Questioning, asserting, and making an order without a verb in Korean*

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August 11, 2020

Abstract

This paper explores a case of embedded attitude with the use of clause type particle and the attitudinal reportative particle in Korean. The crucial example here is a case where an embedded clause alone, headed by a complementizer *-ko*, is used as an independent utterance even when it is not used as a fragment answer. This structure, which I refer to as the STAND-ALONE *-ko* STRUCTURE, can not only embed different types of clause type particles (e.g., declarative, interrogative, and imperative) but also have different semantic meanings depending on the boundary tone that follows. I show that the stand-alone structure can be expressed as what I refer to as the FULL FORM, which is an NP that embeds a CP. Grounded on an existing proposal on the choice of mood in relation to (non)veridicality, I argue that the stand-alone structure amounts to an embedded clause that encodes an epistemic agent's attitude towards the embedded propositional content. I also suggest that the boundary tone has a function similar to that of speech act, expressing speaker's certainty towards the embedded proposition and marking the discourse function of an ambiguous structure.

1 The puzzle with the clause type particle and the complementizer

Imagine you are meeting your friends, Amy, Bomi, and Dan at the Grand Central Station. You arrived first, and Amy and Dan arrives. Amy asks to you, "Did Bomi come?" If they are speaking in Korean, Amy would say as in (1-b). Particles *-ni* and *-nya* are interrogative markers, which are associated with a question. In Korean, there is an overt question morpheme, without which a sentence becomes ill-formed (1-a). This is different from English, where a question is marked not by a particle but by do-support and inversion of word order.

(1) a. *Bomi-ka o-ass?
Bomi-NOM come-PST
'Did Bomi come?

b. Bomi-ka o-ass-{**ni**/**nya**}?
Bomi-NOM come-PST-{**INT**/**INT**}

*I thank my two qualifying paper readers, Anastasia Giannakidou and Chris Kennedy, for their extensive feedback and discussion. This paper has been submitted in completion of the Master's thesis at the University of Chicago.

'Did Bomi come?

However, there is an important difference between these two interrogative particles. While the interrogative particle *-nya* can be embedded, the other interrogative particle *-ni* cannot (2). I refer to this as the EMBEDDABILITY CONSTRAINT (e.g. Pak, 2008; Portner et al., 2019), where one type of particle can be embedded under the complementizer *-ko* while the other cannot.

(2) a. Amy-ka [Bomi-ka o-ass-{*__ni__/__nya__}]-__ko__ mwul-ess-ta
Amy-NOM Bomi-NOM come-PST-{*__INT__/__INT__}-__COMP__ ask-PST-DECL
'Amy asked whether Bomi came.'

The key data I address in this paper is the following case in (3). I refer to the structure in (3) as the STAND-ALONE *-ko* STRUCTURE, where the complementizer *-ko* is used an utterance-final particle. Note that the embeddability constraint still stands with this stand-alone *-ko* structure such that *-ni* cannot be embedded while *-nya* can.

(3) a. Bomi-ka o-ass-{*__ni__/__nya__}-__ko__ [__H%__]
Bomi-NOM come-PST-{*__INT__/__INT__}-__COMP__
[Question] Int. 'Are you asking whether Bomi came?'

b. Bomi-ka o-ass-{*__ni__/__nya__}-__ko__ [__HL%__]
Bomi-NOM come-PST-{*__INT__/__INT__}-__COMP__
[Self-assurance] Int. 'Oh, you're asking whether Bomi came.'

c. Bomi-ka o-ass-{*__ni__/__nya__}-__ko__ [__LHL%__]
Bomi-NOM come-PST-{*__INT__/__INT__}-__COMP__
[Question] (Annoyance) Int. 'Again, did Bomi come?'

Moreover, the boundary tone (intonation) with this stand-alone *-ko*-structure contributes to the meaning of the sentence. For example, while examples in (3) have the same structure, they have different meanings, and the difference comes from the boundary tone. If the *-ko*-structure is used with a rising boundary tone (H%) (3-a), it has the function of a question. Say Amy asked you a question, "Did Bomi come?" ((1-b)), but you could not hear what exactly she said. Then you would ask a question back to Amy, and you can used the sentence in (3-a). It becomes a question about a question asked earlier. Meanwhile, when the same structure has a rise-fall boundary tone (HL%) (3-b), the sentence is to express the speaker's self-assurance about what has been said earlier. Imagine that after you asked a question as in (3-a), Amy repeats the same question, "Did Bomi come?". Once you understand what Amy's question is, you would say as in (3-b), as a way to express your certainty about what has been said earlier. The third case is when a fall-rise-fall (LHL%) boundary tone is used. This is used when the previous utterance is repeated. If you could not understand what Amy said and Amy repeats the same question, "Did Bomi come?" (over and over), Amy would say as in (3-c). In addition to repeating the previous utterance, the *-ko*-structure with the LHL% tone delivers the speaker's annoyance.

