi-ka kongpwu-lul mwe-l/*ka cal ha-ni?!
 Mimi-NOM study-ACC what-ACC/NOM well do-QUE
 'No way does Mimi study well.'
- b. Mimi-ka kongpwu(-lul)/*nun/*to mwe-l cal ha-ni?!

³ As pointed out by a reviewer, to some speakers examples like (12b) are acceptable when they involve a special prosody.

Mimi-NOM study-ACC/TOP/also what-ACC well do-QUE
 'No way does Mimi study well.'

The paradigms presented in (13) and (14) show that the NWH-phrase and its nominal associate (i.e., *Mimi-ka* for (13) and *kongpwu-lul* for (14)) must have the same case marking. In addition, as shown in (13b) and (14b), the nominal associate can be a bare NP.

The case compatibility condition is further observed in Multiple Nominative Constructions, as in (15), and Nominative Object Constructions, as in (16).

- (15) a. Mimi-ka mwe-ka son-i khu-ni?!
 Mimi-NOM what-NOM hand-NOM big-QUE
 'No way is Mimi's hand big.'
 b. Mimi-ka son-i mwe-ka khu-ni?!
 Mimi-NOM hand-NOM what-NOM big-QUE
 'No way is Mimi's hand big.'
- (16) a. Mimi-ka mwe-ka ton-i manh-ni?!
 Mimi-NOM what-NOM money-NOM many-QUE
 'No way does Mimi have a lot of money.'
 b. Mim-ka ton-i mwe-ka manh-ni?!
 Mimi-NOM money-NOM what-NOM many-QUE
 'No way does Mimi have a lot of money.'

According to the case compatibility constraint and the precedence constraint, where the NWH-phrase *mwe-ka* needs to be preceded by its associate, the nominative-marked subject *Mimi-ka* is taken to serve as the associate in both (15a) and (16a), and the nominative NPs *son-i* and *ton-i* do so in (15b) and (16b), respectively.

Fourth, the NWH-phrase *mwe-ka* 'what-NOM' and its associated NP must be adjacent. A piece of evidence for the adjacency constraint comes from the fact that the two expressions in question cannot be separated by an intervening adverbial:

- (17) a. pesu-ka mwe-ka ilccik tochakha-yss-ni?!
 bus-NOM what-NOM early arrive-PST-QUE
 'No way did the bus arrive early.'
 b. *pesu-ka ilccik mwe-ka tochakha-yss-ni?!
 bus-NOM early what-NOM arrive-PST-QUE

- 'No way did the bus arrive early.'
- (18) a. Mimi-ka kongpwu-lul mwe-l mayil ha-ni?!
 Mimi-NOM study-ACC what-ACC everyday do-QUE
 'No way does Mimi study everyday.'
- b. *Mimi-ka kongpwu-lul mayil mwe-l ha-ni?!
 Mimi-NOM study-ACC everyday what-ACC do-QUE
 'No way does Mimi study everyday.'

As seen in (17b) and (18b), the temporal adverb cannot intervene between the NWH-phrase and its associate.

Fifth, the NWH-phrase *mwe-ka* 'what-NOM' can only be associated with an argument NP:

- (19) a. pi-ka mwe-ka twu sikan-i o-ass-ni?!
 rain-NOM what-NOM two hours-NOM come-PST-QUE
 'No way did it rain for two hours.'
- b. *pi-ka twu sikan-i mwe-ka o-ass-ni?!
 rain-NOM two hours-NOM what-NOM come-PST-QUE
 'No way did it rain for two hours.'

In the grammatical sentence (19a), the associated NP is the nominative subject *pi-ka*. On the other hand, in the ungrammatical sentence (19b), the associated NP is the nominative-marked adverbial *twu sikan-i*.

Sixth, the NWH-phrase *mwe-ka* 'what-NOM' cannot be linked to an indefinite NP:

- (20) a. *nwukwunka-ka mwe-ka yeppu-ni?!
 someone-NOM what-NOM pretty-QUE
 'No way is someone pretty.'
- b. *han haksayng-i mwe-ka o-ass-ni?!
 one student-NOM what-NOM come-PST-QUE
 'No way did one student come.'

As observed here, the indefinite NPs like *nwukwunka* 'someone' and *han haksayng* 'one student' cannot serve as nominal associates. As we will see, this definite constraint can be captured by the focus association between the NWH-phrase and its nominal associate.

