The subjunctive complementizer in Korean: the interaction between inquisitiveness and nonveridicality

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Goals

- Examine two important aspects of **subjunctive marking** in Korean.
  - Formally marked in the “**inquisitive**” complement clause
  - Producing semantic contribution of **epistemic weakening**

- Provide the analysis incorporated under the general theory of **Subjective Nonveridicality**.
What is subjunctive mood?

- **Mood selection:** “Mood is a kind of dependent modal element, similar to agreement – we could say that subjunctive “agrees with” want but not believe.” (Portner 2018, pp. 72)

(1) a. Marc sait que le printemps soit/*est arrive. Marc knows that the spring be-SUBJ-3sg/be-IND-3sg arrived ‘Mark knows that spring has arrived.’
b. Marc veut que le printemps soit/*est long. Marc wants that the spring be-SUBJ-3sg/be-IND-3sg long ‘Mark wants spring to be long.’ [French]

(2) a. O Pavlos kseri *na/oti efije i Roxani. The Paul knows-3SG that-SUBJ/that-IND lef-3SG the Roxani ‘Paul knows that Roxanne left.’
b. Thelo na/*oti kerdisi o Janis. want-1sg that-SUBJ/that-IND win.NONPAST-3SG the John ‘I want John to win.’ [Greek]
What is subjunctive mood?

Portner (2018)

(3) Indicative governors (mood selection in complement clause):
   a. predicates of knowledge and belief (e.g. know, believe)
   b. predicates of assertion (e.g. say)
   c. predicates of inquiry (e.g. ask)
   d. natural factive predicates (e.g. remember)
   e. predicates of fiction and mental creation (e.g. dream)
   f. commissive predicates (e.g. promise)

(4) Subjunctive governors (mood selection in complement clause):
   a. Predicates of inquisitiveness (e.g. wonder)
   b. Preference predicates (e.g. want, hope)
   c. Directive predicates (e.g. demand)
   d. causative and implicative predicates (e.g. make)
   e. negative counterparts of predicates of knowledge/belief and predicates of assertion (e.g. doubt)
   f. modal predicates (e.g. necessary, possible, probable)
### What is subjunctive mood?

<table>
<thead>
<tr>
<th>Context where the proposition $P$ occurs</th>
<th>Veridical</th>
<th>Non-veridical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reality</td>
<td>Non-reality</td>
<td></td>
</tr>
<tr>
<td>Non-epistemic</td>
<td>Epistemic</td>
<td></td>
</tr>
</tbody>
</table>
| be good that $P$                        | know that $P$ | imagine that $P$ | want that $P$ doubt that $P$

| Romanian, Hungarian, (Modern) Greek     | INDICATIVE | SUBJ.          |
| Portuguese                             | INDICATIVE | SUBJ.          |
| Italian, Catalan, Spanish, French      | SUBJ.      | INDICATIVE    | SUBJ.          |

**Table:** Modal contexts and selection of indicative or subjunctive in complement clauses (adapted from Marques 2004, pp.105)
What is subjunctive mood?

Various approaches to the subjunctive mood (adapted from Yoon 2013)

b. Speech acts and illocutionary force (Searle 1969, Searle and Vanderveken 1985)
d. Possible world semantics (Anderson 1951, Stalnaker 1968, 1984)

Crucially, what underlies among these intuitions on mood is it is basically about truth commitment.
What is subjunctive mood?

Extended spectrum of subjunctive

The valid types of mood trigger vary across languages (Portner and Mari 2018, (7)):

(6) a. Gianni 
crede 
che 
Maria sia 
incinta.
G. believes that M. be.3sg.SUBJ pregnant
b. Gianni 
crede 
che 
Maria 
è 
incinta.
G. believes that M. be.3sg.IND pregnant

‘Gianni believes that Mary is pregnant.’ [Italian]
What is subjunctive mood?
Extended spectrum of subjunctive

(2) Subjunctive mood can be marked on the subordinator C (Giannakidou and Mari 2017, (4),(5)):

(7) a. O Pavlos kseri *na/oti efije i Roxani. The Paul knows-3SG SUBJ/that-IND lef-3SG the Roxani 'Paul knows that Rozanne left.'

b. Thelo na/*oti kerdisi o Janis. want-1sg SUBJV/that.IND win.NONPAST-3SG the John 'I want John to win.' [Greek]
What is subjunctive mood?