The role of the boundary tone is striking given the absence of the influence of the boundary tone when *-ko* is not used in the stand-alone structure as in (4).

(4) a. Bomi-ka o-ass-**ni** [**H%**]/[**HL%**]/[**LHL%**]
Bomi-NOM come-PST-**INT**
'Did Bomi come?'

Despite the fact that the canonical boundary tone of a polar question in Korean is a rising tone (H%) (Park, 2003; Jun, 2005), the meaning of the sentence, "Did Bomi come?" in (4) survives even when a different type of boundary tone (e.g., HL%, LHL%) is used.

It is then curious what the function of the particle *-ko* is such that (a) it can be used at the utterance-final position and form a stand-alone structure and that (b) it allows the stand-alone structure to be influenced by the boundary tone, which contributes to having different semantic meanings.

1.1 Generalization across clause types

The puzzle we just saw is not restricted to embedded interrogatives but can be generalized across different clause types. Taking into account the generalizability is crucial as the generalization across clause types informs us of the function of *-ko*, independent of the clause type particles and boundary tone. I show that what we saw with embedded interrogative particles holds the same with embedded declarative and imperative particles. I present in this section three major generalizations across embedded interrogative particles, embedded declarative particles, and embedded imperative particles.

The first generalization we see across clause types is that a sentence is ill-formed without a clause type particle (henceforth CTP) (5). Just as we saw in (1), imperative CTPs, *-ala* and *-la*, for example, are used to mark an imperative clause (e.g. Han, 1998; Pak, 2008; Zanuttini et al., 2012)(5-b). The absence of an overt imperative CTP, on the other hand, makes a sentence ill-formed (5-a).

(5) a. *o
come
'Come.'

b. o-**ala/la**
come-**IMP**/**IMP**
'Come.'

The obligatory use of CTP holds for declaratives as well. As shown in (6), declarative CTPs, *-e* and *-ta*, are required (6-b); a sentence is ill-formed in the absence of the CTP (6-a).[1]

(6) a. *Bomi-ka o-ass
Bomi-NOM come-PST
'Bomi came.'

b. Bomi-ka o-ass-**e/ta**
Bomi-NOM come-PST-**DECL**/**DECL**
'Bomi came.'

[1] Exhortatives and promissives are also marked with an overt morpheme in Korean. See Pak (2008) and Zanuttini et al. (2012) for exhortative CTP and promissive CTP.

The second generalization pertains to the embeddability constraint. We saw in (3) that one type of interrogative CTP cannot be embedded while the other type can. The same pattern is observed with imperative CTPs and declarative CTPs. The imperative particle *-ala* cannot be embedded whereas *-la* can (7-a); the declarative particle *-e* cannot be embedded whereas *-ta* can (7-b).

(7) Embeddability of CTP (adapted from Portner et al. 2019: pp. 7–8)

a. Amy-ka Bomi-hanthey [choysen-ul ta ha-{*__ela__/__la__}]-__ko__ malha-ess-ta
Amy-NOM Bomi-DAT best-ACC all do-{*__IMP__/__IMP__}-__COMP__ say-PST-DECL
'Amy told Bomi to do her best.'

b. Amy-ka Bomi-hanthey [choysen-ul ta ha-ess-{*__e__/__ta__}]-__ko__ malha-ess-ta
Amy-NOM Bomi-DAT best-ACC all do-PST-{*__DECL__/__DECL__}-__COMP__ say-PST-DECL
'Amy$_i$ told the Bomi that she$_i$ did her$_i$ best.'

Thirdly, the stand-alone *-ko* structure exists across different types of embedded CTPs: embedded imperative CTP (8), and embedded declarative CTP (9). We also see the boundary tone contributing to the meaning of the sentence.

(8) a. o-{*__ala__/__la__}-__ko__ [__H%__]
come-{*__IMP__/__IMP__}-__COMP__
[Question] Int. 'Are you telling (me) to come?'

b. o-{*__ala__/__la__}-__ko__ [__HL%__]
come-{*__IMP__/__IMP__}-__COMP__
[Self-assurance] Int. 'Oh, you're telling (me) to come.'

c. o-{*__ala__/__la__}-__ko__ [__LHL%__]
come-{*__IMP__/__IMP__}-__COMP__
[Order] (Annoyance) Int. 'Again, come.'

(9) a. Bomi-ka o-ass-{*__e__/__ta__}-__ko__ [__H%__]
Bomi-NOM come-PST-{*__DECL__/__DECL__}-__COMP__
[Question] Int. 'Are you saying that Bomi came?'

b. Bomi-ka o-ass-{*__e__/__ta__}-__ko__ [__HL%__]
Bomi-NOM come-PST-{*__DECL__/__DECL__}-__COMP__
[Self-assurance] Int. 'Oh, you're saying that Bomi came.'

c. Bomi-ka o-ass-{*__e__/__ta__}-__ko__ [__LHL%__]
Bomi-NOM come-PST-{*__DECL__/__DECL__}-__COMP__
[Assertion] (Annoyance) Int. 'Again, Bomi came.'