Last but not least, an NWH-phrase is disallowed in an embedded clause:⁴

- (21) a. *Mimi-nun [_{CP} pi-ka mwe-ka/eti o-nunci]
 Mimi-TOP rain-NOM what-NOM/where come-whether
 kwungkumha-yss-ta.
 wonder-PST-QUE
 '(int.) Mimi expressed that no way is it raining.'
- b. *Mimi-nun [_{CP} John-i mwe-ka/eti/ettehkey chakha-nci]
 Mimi-TOP John-NOM what-NOM/where/how honest-whether
 mwul-ess-ta.
 ask-PST-QUE
 '(int.) Mimi expressed that no way is John honest.'

This suggests that unlike interrogative and rhetorical *wh*-questions, NWHCs are taken to be root clause phenomena.

2.3. Contrastive Focus on the Associate

In the previous section, we have seen that the NWH-phrase *mwe-ka* 'what-NOM' is syntactically associated with the preceding NP. Note that these two expressions are also semantically/pragmatically linked to each other, in that the nominal expression associated with the NWH-phrase receives contrastive focus. To illustrate this, let us consider the following:

- (22) [pi-ka]_F mwe-ka manhi o-ni?!
 rain-NOM what-NOM a lot come-QUE
 'No way is it raining a lot.'
 Alternatives to the focused constituent: {snow, hail, sleet, ...}

In (22), the NWH-phrase *mwe-ka* pragmatically functions to contrast the individual denoted by the focused associate *pi-ka* (indicated by F-marking) with the other individuals evoked in the context.⁵ When a syntactic constituent receives

⁴ Example (i) shows that NWHCs can be embedded in quotative constructions:

- (i) Mimi-ka John-i mwe-ka chakha-nya-ko malhayss-e.
 Mimi-NOM John-NOM what-NOM honest-QUE-COMP said-DECL
 'Mimi said "John is not honest!"'

⁵ Under the Alternative Semantics theory in Rooth (1985, 1992), every expression has two semantic values: its ordinary semantic value and its focus-semantic value. The focus-semantic value of an expression is the set of values obtained by replacing the material in focus with suitable/available alternatives.

contrastive focus, there needs to be a contrastively focused antecedent that can serve as an alternative to the focused constituent. The focus property of the NWH-phrase with respect to its associate can be evidenced from the following contrast:

- (23) [uttered after (22) by the same speaker]
- a. [nwun-i]_F manhi o-ci.
 snow-NOM a lot come-DECL
 'It is snowing a lot.'
 Alternatives to the focused constituent: {rain, hail, sleet, ...}
- b. #pi-ka [cokum]_F o-ci.
 rain-NOM a bit come-DECL
 'It is raining a bit.'
 Alternatives to the focused constituent: {a lot, heavily, on and off, ...}

In (23a), the subject *nwun-i* 'snow' is contrastively focused. In this case, the focused associate *pi-ka* 'rain' in the NWHC (22) can serve as an antecedent to the focused subject, since the former is a member of the set of focus alternatives of the latter. Hence, the NWHC can be naturally continued with (23a). In (23b), on the other hand, the contrastive focus is on the adverbial expression *cokum* 'a bit', in which case the focused associate in the NWHC cannot be an antecedent for the focused adverbial (i.e., snow \notin {a lot, heavily, on and off, ...}). This is why (23b) cannot be uttered after the NWHC.

The focus association triggered by an NWH-phrase is also supported by the following paradigms:

- (24) Mimi-ka [ton-i]_F mwe-ka manh-ni?!
 Mimi-NOM money-NOM what-NOM many-QUE
 'No way does Mimi have a lot of money.'
- a. #[Kim-i]_F ton-i manh-ci.
 Kim-NOM money-NOM many-DECL

-
- (i) [John]_F read the book.
 a. Ordinary Semantic Value: John read the book
 b. Focus Semantic Value: {John read the book, Will read the book, Kim read the book, ...}

Here we simply represent a set of alternatives in the way represented in (22).

'Kim has a lot of money.'

Alternatives to the focused constituent: {John, Mary, Tom, ...}

b. [pic-i]_F manh-ci.

debt-NOM many-DECL

'She has a lot of debt.'

Alternatives to the focused constituent: {money, cloth, book, ...}

In the NWHC example, the nominative object functioning as the associate bears a contrastive focus. As illustrated above, the utterance of the NWHC cannot be followed by the sentence in (24a). This is because the individual denoted by the associated NP *ton-i* 'money' in the NWHC is not a member of focus alternatives contributed by the focused subject *Kim-i* 'Kim' (i.e., money \notin {John, Mary, Tom, ...}). Meanwhile, the utterance of the NWHC can be naturally continued with the sentence in (24b), since the focused associate in the NWHC can function as an antecedent to the focused subject *pic-i* 'debt'.