Extended spectrum of subjunctive

Rogerative predicates can be mood governors

(Portner 2018, pp. 70):

(8) a. Mi avevo chieto se ci sono corsi d’ingles
him have-1sg asked if there be.3PL.INDC courses of.English
‘I asked him whether there are English courses.’

b. Mi chiedo se ci siano corsi d’ingles
me wonder if there be.3PL.SUBJ courses of.English
‘I wonder whether there are English courses.’

Portner (2018):

- Inquiry ask: interrogative counterpart of verb of assertion (i.e. ‘want to be told’)

- Inquisitive wonder: interrogative counterpart of verb of belief/knowledge (i.e. ‘want to know’)
Data & Puzzle

Two types of Korean interrogative Comp: ci vs. (u)l-kka

M.-Top C.-Nom party-Loc come-Asp-whether wonder-Pst-Decl

‘Mina wondered whether Chelswu would come to the party.’

(10) Mina-nun Chelswu-ka pathi-ey o-l-kka
  wonder-Pst-Decl

‘Mina wondered if Chelswu might come to the party.’

M.-Top C.-Nom party-Loc come-Asp-whether ask-Pst-Decl

‘Mina asked whether Chelswu would come to the party.’

(12) #Mina-nun Chelswu-ka pathi-ey o-l-kka mulepo-ass-ta.
M.-Top C.-Nom party-Loc come-Mod-whether ask-Pst-Decl

‘(lit.) Mina asked if Chelswu might come to the party.’
(U)l-kka and weak commitment

Context: Mina is talking with Kim about the guests coming to the party tonight. Kim asks Mina if Chelswu is coming. With full of uncertainty, Mina says,

(13) Chelswu-ka pathi-ey o-l-kka siph-ta.
C.-Nom party-Loc come-Mod-whether think/believe-Decl

a. ‘I am uncertain whether Chelswu might come to the party.’
b. ‘I doubt if Chelswu might come to the party.’

Cf. siph- ‘want; think/believe; fear; hope; intend’
Question

1. What are the semantic-o-pragmatic contributions of (u)l-kka?

2. How are the distinct behaviors of subjunctive in Korean and other languages related to each other?

Cf. Previous work on Korean subjunctive markers at C-level:
- Subjunctive trigger of evaluative negation (EN) (Yoon 2011, 2013)
- Subjunctive variant of indicative complementizer ki (Shim 1995)
1. 

(u)l-kka is a lexicalized form of the “epistemic” subjunctive mood exponent appearing in subordinator C.

2. Korean subjunctive mood can be triggered by subjunctive belief verbs (e.g. siph ‘think/believe’ in (13)).

3. The addition of (u)l-kka manifests an epistemic weakening in the subject/speaker’s non-homogeneous doxastic space.
Outlines

Core properties of (u)l-kka
   Different types of interrogative predicates with ci vs. (u)l-kka
   Corpus studies
   (u)l-kka as a modalized question marker

Analysis
   (u)l-kka and possible answers
   Nonhomogeneous doxastic space

Conclusions and implications
Core properties of (u)l-kka
   Different types of interrogative predicates with ci vs. (u)l-kka
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Core properties of (u)l-kka

Different types of interrogative predicates

Lahiri (2002)

Predicates that take interrogative complements

Rogative
- wonder, ask...

Responsive
- Veridical
  - know, remember, tell...
- Non-veridical
  - be certain, conjecture about...
Core properties of (u)l-kka

Different types of interrogative predicates

Anti-rogative

(14)  a. Mina **believes that** Chelswu will come to the party.
    b. *Mina **believes whether** Chelswu will come to the party.

Rogative

(15)  a. *Mina **wonders that** Chelswu will come to the party.
    b. Mina **wonders whether** Chelswu will come to the party.

Veridical responsive

(16)  a. Mina **knows that** Chelswu will come to the party.
    b. Mina **knows whether** Chelswu will come to the party.