The crucial data on the generalization with the stand-alone *-ko* structure across different clause types are summarized in Table 1. The stand-alone structure with the rising boundary tone (H%) has a speech act of question, but what is being asked depends on the embedded CTP. For instance, if your friend told you to come and you want to confirm what you heard, you would ask a question as in (8-a). If you finally understood what your friend was telling you, then you would say as in (8-b), as way to express your self-assurance of what was said by your friend. When you are the one telling your friend to come, and your friend would not listen, you would repeat what you said by using the *-ko*-structure with the fall-rise-fall boundary tone (LHL%) as in (8-c). Given the canonical boundary tone used with an

imperative/order in Korean is a falling tone (Park, 2003; Jun, 2014), it is evident that the three different boundary tones are playing a role in shaping the meaning of the sentence. We also see the same pattern with the embedded declarative CTP.

	[H%]	**[HL%]**	**[LHL%]**
INT-KO	[Question] 'Are you asking whether Bomi came?'	[Self-assurance] 'Oh, you're asking whether Bomi came.'	[Question] 'Again, did Bomi come?'
IMP-KO	[Question] 'Are you telling (me) to come?'	[Self-assurance] 'Oh, you're telling (me) to come.'	[Order] 'Again, come.'
DECL-KO	[Question] 'Are you saying that Bomi came?'	[Self-assurance] 'Oh, you're saying that Bomi came.'	[Assertion] 'Again, Bomi came.'

Table 1: The interaction paradigm

1.2 Roadmap

In this paper, I discuss the stand-alone *-ko* structure and the role of the boundary tone in the stand-alone structure. I begin by providing an overview of the key linguistic components involved in the current data, including clause type particles (CTPs), and the particle *-ko* (Section 2). In Section 2.1, I introduce the distinction of the PLAIN CTP and the NON-PLAIN CTP, which perform differently with regards to the embeddability constraint. I also demonstrate that plain CTP can be understood as mood. In Section 2.2, I discuss the role of the *-ko* particle, and show that the particle *-ko* is a complementizer that introduces a syntactically embedded clause.

I show in Section 3 how the plain CTP and *-ko* particle should be analyzed. I first provide an overview of an existing proposal on mood and (non)veridicality (Giannakidou, 2009, a.o), which I adopt for my analysis 3.1. I then show in Section 3.2 that the plain CTP and the *-ko* particle under an embedding verb can also be understood in terms of mood and veridicality. I argue that the plain CTP is related to mood, which is selected by a higher attitude verb. In particular, I suggest that the plain declarative CTP (*-ta*) is related to (veridical) indicative, the plain imperative CTP (*-la*) to (anti-veridical) subjunctive, and the plain interrogative CTP (*-nya*) to (nonveridical) inquisitive. Moreover, I argue that the *-ko* particle is a complementizer that embeds an individual's epistemic state towards the proposition.

Based on these building blocks, I provide an analysis of the stand-alone structure, the key data of the present paper (Section 4). I provide a general sketch on the conventional use of the three boundary tones used in our data (H%, HL%, and LHL%), and show how boundary tone is used for disambiguation (Section 4.1). I then show in Section 4.2 that the stand-alone structure can be understood as what I refer to as the FULL FORM (an NP that embeds an CP). The role of boundary tone used in the stand-alone *-ko* structure is tightly associated with the speech act the speaker performs, and delivers the speaker's degree of certainty and commitment towards the embedded clause to which an attitude holder expresses their

attitude. I suggest that it has the function of disambiguating the discourse function of the stand-alone structure. Finally, I conclude in Section 5.

2 Background and motivation

2.1 Clause type particle and speech style and mood

One-paragraph summary In this section, I briefly introduce the use of CTPs in Korean and make the distinction of PLAIN CTPs and NON-PLAIN CTPs. While the plain CTP does not specify the speaker-interlocutor relation, the non-plain CTP encodes such relation. Such difference explains the embeddability constraint, which is that only the plain CTP can be embedded. I also relate plain CTPs to mood such that plain CTPs can be understood just as mood.

Korean is a language with a large inventory of sentence final particles, and these particles vary depending on the speech style and the clause type. Sentence final particles are categorized by two tiers: (a) clause type, and (b) speech style (e.g. Pak, 2008; Seo, 2017; Portner et al., 2019). First, clause types, which are classes of sentences, are grammatically marked in Korean by the corresponding CTP. CTPs include declarative, interrogative, imperative, exhortative, and promissive type particles. As shown in the previous sections, a clause type in Korean is dependent on, if not determined by, the corresponding CTP. An exception is the particle, *-e* (or *-a* depending on the pronunciation of the preceding word), which can be used with different clauses; it can be used for a declarative, an interrogative, and an imperative. When these particles are used, boundary tones become important. For example, When a rising intonation (H%) is used with these particles, the sentence functions as a question (10-a); when a falling intonation (L%) is used, the sentence functions as an assertion (10-b).[2]

(10) a. Bomi-ka kheyik-ul mek-ess-**e** [**H%**]
Bomi-NOM cake-ACC eat-PST-**SFP.INTM**
'Did Bomi eat cake?'

b. Bomi-ka kheyik-ul mek-ess-**e** [**L%**]
Bomi-NOM cake-ACC eat-PST-**SFP.INTM**
'Bomi ate cake.'