Recall that the NWH-phrase *mwe-ka* cannot be associated with an indefinite NP, as we have seen in (20), repeated below as (25).

(25) a. *nwukwunka-ka mwe-ka yeppu-ni?!

someone-NOM what-NOM pretty-QUE

'No way is someone pretty.'

b. *han haksayng-i mwe-ka o-ass-ni?!

one student-NOM what-NOM come-PST-QUE

'No way did one student come.'

The unacceptability of NWHCs like those above can be captured by the aforementioned pragmatic function of the NWH-phrase. In order for the NWH-phrase to assign a contrastive meaning to its focused associate, it is necessary to introduce a set of alternatives to the contextually salient individual, not to any unspecified individual.

3. Previous Analyses

3.1. Three Meaning Components of NWHCs

Cheung (2009) provides an extensive research of the NWHCs used in Chinese, Korean, and Japanese. Cheung's key suggestion is that cross-linguistically, the

meaning of NWHCs involves three aspects: the negative assertive meaning and the two conventional implicatures, namely the Conflicting View Condition and the Mis-Conclusion Condition, which are defined in (26) (taken from Cheung 2009: 306).

(26) Meaning of “NWH + p ?!”

- a. At-issue meaning: $\sim p$
- b. Conventional Implicatures (CIs):
 - i. Conflicting View Condition (CVC): The speaker, SK, thinks that the salient discourse participant, DP, believes that p .
 - ii. Mis-Conclusion Condition (MCC): For all the SK knows, the SK thinks that the DP should have every reason to believe that $\sim p$.

According to Cheung’s view, NWHCs are uttered felicitously only when they satisfy the two CI conditions (CVC and MCC). In what follows, let us briefly examine how each of these three semantic aspects is represented, with the focus on Chinese NWHCs.

As with Korean NWHCs, the utterance of Chinese NWHCs like that in (27) counts as negative assertions.

(27) Lousat gong aa1, keoi bindou wui lei aa3?!

honest speak Prt he where will come QUE

‘Honestly speaking, no way will he come.’ (Cheung 2009: (14))

In the example, as indicated by the English translation, the NWHC is interpreted as expressing the negative assertion that he will not come (i.e., $\sim p$). The assertive illocutionary force here is verified by the presence of the introductory expression *lousat gong* ‘honestly speaking’, as we have discussed earlier with Korean examples (see (9)).

According to the Conflicting View Condition, the NWHC in (27) should be uttered by the speaker (SK) in order to express his or her negative attitude towards the addressee (DP)’s statement. In other words, it can be uttered felicitously only in a context in which the addressee believes that he will come (p), satisfying the CVC. As mentioned above, Cheung treats the CVC as a conventional implicature. This is attributed to the fact that the CVC is not cancelable. Consider (28).

- (28) A: John m-hai jat go gingcaat.
 John not-be one CI policeman
 'John is not a policeman.'
 B: #John bindou hai jat go gingcaat aa3?!
 John where be one CI policeman QUE
 'No way is John a policeman.' (Cheung 2009: 302)

The utterance of the NWHC is infelicitous since both the speaker and the hearer have the same belief that John is not a policeman, violating the CVC.

As noted in (26bii), NWHCs also need to meet the Mis-Conclusion Condition. This can be fulfilled when, from the speaker's perspective, the addressee has every reason to believe that $\sim p$, but actually mis-concludes that p . For example, the NWHC in (27) should be uttered in a context where the addressee has every reason to believe that he will not come, but actually mis-concludes that he will come. The MCC is also taken to be a conventional implicature, since it cannot be canceled. To illustrate this, let us consider the exchange given in (29) (taken from Cheung (2009: 303)).

- (29) [Scenario: John arranges to brief his team members on the progress of their project on Wednesday, and all team members are informed of the meeting. Subsequently, John receives a call from his family and has to leave town for several days for some urgent family matters. He has to cancel the Wednesday meeting. Before he has a chance to notify his team about the cancelation of the meeting, he runs into one of the team members, Mary, on Monday, two days prior to the scheduled meeting.]

Mary: Hey, John, we will have a meeting tomorrow. I look forward to it.
 John: #Ngodei singkeisaam bindou wui hoiwui aa3?!
 we Wednesday where will open.meeting QUE
 'No way will we have a meeting on Wednesday.'

The utterance of the NWHC by John is infelicitous in the given scenario, since the addressee, Mary, has every reason to believe that we will have a Wednesday meeting (p), violating the MCC.

3.2. NWHCs as Interrogative *Wh*-questions

In accounting for how the negative assertive meaning of NWHCs is derived

within the compositional semantic framework, Cheung (2009) proposes to analyze NWHCs as interrogative *wh*-questions. Under this proposal, the NWH-word semantically functions to quantify over the set of contextually relevant conversational backgrounds in the sense of Kratzer (1977). On this view, an NWHC can be paraphrased as in (30).