Nonveridical responsive

(17)  a. Mina **is certain that** Chelswu will come to the party.
    b. Mina **is certain whether** Chelswu will come to the party.
Core properties of (u)l-kka
Different types of interrogative predicates

Veridical responsive vs. Nonveridical responsive

Responsive verbs express a relation between the holder of an attitude and a proposition which is an answer to the embedded question (Lahiri 2002; adapted from Égré and Spector 2007):

(18) a. **Veridical-responsive:**

“Mina knows whether Chelcswu will come to the party” is true iff Mina knows $p$, where $p$ is the true answer to “will Chelcswu come to the party?”

b. **Nonveridical-responsive:**

“Mina is certain whether Chelcswu will come to the party” is true iff Mina is certain that $p$, where $p$ is a possible answer to “will Chelcswu come to the party?”

- (18a) entails that Mari has a true belief as to whether Chelcswu will come to the party.
- (18b) is true even if Mina believes that Chelcswu will come to the party while in fact it isn’t.
Core properties of (u)l-kka
Different types of interrogative predicates

▶ *know* is veridical w.r.t interrogative complement. The inference in (19) is valid:

(19) Mina knows where Chelswu was born.
    Chelswu was born in Seoul.
    ∴ *Mina knows that Chelswu is born in Seoul*.

▶ *be certain* is non-veridical, w.r.t. interrogative complements. The inference in (20) is invalid:

(20) Mina is certain where Chelswu was born.
    Chelswu was born in Seoul.
    ∴ *Mina is certain that Chelswu is born in Seoul*. 
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

1. Anti-rogative: believe

(21) #Mina-nun Chelswu-ka pathi-ey o-nun-ci
M.-Top C.-Nom party-Loc come-Asp-whether
mit-ess-ta.
believe-Pst-Decl
‘#Mina believed whether Chelswu would come to the party.’

(22) #Mina-nun Chelswu-ka pathi-ey o-l-kka
M.-Top C.-Nom party-Loc come-Mod-whether.SUBJ
mit-ess-ta.
believe-Pst-Decl
‘#Mina believed if Chelswu might come to the party.’
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

2. Rogative II: wonder

(23) Mina-nun Chelswu-ka pathi-ey o-nun-ci
     M.-Top   C.-Nom    party-Loc come-Asp-whether
     kwungkumhay-hayss-ta.
     wonder-Pst-Decl

‘Mina wondered whether Chelswu would come to the party.’

(24) Mina-nun Chelswu-ka pathi-ey o-l-kka
     M.-Top   C.-Nom    party-Loc come-Mod-whether.SUBJ
     kwungkumhy-hayss-ta.
     wonder-Pst-Decl

‘Mina wondered if Chelswu might come to the party.’
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

3. Rogative I: ask

(25)  Mina-nun Chelswu-ka pathi-ey  o-nun-ci
      M.-Top  C.-Nom  party-Loc  come-Asp-whether
      mulepo-ess-ta.
      ask-Pst-Decl
'Mina asked whether Chelswu would come to the party.'

(26)  #Mina-nun Chelswu-ka pathi-ey  o-l-kka
      M.-Top  C.-Nom  party-Loc  come-Mod-whether SUBJ
      mulepo-ess-ta.
      ask-Pst-Decl
'(lit.) Mina asked if Chelswu might come to the party.'
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

4. Veridical responsive: *know*

(27) Mina-nun Chelswu-ka pathi-ey o-nun-ci
M.-Top C.-Nom party-Loc come-Asp-whether
al-ko.iss-ess-ta.
know-Asp-Decl

‘Mina knew whether Chelswu would come to the party.’

(28) #Mina-nun Chelswu-ka pathi-ey o-l-kka
M.-Top C.-Nom party-Loc come-Mod-whether.SUBJ
al-ko.iss-ess-ta.
know-Pst-Decl

‘(lit.) Mina knew if Chelswu might come to the party.’
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

5. Non-Veridical responsive: *be certain*

(29) Mina-nun Chelswu-ka pathi-ey o-nun-ci
M.-Top C.-Nom party-Loc come-Asp-whether
hwaksinha-ss-ta.
be.certain-Asp-Decl
'Mina was certain whether Chelswu would come to the party.'