The particle *-e* can also be used with an imperative (11-a). An imperative is commonly marked with a falling boundary tone (L%):

(11) a. kheyik-ul mek-**e(la)**
cake-ACC eat-**IMP**
'Eat cake.'

The second component of the sentence final particles in Korean is speech style. Speech style marks the relationship between the speaker and the addressee. Even the same clause type can be marked

[2] One can know, of course, that it is an interrogative when wh-words are used.

with a different particle depending on the speech style. It is generally agreed that types of speech style include intimate, familiar, formal, and plain type particles (e.g. Pak, 2008; Seo, 2017; Portner et al., 2019). For instance, the intimate speech style particle is used between family members, close friends, and friends of the same age. The familiar speech style is used between acquaintance and close colleagues. The plain style particle is mostly found in written texts such as reports, newspapers, and journal articles.

The difference type of particles depending on the speech style leads to the categorization of CTPs: the PLAIN CTP and the NON-PLAIN CTP. The CTPs that are not used in plain speech style context are non-plain CTPs. The key difference is that the plain CTP does not involve a speaker-interlocutor relation (e.g. Sohn, 1999, 2015; Portner et al., 2019), while the non-plain CTP requires speaker-interlocutor relation information. The plain CTP can indeed be used in a discourse context; yet, the sentence marked with a plain CTP would be interpreted as a self-directed speech, as the plain CTP does not involve any speaker-interlocutor relation. Another evidence for distinguishing plain CTPs from non-plain CTPs comes from the embeddability of CTP. It is only the plain CTP that can be embedded as a complement. As we saw earlier in the previous sections, it is grammatical to embed the plain CTP (e.g., *-nya* for an interrogative, *-la* for an imperative, *-ta* for a declarative) under the reportative particle *-ko* whereas it is not for the non-plain CTP (e.g., *-ni* for an interrogative, *-ala* for an imperative, *-e* for a declarative).

The two types of CTP, the plain CTP and the non-plain CTP, are illustrated in Table 2. The column corresponds to clause type, and the row to speech style. In this paper, I mainly focus on interrogatives, imperatives, and declaratives for clause type, and intimate and plain particles for speech style. While non-plain CTP include intimate, familiar, formal, and other forms, I will only use the intimate speech style as the representative case for non-plain CTP for simplicity. Moreover, in order to avoid ambiguity because of the multi-purpose use of *-e* or *-a*, I will use these particles only for the declarative use. I will use *-ni* will for the non-plain interrogative CTP, and *-ala* or *-ela* for non-plain imperative CTP. The relevant particles that I use in this paper are bold-faced.

	Interrogative	**Declarative**	**Imperative**
Non-plain	**-ni** / -e / -a	**-e** / **-a**	**-ela** / **-ala**
Plain	**-nya**	**-ta**	**-la**

Table 2: The key inventory of sentence final particles in Korean

The distinction of the plain CTP and the non-plain CTP sheds light to understanding the embeddability constraint. We see that the plain CTP can be embedded, while the non-plain CTP cannot (12). We now have a more correct gloss for the CTP in (12), with the distinction of the plain CTP (glossed as PLN) and the non-plain CTP (glossed as 'NON-PLN').

(12) a. Amy-ka [Bomi-ka o-ass-{*__ni__/__nya__}-__ko__ mwul-ess-ta
Amy-NOM Bomi-NOM come-PST-{*__INT.NON-PLN__/__INT.PLN__}-__COMP__ ask-PST-DECL
'Amy asked whether Bomi came.'

b. Amy-ka [Bomi-ka o-ass-{*__e__/__ta__}-__ko__ malhay-ss-ta
Amy-NOM Bomi-NOM come-PST-{*__DECL.NON-PLN__/__DECL.PLN__}-__COMP__ say-PST-DECL

'Amy said that Bomi came.'

c. Amy-ka [Bomi-eykey o-{*__ala__/__la__}-__ko__ malhay-ss-ta
Amy-NOM Bomi-DAT come-{*__IMP.NON-PLN__/__IMP.PLN__}-__COMP__ tell-PST-DECL
'Amy told Bomi to come.'