- (30) NWH + *p*?! \equiv What is the proposition *q* such that in view of *q*, *p*?
(where *q* refers to a contextually relevant conversational background)

Moreover, in interpreting *wh*-questions Cheung adopts Karttunen's (1977) semantic analysis of questions, according to which a question denotes a set of alternative propositions that are true in the actual world. This view leads us to interpret the Chinese NWHC in (31) as denoting the set of propositions (or true answers) given in (32).

- (31) John bindou hai 30 seoi aa3?!
John where be 30 year.old QUE
'No way is John 30 years old.'
- (32) {In view of q_1 , John is 30 years old,
In view of q_2 , John is 30 years old,
In view of q_3 , John is 30 years old,
...
In view of q_n , John is 30 years old}

That is, we can say that the NWHC is uttered in order for the speaker to ask the hearer to provide a proposition *q* that makes true the proposition that John is 30 years old.

Based on these semantic mechanisms, Cheung answers the question of how the negative at-issue meaning is obtained from the interrogative denotation (i.e., a set of propositions). According to the Mis-Conclusion Condition, the addressee should have every reason to believe that $\sim p$ (= John is not 30 years old) with respect to all contextually relevant conversational backgrounds ($q_1, q_2, q_3, \dots, q_n$). This leads to conclude that there is no *q* that makes *p* (= John is 30 years old) true in the actual world. In other words, any of the conversational backgrounds cannot be a true answer to the question. This consequently makes the NWHC construed as conveying the negative rhetorical interpretation ($\sim p$).

3.3. Issues: CVC and MCC as Conversational Implicatures

As we have discussed above, Cheung's analysis of NWHCs rests on the two semantic/pragmatic conditions, the Conflicting View Condition and the Mis-Conclusion Condition. In particular, the latter plays a key role in deriving a negative assertive meaning from the question denotation contributed by the NWHC. This semantic derivation, under Cheung's view, is guaranteed by the treatment of MCC as a conventional implicature that is not cancellable.

Here we show that Cheung's semantic account cannot be extended to Korean data, by arguing that in the context of Korean NWHCs, the two conditions (CVC and MCC) are viewed as conversational implicatures that can be cancelled. Consider (33) and (34) for instance.

- (33) A: John-un an chakha-y.
 John-TOP not honest-DECL
 'John is not honest.'
- B: kyay-ka mwe-ka chakha-keyss-ni? ha-nun hayngtong-ul pwa!
 he-NOM what-NOM honest-KEYSS-QUE do-MOD behavior-ACC look
 'He is not honest. Look at his behavior!'
- (34) A: Mimi-ka wuli pan-eyse ceyil yeyp-e.
 Mimi-NOM our class-LOC most pretty-DECL
 'Mimi is the prettiest girl in our class.'
- B: Mimi-ka mwe-ka ceyil yeypu-ni?!
 Mimi-NOM what-NOM most pretty-QUE
 'No way is Mimi the prettiest girl in our class.'
- A: ani-ya, nay sayngkak-ey-nun Mimi-ka ceyil yeyp-e.
 no-DECL I think-LOC-CT Mimi-NOM most pretty-DECL
 'No, I think/believe that Mimi is the prettiest girl in our class.'

In (33), both the speaker and the hearer assert the negative proposition that John is not honest. If the Conflicting View Condition counts as a conventional implicature as argued by Cheung (2009), the utterance of the NWHC in (33B) should be infelicitous in the given context, contrary to fact. In (34), the negative assertive content expressed by B's utterance of the NWHC—that Mimi is not the prettiest girl—is denied by the addressee who has the strong belief that Mimi is the prettiest girl in her class (*p*). If the Mis-Conclusion Condition cannot be cancelled as a conventional implicature, B's utterance should be inappropriate in the given context; however, this is not the case. The above data therefore lead us

to take the different view that the CVC and the MCC are cancellable conversational implicatures, rather than non-cancellable conventional implicatures (at least) in the context of Korean NWHCs. Consequently, the treatment of the MCC as a conversational implicature makes Cheung's analysis inapplicable to Korean NWHCs: if the MCC does not hold, i.e., it is cancelled, there is no way under Cheung's analysis to obtain the negative assertive meaning from the *wh*-question denotation, i.e., the set of propositions of the form "In view of q , p ". Furthermore, another key issue with Cheung's analysis is its difficulty in accounting for the syntactic and semantic/pragmatic linkage between the NWH-phrase and its associated expression.