(30) #Mina-nun Chelswu-ka pathi-ey o-l-kka
M.-Top C.-Nom party-Loc come-Mod-whether.SUBJ
hwaksinha-ess-ta.
be.certain-Pst-Decl
'(lit.) Mina was certain if Chelswu might come to the party.'
6. Non-Veridical responsive II: *think/believe*

(31)  

**siph** ‘want; think/believe; fear; hope; intend’

a. ppang-ul mek-ko siph-ta  
bread-Acc eat-that want-Decl  
‘I want to eat bread.’

b. Chelswu-ka o-l-kka siph-ta  
C.Nom come-whether.SUBJ think/believe-Decl  
‘I am uncertain/doubt if Chelswu might come.’

c. nwu-ka na-lul po-l-kka siph-ta  
who-Nom I-Acc see-Mod-whether.SUBJ fear-Decl  
‘I fear who would see me.’

d. ilccik ca-ss-umeyn siph-ta  
early sleep-Pst-if hope-Decl  
‘I hope to sleep early.’

e. cip-ey ka-l-kka siph-ta  
home-Loc go-Mod-whether.SUBJ intend-Decl  
‘I intend to go home.’
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

6. Non-Veridical responsive II (polysemous verb): think/believe

‘(intended) Mina thinks that Chelswu will come to the party.’

(33) Mina-nun Chelswu-ka pathi-ey o-l-kka
think/believe-Pst-Decl
‘Mina was uncertain if Chelswu might come to the party.’
‘Mina doubted if Chelswu might come to the party.’
7. Morphological negative epistemic factive: *not know*

(34) Chelswu-ka pathi-ey o-nun-ci mol-la.
C.-Nom party-Loc come-Asp-whether not.know-Decl
‘I *don’t know* whether Chelswu would come to the party.’

(35) Chelswu-ka pathi-ey o-l-kka mol-la.
C.-Nom party-Loc come-Mod-whether.SUBJ not.know-Decl
‘I *doubt* if Chelswu *might* come to the party.’
8. Evaluative Negation (EN)

(36) #Mina-nun Chelswu-ka pathi-ey oci-\textbf{anh-ul-ci} siph-(e)ss-ta.  
Mina-Top C.-Nom party-Loc come-Neg-Mod-whether  
cojecture-Pst-Decl  
‘(intended) Mina \textbf{conjectured} whether Chelswu might come to 
the party.’

(37) Mina-nun Chelswu-ka pathi-ey oci-\textbf{anh-(u)l-kka}  
Mina-Top C.-Nom party-Loc come-Neg-Mod-whether.SUBJ  
siph-(e)ss-ta.  
think/believe-Pst-Decl  
‘Mina \textbf{conjectured} whether Chelswu might come to the party.’
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

The verbs (u)l-kka take are only compatible with situations where an **epistemic subject/speaker is unsure** about the realization of the embedded propositional content.
Core properties of (u)l-kka
Different types of interrogative predicates b/w ci vs. (u)l-kka

- Interim Question: Which type of Q-Comp each predicate prefers to select?
Core properties of (u)l-kka
Corpus studies I: frequency tests

- We collected data from Sejong 21 sense tagged corpus, approximately 12 million words of written texts.
- **26 predicates** co-occurring both with *ci* and *(u)l-kka* were extracted by using Perl program.