I follow Portner et al. (2019) and assume the non-plain CTPs encode additional meaning that is incompatible with embedding. The idea is that the plain CTP is only related to the propositional meaning whereas the non-plain CTP involves a performative dimension related to the discourse context. As non-plain CTPs embed interlocutor information, they cannot be embedded. Hence, the embeddability constraint is explained by the differently encoded feature in plain CTPs compared to non-plain CTPs.

The distinction of non-plain CTPs and plain CTPs can be better understood in relation to mood. More specifically, there is a parallel between the plain CTPs and mood such that Korean plain CTPs can be understood as mood (e.g. Han, 1998). Consider the dependency between the verb and mood in Italian in (13). The example below shows how mood choice, either subjunctive or indicative, is dependent on the selection of the verb, either *know* or *want*.

(13) a. Marco sa che la primavera {__è__/*__sia__} arrivata
Marco knows that the spring {be.IND.3SG/*be.SUB.3SG} arrived
'Marco knows that spring has arrived.' (Giannakidou and Mari 2020: 10)

b. Marco vuole che la primavera {*__è__/__sia__} lunga
Marco want that the spring {*be.IND.3SG/be.SUB.3SG} long
'Marco wants spring to be long.' (Giannakidou and Mari 2020: 11)

Just as mood is contingent on verb selection, the choice of embedded plain CTPs in Korean is also dependent on the embedding verb. When a higher verb, 'ask' is used, the plain interrogative CTP is used; the use of plain interrogative CTP *-nya* is incompatible with the higher verb, 'say' (14-a). In a similar vein, the choice of the embedded plain declarative CTP, *-ta*, is dependent on the higher verb, 'say'; the use of *-ta* is not licensed in the presence of a different higher verb, 'ask', for instance (14-a). Similarly, the choice of the embedded plain imperative CTP, *-la*, is dependent on the higher verb, 'tell' such that a different verb such as 'ask' is not licensed as a higher verb (14-c).

(14) a. Amy-ka [Bomi-ka o-ass-__nya__]-__ko__ {mwul/*malhay}-ess-ta
Amy-NOM Bomi-NOM come-PST-__INT.PLN-COMP__ {ask/*say}-PST-DECL
'Amy asked whether Bomi came.'

b. Amy-ka [Bomi-ka o-ass-__ta__]-__ko__ {malhay/*mwule}-ss-ta
Amy-NOM Bomi-NOM come-PST-__DECL.PLN-COMP__ {say/*ask}-PST-DECL
'Amy said that Bomi came.'

c. Amy-ka [Bomi-eykey o-__la__]-__ko__ {malhay/*mwule}-ss-ta
Amy-NOM Bomi-DAT come-__IMP.PLN-COMP__ {tell/*ask}-PST-DECL
'Amy told Bomi to come.'

This parallel between plain CTPs and mood serves as the key to our analysis.

2.2 Particle '*-ko*' as an attitudinal reportative particle

One-paragraph summary In this section, I summarize the three most common uses of the particle *-ko*, and show that the *-ko* particle in our data is an instance of a complementizer. I show that the complementizer *-ko* in our data is an attitudinal reportative particle that introduces an embedded clause. I also make a parallel with a different language, Modern Greek in specific, showing that what is monomorphemic in Modern Greek can be decomposed into mood (plain CTP) and complementizer.

The particle *-ko* in Korean has mainly three different uses: verbal coordination, emphasis on the adjectival meaning, and a complementizer. First, the particle *-ko* can be a suffix for verbal coordination for conjunctive.[3] In terms of the syntactic position of the conjunction *-ko*, it can be preceded by all post-verbal morphemes, including tense (15-a), aspect, and negation can precede the conjunction. However, CTPs (e.g., *-ta* for the declarative marker) cannot precede the connective *-ko* (15-b).

(15) Particle *-ko* for coordination (adapted from Chung 2005: 563–564)

a. John-i chwumchwu-ess-**ko** Mary-ka nolayha-ess-ta
John-NOM dance-PST-**CONN** Mary-NOM sing-PST-DECL
'John danced and Mary sang.'

b. *John-i chwumchwu-ess-ta-**ko** Mary-ka nolayha-ess-ta
John-NOM dance-PST-DECL-**CONN** Mary-NOM sing-PST-DECL
'John danced and Mary sang.'

As *-ko* in our data can be preceded by CTPs, we can conclude that the *-ko* particle in our the data is not a case of verbal coordination.

Secondly, the particle *-ko* is also used for emphasizing an adjectival predicate, as shown below (16). The use of *-ko* in this example emphasizes the meaning of the autumn sky being high.

(16) Emphasis on the adjectival meaning by repetition (National Institute of Korean Language)

a. noph-**ko** noph-un kaul hanul-i cengmal phwulu-ta
high-**EMPH** high-REL autumn sky-COP very blue-DECL
Int. '(That) very high autumn sky is very blue.'

In our data of interest, *-ko* appears after CTPs, and it does not involve an adjective to be emphasized. Hence, our data is not a case of the particle used for adjectival emphasis.