4. A Discourse-based Analysis

As pointed out in the previous section, Cheung's analysis is not sufficient to deal with Korean NWHCs, especially those where the Mis-Conclusion Condition is not satisfied. Instead, we propose a discourse-based analysis within the framework of construction-based HPSG and suggest that NWHCs are a subtype of rhetorical question construction.

4.1. Three Semantic Types of *Wh*-phrase

There are three main different semantic uses of *wh*-phrases. Let us consider (35).

(35) a. An interrogative use:

Mimi-nun mwe-l ilk-ess-ni?
 Mimi-TOP what-ACC read-PST-QUE
 'What did Mimi read?'

b. A rhetorical use:

nay-ka mwe-l ha-l swu iss-keyss-ni?
 I-NOM what-ACC do-CONN can-FUT-QUE
 'What could I do?' ⇒ 'I could do nothing.'

c. An NWHC use:

Mimi-ka nonmwun-ul mwe-l cal ssu-ni?!
 Mimi-NOM paper-ACC what-ACC well write-QUE
 'No way does Mimi write a paper well.' ⇒ 'Mimi does not write a paper well.'

These three uses have different semantics. In the interrogative use, the *wh*-expression asks a possible value for the variable. Adopting Ginzburg and Sag's (2000) view that questions are basic semantic entities such as individuals and propositions, we take an interrogative *wh*-phrase to represent a parameter (π) consisting of an index and a set of restricting propositions for what the referent of the parameter refers to (the notation adopted from Ginzburg and Sag 2000: 241). This position would give us the following semantic representation for a *wh*-interrogative:

(36) Unary *wh*-question: $\lambda\{\pi^i\}[\text{met}(m, i)]$ (Who did Mimi meet?)

Each *wh*-question is thus treated as being about a proposition in question, with a set of parameters (or variables) to be determined in an answer. For example, as illustrated in (35a), the parameter with the index value *i* introduced by the interrogative *wh*-phrase *mwe-l* 'what' refers to a thing.

In terms of the semantic representations of rhetorical *wh*-phrases, we follow Han (2002) in assuming that a rhetorical *wh*-phrase denotes the non-existence of the parameter linked to it: in other words, the value of the *wh*-phrase denotes the empty set. The negation contributed by the rhetorical *wh*-phrase is responsible for the polarity reversal effect in the interpretation of rhetorical questions (see Han (2002) for detailed discussions on rhetorical questions). This position would assign the following semantics:

(37) Semantic content of rhetorical *what*:

$$\pi^i_{\{\text{thing}(i)\}} \ \& \ \neg\exists(i)$$

With regard to the semantics of NWH-phrases, we suggest that the NWH-phrase, which has no referential meaning, semantically contributes to asserting the reverse polarity of the proposition evoked from the 'question-under-discussion' (QUD) in the previous utterance. This then would assign the following meaning to the NWHC use of *what*:

(38) Semantic content of negative *what*:

$$\text{ASSERT } \neg(p)$$

Hence, the NWH-phrase, unlike its interrogative and rhetorical counterpart, needs to have a linguistic antecedent in the given dialogue. This unique lexical property gives an account of why NWHCs cannot be used discourse-initially or out of the

blue, as we have seen in (10). Note that the semantic function of NWH-phrases is identical with that of rhetorical *wh*-phrases in that they both trigger the polarity reversal effects. However, as described above, the two types of *wh*-phrase crucially differ in the way of inducing the polarity reversal effects. Given this, we propose to analyze NWHCs as a special type of rhetorical question. In what follows, we provide an HPSG account of NWHCs on the basis of an elaborate theory of dialogue (Ginzburg 2012, Ginzburg and Fernández 2010).

4.2. Structured Discourse in NWHCs

As briefly mentioned above, we assume that the interpretation of NWHCs depends on the notion of QUD in the dialogue. Dialogues are described via a Dialogue Game Board (DGB) where the contextual parameters are anchored and where there is a record of who said what to whom, and what/who they were referring to (see Ginzburg 2012, Ginzburg and Fernández 2010). DGB monitors which questions are under discussion, what answers have been provided by whom, etc. Interpreting this in terms of the feature-structure based system, DGB, as part of contextual information, would have at least the two attributes, SAL-UTT (salient-utterance) and MAX-QUD (maximal question under discussion), as represented with respect to the feature structure system adopted by Ginzburg and Sag (2000):

$$(39) \left[\text{DGB} \left[\begin{array}{l} \text{MAX-QUD} \dots \\ \text{SAL-UTT} \dots \end{array} \right] \right]$$

The feature MAX-QUD, representing the question currently under discussion, takes questions as its value. Meanwhile, SAL-UTT, taking as its value syntactic as well as semantic information, represents the utterance which receives the widest scope within MAX-QUD.⁶

For example, uttering the *wh*- and polar questions in (40) will activate the feature structures with appropriate DGB information presented in (41):

- (40) a. Mimi-ka nwukwu-lul manna-ss-ni?
 Mimi-NOM who-ACC meet-PST-QUE

⁶ The value of SAL-UTT refers to a set whose members are syntax-semantic elements in Ginzburg and Sag (2000), but for simplicity, it is taken to be a simple synsem (syntax-semantics) value here.