<table>
<thead>
<tr>
<th>Core property</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogative (2.59%)</td>
<td>kungkumha ‘wonder’ (33), kwungliha ‘wonder/ponder’ (10), mut ‘ask’ (4), uyaha ‘wonder’ (2), alapo ‘investigate’ (1)</td>
</tr>
<tr>
<td>Veridical (0.15%)</td>
<td>al ‘know’ (1), hwakinha ‘verify’ (1), ihayha ‘understand’ (1)</td>
</tr>
<tr>
<td>Non Veridical (97.24%)</td>
<td>ha ‘conjecture’ (787), siph ‘believe/think’ (214), sayngkakha ‘think’ (136), molu ‘doubt’ (4), yusimsulep ‘doubt’ (4), kanumha ‘guess’ (1), cimcakha ‘conjecture’ (1)</td>
</tr>
<tr>
<td>Emotive (37.66%)</td>
<td>po ‘for fear’ (580), twulyep ‘be fearful/afraid of’ (38), kominha ‘agonize; being concerned’ (24), kekcenga ‘be anxious’ (21), wulyetwoy ‘be concerned’ (18), kekcength ‘be worried’ (14), yemlyetwoy ‘be fear for’ (11), mwusep ‘be fear for’ (10), yemlyesulep ‘fear for’ (4), kepna ‘be feared’ (4), pwulanha ‘be anxious’ (1)</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Core property</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rogative (6.69%)</td>
<td>kwungliha ‘wonder/ponder’ (5), mut ‘ask’ (130), kungkumha ‘wonder’ (33), uyaha ‘wonder’ (14), alapo ‘investigate’ (61)</td>
</tr>
<tr>
<td>Veridical (86.22%)</td>
<td>molu ‘not know’ (1801), al ‘know’ (1209), hwakinha ‘verify’ (73), po ‘investigate’ (7), ihayha ‘understand’ (41)</td>
</tr>
<tr>
<td>Non Veridical (7.07%)</td>
<td>ha ‘guess’ (57), cimcakha ‘conjecture’ (36), siph ‘believe/think’ (1), sayngkakha ‘think’ (68), yusimsulep ‘doubt’ (45), kanumha ‘guess’ (11)</td>
</tr>
<tr>
<td>Emotive (1.07%)</td>
<td>twulyep ‘be fearful/afraid of’ (5), kominha ‘agonize; being concerned’ (5), wulyetwoy ‘be concerned’ (3), kekcenga ‘be anxious’ (6), yemlyetwoy ‘fear for’ (1), mwusep ‘be fear for’ (2), kekcengt ‘be worried’ (5), yemlyesulep ‘fear for’ (1), kepna ‘be feared’ (1), pwulanha ‘be anxious’ (10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>1925</th>
</tr>
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<tbody>
<tr>
<td>Total</td>
<td>3631</td>
</tr>
</tbody>
</table>
Core properties of (u)l-kka
Corpus studies II: the statistical method (Dunning (1993)’s Log-likelihood)

The statistical verification: LL, p < 0.05.

ul-kka: Nonveridical > Veridical
ci: Veridical > Nonveridical

Table: Predicates most strongly co-occurred with the ul-kka-Comp

<table>
<thead>
<tr>
<th>predicates</th>
<th>ul-kka_freq</th>
<th>ci_freq</th>
<th>LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ha 'conjecture'</td>
<td>787</td>
<td>57</td>
<td>1328.71</td>
</tr>
<tr>
<td>po 'for fear'</td>
<td>580</td>
<td>7</td>
<td>1181.77</td>
</tr>
<tr>
<td>siph 'believe/think'</td>
<td>214</td>
<td>1</td>
<td>449.99</td>
</tr>
<tr>
<td>sayngkakha 'think'</td>
<td>136</td>
<td>68</td>
<td>90.33</td>
</tr>
<tr>
<td>twulaep ‘be fearful/afraid of’</td>
<td>38</td>
<td>5</td>
<td>55.26</td>
</tr>
<tr>
<td>kominha ‘agonize’;</td>
<td>24</td>
<td>5</td>
<td>29.29</td>
</tr>
<tr>
<td>wulyetwoy ‘be concerned’</td>
<td>18</td>
<td>3</td>
<td>29.29</td>
</tr>
<tr>
<td>kekcengha ‘be anxious’</td>
<td>21</td>
<td>6</td>
<td>21.71</td>
</tr>
<tr>
<td>yemlyetwoy ‘fear for’</td>
<td>11</td>
<td>1</td>
<td>17.69</td>
</tr>
<tr>
<td>Kekcengtwoy ‘be worried’</td>
<td>14</td>
<td>5</td>
<td>12.47</td>
</tr>
<tr>
<td>mwusep ‘be fear for’</td>
<td>10</td>
<td>2</td>
<td>12.43</td>
</tr>
<tr>
<td>kwungiha ‘wonder/ponder’</td>
<td>10</td>
<td>2</td>
<td>12.43</td>
</tr>
<tr>
<td>yemlyesulep ‘fear for’</td>
<td>4</td>
<td>1</td>
<td>4.46</td>
</tr>
<tr>
<td>kepna ‘be feared’ (4)</td>
<td>4</td>
<td>1</td>
<td>4.46</td>
</tr>
</tbody>
</table>