Thirdly, *-ko* is used as a complementizer, the most common use. In particular, the particle *-ko* heads embedded clauses with non-factive attitude verbs.[4]

[3] Coordination in Korean is marked by either a morphological marking system or a lexical marking system (Kim and Yang, 2011). The morphological marking system distinguishes nominal coordination and verbal coordination. Examples for morphological and lexical marking system for coordination in Korean can be found in Kim and Yang (2011).

[4] Embedded clauses with factives verbs are headed by a KES-construction (Kim, 2009).

(i) a. John-un [[totwuk-i tomangka-n]-un kes]-ul al-ess-ta
John-TOP [[thief-NOM run.away-IMPRF]-REL KES]-ACC know-PST-DECL
'John knew (the fact) that the thief was running away.' (Kim 2009: 347)

(17) a. Chelswu-nun [nay-ka chencay-i-ess-**ta**]-**ko** mit-nun-ta
Chelswu-TOP [I-NOM genius-be-PST-**DECL**]-**COMP** believe-PRES-**DECL**
'Chelswu belives that I was a genius.' (Cho 1995: 6)

b. John-un [totwuk-i tomangka-n-**ta**]-**ko** sayngkakhay-ess-ta
John-TOP [thief-NOM run.away-IMPRF-**DECL**]-**COMP** think-PST-DECL
'John thought that the thief was running away.' (Kim 2009: 347)

The complementizer *-ko* is also used as an attitudinal reportative particle, commonly seen in indirect speech (e.g. Sohn, 1999). The reportative particle *-ko* embeds different types of CTP. [5]

(18) a. Suni-ka Mina-ka [onul hakkyo-ey ka-ss-**ta**]-**ko** malhay-ss-ta
Suni-NOM Mina-NOM [today school-LOC go-PST-**DECL.PLN**]-**COMP** say-PST-DECL
'Suni said that Mina went to school today.' (adapted from Sohn 2015: 299-300)

b. Suni-ka Mina-eykey [onul hakkyo-ey ka-**keyssta**]-**ko** yaksok-ss-ta
Suni-NOM Mina-DAT [today school-LOC go-PST-**PRM.PLN**]-**COMP** promise-PST-DECL
'Suni$_i$ promised Mina that she$_i$ will go to school today.' (adapted from Sohn 2015: 299-300)

c. Suni-ka Mina-eykey [onul hakkyo-ey ka-**ca**]-**ko** ceyanhay-ss-ta
Suni-NOM Mina-DAT [today school-LOC go-**EXH.PLN**]-**COMP** suggest-PST-DECL
Int. 'Suni$_i$ suggested to Mina to go to school with her$_i$ today.'

d. Suni-ka Mina-eykey [onul hakkyo-ey ka-**la**]-**ko** solichy-ess-ta
Suni-NOM Mina-DAT [today school-LOC go-**IMP.PLN**]-**COMP** shout-PST-DECL
'Suni shouted to Mina$_i$ that she$_i$ go to school today.' (adapted from Sohn 1999: 325)

e. Suni-ka Mina-eykey [onul hakkyo-ey ka-ss-**nya**]-**ko** mwul-ess-ta
Suni-NOM Mina-DAT [today school-LOC go-PST-**INT.PLN**]-**COMP** ask-PST-DECL
'Suni asked Inho$_i$ if he$_i$ went to school.' (Portner et al. 2019: 8)

The reportative particle *-ko* can also be used at the utterance-final position (e.g. Sohn, 2015). In this case, the embedded clause in (18) can stand alone with the particle *-ko*, as shown in (19). When these stand-alone *-ko* structures are not marked with any boundary tone, these structures can be understood

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[5] Sohn (2019) distinguishes the use of particles for indirect speech and direct speech: particle *-ko* is used for indirect speech while *-lako* is for direct speech.

(i) a. Amy-ka [Bomi-ka o-ass-**nya**]-**ko** mwul-ess-ta
Amy-NOM Bomi-NOM come-PST-**INT.PLN-REP** ask-PST-DECL
'Amy asked whether Bomi came.'

b. Amy-ka "Bomi-ka o-ass-**ni**?" **lako** mwul-ess-ta
Amy-NOM "Bomi-NOM come-PST-**INT.INTM**?" **QUOT** ask-PST-DECL
'Amy asked, "Did Bomi come?"

(ii) a. Amy-ka [Bomi-ka o-ass-**ta**]-**ko** malhay-ss-ta
Amy-NOM Bomi-NOM come-PST-**DECL.PLN-REP** say-PST-DECL
'Amy said that Bomi came.'

b. Amy-ka "Bomi-ka o-ass-**e**" **lako** malhay-ess-ta
Amy-NOM "Bomi-NOM come-PST-**DECL.INTM**?" **QUOT** say-PST-DECL
'Amy said, "Bomi came."

as a fragment answer to the question, "What did Amy just say/suggest/ask?", for instance.