- 'Who did Mimi meet?'
- b. Mimi-ka o-ass-ni?
Mimi-NOM come-PST-QUE
'Did Mimi come?'
- (41) a. $\left[\begin{array}{l} \text{FORM } \langle \text{Mimi-ka nwukwu-lul manna-ss-ni?} \rangle \\ \text{SYN } S \\ \text{SEM } \lambda\{\pi^i\}[\text{met}(m,i)] \\ \text{DGB } \left[\begin{array}{l} \text{MAX-QUD } \lambda\{\pi^i\}[\text{met}(m,i)] \\ \text{SAL-UTT } \pi^i \end{array} \right] \end{array} \right]$
- b. $\left[\begin{array}{l} \text{FORM } \langle \text{Mimi-ka o-ass-ni?} \rangle \\ \text{SYN } S \\ \text{SEM } \lambda\{\ \ \ \}[\text{came}(m)] \\ \text{DGB } \left[\begin{array}{l} \text{MAX-QUD } \lambda\{\ \ \ \}[\text{came}(m)] \\ \text{SAL-UTT } [\text{came}(m)] \end{array} \right] \end{array} \right]$

The feature structure in (41a) for the *wh*-question indicates that the *wh*-question asks who is the person that Mimi met (QUD) and the information about this person counts as a salient utterance (Kim and Abeillé 2019, Kim 2020). On the other hand, the feature structure in (41b) for the polar question specifies that the polar question with an empty PARAMS (parameter) value asks whether the proposition such that Mimi came is true or not. Uttering the polar question evokes a MAX-QUD and introduces the proposition evoked from the question as the SAL-UTT value.

Further, note that all declaratives also evoke a QUD:

- (42) a. Mimi-ka John-ul manna-ss-e.
Mimi-NOM John-ACC meet-PST-DECL
'Mimi met John.'
- b. $\left[\text{DGB } \left[\text{MAX-QUD } \lambda\{\ \ \ \}[\text{met}(m,i)] \right] \right]$

The introduced QUD would ask if the proposition that Mimi met John is true or not.

With these basic theoretical assumptions, we propose the lexical specification of NWH-adverbials given in (43) that can capture both their distributional and semantic features.⁷

$$(43) \left[\begin{array}{l} \textit{mwh-word} \\ \text{SYN} \left[\text{MOD} \left\langle \left[\begin{array}{l} \text{POS } \textit{verbal} \\ \text{IC } + \\ \text{QUE } + \end{array} \right] \right\rangle \right] \\ \text{SEM } \text{ASSERT } \neg(p) \\ \text{DGB} \left[\begin{array}{l} \textit{proposition} \\ \text{MAX-QUD } \lambda \{ \} (p) \\ \text{SAL-UTT } p \end{array} \right] \end{array} \right]$$

The lexical entry specifies that the NWH-word syntactically (SYN) modifies an independent ([IC+]) polar question ([QUE+]): this explains why NWHCs resist embedding (see (21)). Modifying a verbal projection enables the NWH-phrase to take wide scope over the entire clause it modifies. The NWH-word semantically (SEM) functions to assert the reverse polarity of the closed proposition (p) as its at-issue meaning. The closed proposition refers to the salient utterance (SAL-UTT) evoked from the QUD in the previous discourse. As specified in the DGB information, the MAX-QUD information needs to be triggered by the previous utterance whose semantic content denotes a proposition.⁸

4.3. Some Welcome Consequences

Recall that the NWH-phrase *mwe* ‘what’ is required to follow its associated NP that functions as a definite argument and has a compatible case marking with it. However, such a precedence constraint does not hold for other NWH-phrases. For example, as illustrated in (44), the NWH-phrases *eti* ‘where’ and *ettehkey* ‘how’ can occur freely before and after its associated NP.

- (44) a. *eti/ettehkey Mimi-ka 20 sal i-ni?!
 where/how Mimi-NOM 20 year.old COP-QUE
 ‘No way is Mimi 20 years old.’*
 b. *Mimi-ka eti/ettehkey 20 sal i-ni?!*

⁷ For the POS value in Korean, refer to Kim (2016).