Table: Predicates most strongly co-occurred with the ci-Comp

<table>
<thead>
<tr>
<th>predicates</th>
<th>ul-kka_freq</th>
<th>ci_freq</th>
<th>LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>molu 'not know'</td>
<td>4</td>
<td>1801</td>
<td>1447.7</td>
</tr>
<tr>
<td>al ‘know’</td>
<td>1</td>
<td>1209</td>
<td>990.19</td>
</tr>
<tr>
<td>mut ‘ask’</td>
<td>4</td>
<td>103</td>
<td>60.05</td>
</tr>
<tr>
<td>hwakinha ‘verify’</td>
<td>1</td>
<td>73</td>
<td>52.2</td>
</tr>
<tr>
<td>alapo ‘investigate’</td>
<td>1</td>
<td>61</td>
<td>42.59</td>
</tr>
<tr>
<td>kungkumha ‘wonder’</td>
<td>33</td>
<td>171</td>
<td>32.69</td>
</tr>
<tr>
<td>ihayha ‘understand’</td>
<td>1</td>
<td>41</td>
<td>26.76</td>
</tr>
<tr>
<td>cimcakha ‘conjecture’</td>
<td>1</td>
<td>36</td>
<td>22.87</td>
</tr>
<tr>
<td>uysimsulep ‘doubt’</td>
<td>4</td>
<td>45</td>
<td>18.3</td>
</tr>
<tr>
<td>kanumha ‘doubt’</td>
<td>1</td>
<td>11</td>
<td>4.41</td>
</tr>
<tr>
<td>uyaha ‘guess’</td>
<td>2</td>
<td>14</td>
<td>3.89</td>
</tr>
<tr>
<td>pwulanha ‘be anxious’</td>
<td>1</td>
<td>10</td>
<td>3.76</td>
</tr>
</tbody>
</table>
Core properties of (u)l-kka (u)l-kka as a modalized question (MQ) marker

▶ By using MQ, the speaker expresses her epistemic uncertainty or conjecture on the given proposition in question.

▶ Cross-linguistically, MQs are formed by the combination of epistemic modal marker and question marker (Kang and Yoon, to appear: (1)-(3)):

(38) Yurie-wa wain-o nomu darou-ka.
Yurie-TOP wine-ACC drink DAROU-Q
‘I wonder if Yurie drinks wine.’ [Japanese MQ]

(39) lan=as=há=k’a kwán-ens-as
already=3.SUBJ=YNQ=INFER take.DIR-3.ERG
ni=n-s-mets-cál=a.
DET.ABS=1sg.POSS-NOM=write-ACT=EXIS
‘I wonder if she’s already got my letter.’
‘I don’t know if she got my letter or not.’ [St´at’imcets MQ]

(40) na tou milise (arage)?
SUBJ him talked-3sg Q
‘Might she have talked to him?’ [Greek MQ]
Core properties of (u)l-kka
(u)l-kka as a modalized question (MQ) marker

Korean MQ (C. Lee 2011, 2012 (49b)):

(41) pi-ka o-ass-\textbf{ul-kka} (Q)? conjectural Q, wondering
(with the modal –ul)
‘I \textit{wonder/don’t know} if it has rained.’
Core properties of (u)l-kka

(u)l-kka as a modalized question (MQ) marker

1. MQ reports on the speaker’s consideration of a set of possibilities of the given propositional content (Kang & Yoon, to appear):

\[(42) \quad [\text{MQ}]^{O,M,i,S} = [\text{that it is possible that } p] \cup [\text{that it is not possible that } p]\]