(19) a. onul hakkyo-ey ka-ss-**ta**-**ko** (Amy-ka malhay-ss-e)
today school-LOC go-PST-**DECL.PLN-COMP** (Amy-NOM say-PST-DECL.INTM)
Int. '(Amy said) That (she/he/they) went to school today.'

b. onul hakkyo-ey ka-**keyssta**-**ko** (Amy-ka malhay-ss-e)
today school-LOC go-PST-**PRM.PLN-COMP** (Amy-NOM say-PST-DECL.INTM)
Int. '(Amy said) That (she/he/they) will go to school today.'

c. onul hakkyo-ey ka-**cako** (Amy-ka ceyanhay-ss-e)
today school-LOC go-**EXH.PLN-COMP** (Amy-NOM suggest-PST-DECL.INTM)
Int. '(Amy suggested) To go to school today together.'

d. onul hakkyo-ey ka-**la**-**ko** (Amy-ka malhay-ss-e)
today school-LOC go-**IMP.PLN-COMP** (Amy-NOM tell-PST-DECL.INTM)
Int. '(Amy told) To go to school today.'

e. onul hakkyo-ey ka-ss-**nya**-**ko** (Amy-ka mwul-ess-e)
today school-LOC go-PST-**INT.PLN-COMP** (Amy-NOM ask-PST-DECL.INTM)
Int. '(Amy asked) Whether (you/we) went to school today.'

I later demonstrate that the *-ko* particle in the stand-alone *-ko* structure is a complementizer used as an attitudinal reportative particle that introduces a syntactically embedded clause.

The presence of *-ko* particle along with the plain CTPs in embedded clauses is crucial, given the absence of two independent entities in other languages. For example, Modern Greek exhibits a dependency relation between the embedding verb and mood similarly to what we saw with the Italian example (13)–the choice of the verb affects the choice of mood. Different from Italian in Modern Greek is that the verb-mood dependency is realized in the complementizer position as a result of syntactic movement. The examples in (20) show how verb affects the choice of mood, and as a result, the complementizer in Modern Greek.

(20) Modern Greek (Giannakidou and Mari 2020: 11-12)

a. O Pavlos kseri **oti** efije i Roxani
the Paul know.PRES.3SG that.IND left.3SG the Roxani
'Paul knows that Roxanne left.'

b. O Pavlos lipate **pu** efije i Roxani
the Paul be-sad.PRES.3SG that.IND left.3SG the Roxani
'Paul regrets that Roxanne left.'

c. Thelo **na** kerdisi o Janis
want.1SG that.SUBJ win.NONPAST.3SG the John
'I want John to win.'

This contrasts from the Korean example, where there are two separate morphemes, each for mood (i.e., plain CTPs) and complementizer (i.e., *-ko*). What is monomorphemic in Greek is decomposed into plain CTPs (mood) and the complementizer (*-ko*). Yet, while different types of complementizers are used depending on the verb in Modern Greek, the same complementizer *-ko* is used across different embedded plain CTP. These similarity and difference will be reflected on the analysis of the complementizer *-ko*.

3 The embedded clause and the embedding attitudinal verb

In this section, I discuss the dependent relation between the verb and the embedded CTP. I account for this association by making an analogy to the phenomena in other languages, specifically where the choice of mood is reflected on the verb and complementizer. I relate the Korean CTPs to mood, in light of Lewis's 1976 proposal for analyzing a sentence to be composed of two parts: (a) the sentence radical, and (b) the mood. While the sentence radical specifies the content, and the mood pertains to the state of the content (e.g., declarative), asking about the content (e.g., interrogative), and commanding the content (e.g., imperative). As Korean has an explicit particle, namely the clause type particle, which marks such "mood", I assume that the CTPs in Korean are related to mood (e.g. Han, 1998).[6]

I begin by providing a background on an existing proposal on the realization of mood, specifically in relation to (non)veridicality (e.g., Giannakidou, 2009). I suggest that the choice of the CTP we see in the current Korean data can be explained in terms of (non)veridicality in relation to the embedding verb. More crucially, I show that the presence of the embedded CTP and the complementizer *-ko* introduces a syntactically embedded clause.

3.1 Background

3.1.1 Mood and veridicality

One-paragraph summary The choice of mood is explained by the notion of veridicality. There are three main classes of individual's state that relates to the choice of mood in relation to veridicality: (indicative) veridical state, (subjunctive) anti-veridical state, and (nonveridical) inquisitive state.

A number of proposals have been made regarding the choice of subjunctive and indicative (Farkas, 1992; Portner, 1997; Giannakidou, 2009; Villalta, 2008; Quer, 2009, a.o). The choice of subjunctive and indicative has been discussed to be dependent on the embedding verb. In French, for example, the subjunctive and indicative distinction in complement clauses is realized on the verb along with tense and aspect. For example, the verb 'know' selects the indicative (21-a) whereas the verb 'want' selects the subjunctive (21-b).