⁸ We follow Ginzburg and Sag (2000) in claiming that an utterance (or a message) denotes a *proposition*, *question*, *outcome*, or *fact*. For example, the content of the declarative sentence *Mimi is pretty* denotes a proposition, the content of the interrogative sentence *Is Mimi pretty?* denotes a question, the content of the imperative sentence *Leave on time!* makes reference to future outcomes involving the hearer’s leaving, and the content of the exclamative sentence *What a nice guy he is!* denote a fact. See Ginzburg and Sag (2000) for details.

Mimi-NOM where/how 20 year.old COP-QUE
 ‘No way is Mimi 20 years old.’

We assume that the unique distributional properties of the NWH-word *mwe* can be dealt with by the linear precedence (LP) constraint such that the NWH-phrase in question needs to be in the postnominal position of the definite argument NP with a compatible structural case marking (NOM, ACC or bare). We leave to future work to investigate the distributional variations among NWH-words.

The lexical entry of NWH-words we propose here can account for typical NWHCs like (45B) where they express negative assertions.

- (45) A: Mimi-ka o-ass-e.
 Mimi-NOM come-PST-DECL
 ‘Mimi came.’
 B: Mimi-ka mwe-ka/eti/encey o-ass-ni?!
 Mimi-NOM what-NOM/where/when come-PST-QUE
 ‘No way did Mimi come.’ ⇒ ‘Mimi didn’t come.’
 (46) a. QUD introduced from A’s utterance in (45):

$$\left[\text{DGB} \left[\text{MAX-QUD } \lambda \{ \} [\text{came}(m)] \right] \right]$$

b.

$$\left[\begin{array}{l} \text{FORM } \langle \text{mwe-ka/eti/encey} \rangle \\ \text{SYN } \left[\text{MOD } \left\langle \left[\begin{array}{l} \text{POS } \textit{verbal} \\ \text{IC } + \\ \text{QUE } + \end{array} \right] \right\rangle \right] \\ \text{SEM } \text{ASSERT } \neg [\text{came}(m)] \\ \text{DGB } \left[\begin{array}{l} \textit{proposition} \\ \text{MAX-QUD } \lambda \{ \} [\text{came}(m)] \\ \text{SAL-UTT } [\text{came}(m)] \end{array} \right] \end{array} \right]$$

As represented in (46), the utterance of the NWHC gives rise to the MAX-QUD evoked from A’s utterance, asking if it is true or not that Mimi came. At the same time, the proposition in question ($[\text{came}(m)]$) is introduced as the salient utterance in the DGB. The NWH-phrase then asserts the reverse polarity of the salient, closed proposition, yielding the negative proposition that Mimi didn’t come ($\neg[\text{came}(m)]$).

The present system can also address cases where NWHCs count as positive assertions. Consider (47) and (48).

- (47) A: Mimi-ka an o-ass-e.
 Mimi-NOM not come-PST-DECL
 'Mimi did come.'
 B: Mimi-ka mwe-ka/eti an o-ass-ni?
 Mimi-NOM what-NOM/where not come-PST-QUE
 'No way did Mimi not come.' ⇒ 'Mimi came.'

- (48) a. QUD introduced from A's utterance in (47):

[DGB [MAX-QUD $\lambda\{\}$][\neg came(*m*)]]

- b. $\left[\begin{array}{l} \text{FORM } \langle \text{mwe-ka/eti} \rangle \\ \text{SYN } \left[\text{MOD } \left\langle \left\langle \begin{array}{l} \text{POS } \textit{verbal} \\ \text{IC } + \\ \text{QUE } + \end{array} \right\rangle \right\rangle \right] \\ \text{SEM } \text{ASSERT } \neg[\neg\text{came}(m)] \\ \text{DGB } \left[\begin{array}{l} \textit{proposition} \\ \text{MAX-QUD } \lambda\{\} [\neg\text{came}(m)] \\ \text{SAL-UTT } [\neg\text{came}(m)] \end{array} \right] \end{array} \right]$

In this case, the salient utterance evoked from A's utterance constitutes the negative proposition that Mimi did not come (\neg [came(*m*)]). The NWH-word in turn takes the salient negative proposition and asserts the opposite polarity of the proposition, resulting in the positive assertion that Mimi came (\neg [\neg came(*m*)]).