Context: John and Mary are talking about Santa Clause. Although they aware that Santa Clause does not exist in a real world, they wonder how old Santa would be if he exists. John asks Mary:

\[(43) \quad \text{santa-nun myech-sal-i-l-kka?} \quad \text{[MQ]}\]
\[\quad \text{Santa-Top what-age-be-Mod-Q} \quad \text{‘How old might Santa Clause be?’}\]

\[(44) \quad \#\text{santa-nun myech-sal-i-ni?} \quad \text{[Ordinary Q]}\]
\[\quad \text{Santa-Top what-age-be-Q} \quad \text{‘How old Santa is?’}\]
Core properties of (u)l-kka
(u)l-kka as a modalized question (MQ) marker

(2) MQs express speaker’s epistemic uncertainty on the propositional content.

Context: John flew from Seoul to London on Friday, not knowing the time difference between Seoul and London. When arrived in London, he was not sure whether it was Friday or not. With full uncertainty, John said (to himself):

(45) onul-i kumyoil-i-l-kka?
today-Nom Friday-be-Mod-Q
‘Might today be Friday?’
≈ ‘I am uncertain whether today is Friday.’
≈ ‘I conjecture (the possibility) that today might be Friday.’

(46) #onul-i kumyoil-i-ni?
today-Nom Friday-be-Q
‘Is today Friday?’

[MQ]

[Ordinary Q]
Summing up,

- The employment of a (u)l-kka strongly indicates the epistemic subject/speaker’s indeterminacy concerning the realization of the content of the embedded proposition.

- The uncertainty may originate either from the subject’s presumption of the medium/low-possibility of the event given by contextually available information or from the subject’s lack of information on the matter.

- This was firmly evidenced by the corpus studies and the dual function of (u)l-kka as an MQ marker in an unembedded clause!
Outlines

Core properties of (u)l-kka
  Different types of interrogative predicates with ci vs. (u)l-kka
  Corpus studies
  (u)l-kka as a modalized question marker

Analysis
  (u)l-kka and possible answers
  Nonhomogeneous doxastic space

Conclusions and implications
Analysis
(u)l-kka and possible answers

- (u)l-kka in embedded clause: epistemic subjunctive marker in subordinator C

- The semantics of (u)l-kka:
  1. It comprises all potential answers
  2. It is sensitive to nonveridical weakening (cf. inquisitive belief (Mari 2016b))
Analysis
Nonhomogeneous doxastic space

a. Mina-nun Chelswu-ka pathi-ey o-l-kka
M.-Top C.-Nom party-Loc come-Mod-whether.SUBJ
siph-ess-ta.
think/believe-Pst-Decl
‘Mina is uncertain whether Chelswu might come to the party.’

b. (47a) is true iff Mina believes that \( p \), where \( p \) is a potential answer to will Chelswu come to the party? & Mina is undecided as to where the actual world is on the possible answer sets

- Korean belief verbs like *mit* can be understood as a strong belief whereas verbs like *siph* expresses private/subjunctive belief
- Subjunctive is deeply tight to the notion subjectivity, i.e. consideration of spaces of beliefs, doxastic, epistemic, bouletic (Farkas 1992; Giannakidou 1994 et seq.; Villata 2008; Smirnova 2013, a.o.).
Building on Giannakidou (1994 et seq.), we treat (non)veridicality as a property of subjective spaces. The subjective spaces are the based on the epistemic state of an individual as follows:

\begin{equation}
\text{Epistemic state of an individual anchor } i \quad (\text{Giannakidou 1999: (45))}: \\
\text{An epistemic state } M(i) \text{ is a set of worlds associated with an individual } i \text{ representing worlds compatible with what } i \text{ knows or believes}
\end{equation}

\begin{itemize}
\item M(i) is the private space of i’s thought, belief and knowledge, and it plays a key role in truth assessment. Subjective veridicality is anchored to an individual’s M(i).
\item In unembedded assertions, i is the speaker. In embedding, i is the speaker or the subject.
\end{itemize}
Analysis
Nonhomogeneous doxastic space

(49) Subjective veridicality (Giannakidou and Mari 2017: (25)): A function F that takes a proposition $p$ as its argument is subjectively veridical w.r.t. an individual anchor i and an epistemic state $M(i)$ iff:
$$\forall w[w \in M(i) \rightarrow w : \{w' \mid p(w')\}]$$

(50) Subjective as an indicator of nonveridicality (Giannakidou 2016: (46)):

a. The subjunctive is an indicator of a nonveridical state or modal base, and is selected by expression that are at least subjectively nonveridical.

b. Subjunctive sentences indicate epistemic weakening.