Note that unlike RQs, NWHCs cannot be used as answers to *wh*- or polar questions:

- (49) A: mwe-ka swip-ni?
 what-NOM easy-QUE
 'What is easy?'
 B: mwe-ka swip-keyss-ni? (RQ)
 what-NOM easy-would-QUE
 'What would be easy?' ⇒ 'Nothing is easy.'
 B': #thongsalon-i mwe-ka/eti/ettehkey elyep-ni?! (NWHC)
 Syntax-NOM what-NOM/where/how difficult-QUE
 'No way is Syntax difficult.' ⇒ 'Syntax is easy.'
- (50) A: pi-ka o-ni?
 rain-NOM come-QUE
 'Is it raining?'

they modify as rhetorical questions by asserting the reverse polarity of the salient proposition evoked from the previous utterance. This direction led us to propose that NWHCs are treated as a special type of rhetorical *wh*-question, rather than interrogative *wh*-questions.

References

- Cheung, Lawrence Yam-Leung. 2008. The Negative Wh-construction. Doctoral dissertation, University of California, Los Angeles.
- Cheung, Lawrence Yam-Leung. 2009. Negative *wh*-construction and its semantic properties. *Journal of East Asian Linguistics* 18: 297-321. DOI: <https://doi.org/10.1007/s10831-009-9051-2>
- Ginzburg, Jonathan. 2012. *The Interactive Stance: Meaning for Conversation*. Oxford: Oxford University Press.
- Ginzburg, Jonathan, and Ivan A. Sag. 2000. *Interrogative Investigations*. Stanford, CA: CSLI Publications.
- Ginzburg, Jonathan, and Raquel Fernández. 2010. Computational models of dialogue. In *Handbook of Computational Linguistics and Natural Language Processing*, ed. by Alexander Clark, Chris Fox, and Shalom Lappin, 429-481. Chichester, UK: Wiley-Blackwell.
- Han, Chung Hye. 2002. Interpreting interrogatives as rhetorical questions. *Lingua* 112: 201-229.
- Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1: 3-44.
- Kim, Jong-Bok. 2016. *The Syntactic Structures of Korean: A Construction based Perspective*. Cambridge: Cambridge University Press.
- Kim, Jong-Bok. 2020. Negated fragments: A direct interpretation approach. *Korean Journal of English Language and Linguistics* 20.3: 427-449.
- Kim, Jong-Bok, and Anne Abeillé. 2019. *Why*-stripping in English. *Linguistic Research* 36.3: 365-387.
- Kim, Okgi. 2020. On the syntax of negative *wh*-constructions in Korean. In *Proceedings of the 34th Pacific Asia Conference on Language, Information and Computation*, ed. by Minh Le Nguyen, Maichi Luong, and Sanghoun Song, 113-121.
- Kratzer, Angelika. 1977. What *must* and *can* must and can mean. *Linguistics and Philosophy* 1.3: 337-355.
- Park, Myung-Kwan, and Arum Kang. 2020. The rhetorical adjunct *wh mwue(-l)*

- 'what' in Korean. *The Journal of Linguistic Science* 95: 111-135.
- Rooth, Mats. 1985. Association with focus. Doctorial dissertation, University of Massachusetts, Amherst.
- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1: 75-116.
- Sadock, Jerrold. 1971. Queclaratives. In *Papers from the Seventh Regional Meeting of the Chicago Linguistic Society*, ed. by Douglas Adams, Mary Ann Campbell, Victor Cohen, Julie Lovins, Edward Maxwell, Carolyn Nygren, and John Reighard, 223-232. Chicago: University of Chicago Linguistic Society.
- Sadock, Jerrold. 1974. *Towards a Linguistic Theory of Speech Acts*. New York: Academic Press.
- Saruwatari, Asuka. 2015. *Wh-NP rhetorical questions in Japanese and Chinese. Shizen Gengo-e-no Rironteki Apurooti [Theoretical Approaches to Natural Languages]*: 21-30.
- Saruwatari, Asuka. 2018. The *wh-NP* (rhetorical) question–structure and negative context-. *Memoirs of Osaka Institute of Technology* 63: 9-19.
- Yang, Barry Chung-Yu. 2015. Locating *wh*-intervention effects at CP. In *The cartography of Chinese syntax*, ed. by Wei-Tien Dylan Tsai, 153-186. Oxford: Oxford University Press.

Okgi Kim
Department of Linguistics
University of Wisconsin-Milwaukee
P.O. Box 413
Milwaukee, WI 53201
USA

okgikim@uwm.edu

Jong-Bok Kim
Department of English Language and Literature
Kyung Hee University
26 Kyungheedae-ro, Dongdaemun-gu
Seoul 02447
Korea

jongbok@khu.ac.kr

Received: 2021. 11. 6

Revised: 2021. 12. 10

Accepted: 2021. 12. 13