- The subjunctive thus produces epistemic weakening, which means that it separates the monogeneity of $M$. 
Commitment weakening is the creation of a nonveridical (i.e. nonhomogeneous) epistemic space as below:

\[(51)\] Epistemic non-homogeneity of \((u)l\)-kka:

- Given that \(M\) be a set of worlds, compatible with what the speaker/subject knows in \(w\), \(M\) is partitioned between \(p\) and non-\(p\) worlds, then \(i\) is in a state of epistemic uncertainty.
Subjective nonveridicality of *ul-kka* thus means that *i* is in a state of subjective nonveridicality with respect to *p*.

- \( M(i) \) as a whole does not support *p*. Some worlds in \( M(i) \) support *p* and some other don’t (à la Giannakidou and Mari 2017).

(52) Subjective nonveridicality of \((u)l-kka\) 

A function \( F \) that takes a proposition \( p \) as its argument is subjectively nonveridical with respect to an individual anchor *i* and an epistemic state \( M(i) \) iff:

\[ \exists w' \in M(i) : \neg p(w') \land \exists w'' \in M(i) : p(w'') \]
Outlines

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Conclusions and implications
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Table: modal contexts and selection of indicative, interrogative or subjunctive in complement clauses
Conclusions and implications

1. Korean subjunctive mood can occur in the “inquisitive” complement clause.

2. The occurrence of (u)l-kka depends on the higher verbs whose subject provides nonhomogeneous doxastic space.

3. Such more needs to be said to gain a full understanding of the precise nature of the relationship between inquisitiveness and subjunctive.


Appendix

MQ and question-answerhood

Regarding the non-requirement of answer from the hearer, Koo and Rhee (2013b) provide a descriptive explanation on the wide range of usages of MQ from monologue to question-answerhood, portraying it as a “feigned monologue”:

(53) Characteristics of MQ as a “feigned monologue” (Koo and Rhee 2013b: (14)):

a. The speaker says something as if it were a monologue.
b. It may take the form of a question, as if it were a self-addressed question.
c. Because of the monologic nature of the utterance, it does not necessarily obligate the hearer to respond.
d. From the viewpoint of discursive strategies, the speaker shows gentleness by not imposing a direct burden of response on the intended addressee, and the implicit addressee now shows courtesy by being responsive to “what the other seems to have had in mind.”
Appendix

EN co-occurring with (u)l-kka (Yoon 2013)

▶ Subordinate EN is a subspecies of subjunctive mood marker which creates an additional attitudinal meaning on a separate layer of doxastic states.

▶ The occurrences of subjunctive mood and EN has in common is that they denote the epistemic subject’s attitude in terms of uncertainty toward the content of the proposition.

▶ The function of EN seems to be expressing the unlikelihood of the actualization of the propositional content in the subordinate clause within the epistemic subject’s model.

▶ A speaker choose to employ EN in order to indicate the medium or low likelihood of a future event.

▶ An epistemic subject employs a subjunctive-like marker EN as a means not to commit to the truth of what she says because she is not sure.
Appendix

Korean siph vs. Italian crede

(54) Chelswu-ka pathi-ey o-I-kka
C.-Nom party-Loc come-Mod-whether.SUBJ
siph-ta.
think/believe-Decl
‘I am uncertain whether Chelswu might come to the party.’
‘I doubt if Chelswu might come to the party.’

(55) Chelswu-ka pathi-ey o-ci siph-ta.
C.-Nom party-Loc come-whether think/believe-Decl
‘Chelswu is coming to the party, I think.’

▶ Korean siph (i) subjective belief (ii) discourse belief
▶ Italian crede (i) belief-only (indicative) (ii) discourse belief (subjunctive)