(21) French

a. Marc sait que le printemps {**est** / ***soit**} arrivè
Marc know.3SG that the spring {be.IND.3SG / *be.SUBJ.3SG} arrived
'Marc knows that spring has arrived.'

b. Marc veut que le printemps {***est** / **soit**} long
Marc want.3SG that the spring {*be.IND.3SG / be.SUBJ.3SG} long
'Marc wants spring to be long.'

Meanwhile, the realization of mood can be reflected beyond the verbal form. Distinctive from the

[6] But see Portner (2018) for a different perspective on CTPs, where he suggests that CTPs fall into a different category, namely the Sentential Mood (SentMood).

example above, Modern Greek, for instance, exhibits a case where the mood is reflected on the complementizer. The examples in (22) show the contrast between the indicative and subjunctive reflected on the complementizer. Modern Greek has four distinctive types of complementizers, which amount to the indicative and subjunctive (Giannakidou, 2009; Giannakidou and Mari, 2020, a.o). The particles, *oti*, *pos* and *pu*, are used for indicative, and *na* for subjunctive.[7] The difference between the two types of indicative *oti* and *pu* is that the latter is used only when the proposition embedded under the complementizer is presupposed (e.g., emotive factives).

(22) Modern Greek

a. O Pavlos kseri {**oti**/**pu**/*__na__} efije i Roxani
the Paul know.PRES.3SG {that.IND/that.IND/*that.SUBJ} left.3SG the Roxani
'Paul knows that Roxanne left.' (Giannakidou and Mari 2020: 11-12)

b. O Nicholas pistevi {**oti**/*__na__} efije i Ariadne
the Nicholas believe.3SG {that.IND/*that.SUBJ} left.3SG the Ariadne
'Nicholas believes that Ariadne left.' (Giannakidou and Mari 2020: 36)

c. O Pavlos lipate {*__oti__/**pu**/*__na__} efije i Roxani
the Paul be-sad.PRES.3SG {*that.IND/that.IND/*that.SUBJ} left.3SG the Roxani
'Paul regrets that Roxanne left.' (Giannakidou and Mari 2020: 11-12)

d. Thelo {*__oti__/**na**} kerdisi o Janis
want.1SG {*that.IND/that.SUBJ} win.NONPAST.3SG the John
'I want John to win.' (Giannakidou and Mari 2020: 11-12)

The key observation to note is the general mapping between the verb and the type of selected complementizers. For instance, the indicative is generally associated with doxastic verbs ('believe') (22-b), epistemic verbs ('know') (22-a), emotive verbs ('regret'), fiction verbs ('imagine'), and assertive verbs ('say') whereas the subjunctive is generally associated with volitional verbs ('want') (22-d), directives ('suggest', 'promise', 'order' (in Italian)), permissive verbs ('forbid'), and modal verbs.

Among a number of proposals on understanding the selection mood, I adopt the proposal that (non)veridicality is the core property that determines the selection of the indicative/subjunctive (Giannakidou, 1995, 2009, 2013, 2014; Giannakidou and Mari, 2018). Veridicality is a property that pertains to sentence embedding functions (23). A propositional function F is defined to be veridical or anti-veridical depending on the entailment relation of the Fp and some individual's epistemic model.

(23) (Non)veridicality for propositional operators (Giannakidou 2009: 1889)

a. A propositional operator F is *veridical* iff Fp entails or presupposes that p is true in some individual's epistemic model $M_E(x)$; otherwise F is nonveridical

b. A nonveridical operator F is *anti-veridical* iff Fp entails *not* p in some individual's epistemic model: $Fp \rightarrow \neg p$ in some $M_E(x)$

[7] I leave out *pos*, following the description in Giannakidou and Mari (2020) that *pos* and *oti* differ simply in stylistic manner.

The notion of epistemic model in (23) is defined in (24).[8] The epistemic models can be construed as sets of worlds that are compatible with the individual's beliefs in the a world of w.

(24) Epistemic state of an individual anchor (ver. Giannakidou and Mari 2018: 637)
An epistemic state M(i) is a set of worlds associated with an individual i representing worlds compatible with what i knows or believes in the context of utterance

Based on these notions on veridicality and individual's epistemic state, a veridical information state can be defined as follows, in terms of a set of worlds (25). This veridical state entails p and conveys the individual's (agent's) certainty that p is true.

(25) Veridical information state (Giannakidou and Mari 2020: 35)
An information state M(i) is veridical with regard to p iff $\forall w[w \in M(i) \rightarrow w \in \{w' \mid p(w')\}]$

Giannakidou and Mari (2020) explain that this veridical information state serves as the basis for an individual anchor's commitment to a sentence. Returning to the issue of indicative mood in relation to veridicality, they provide a generalization on the property of veridicality as below:

(26) Indicative mood and veridicality (Giannakidou and Mari 2020: 37)
The indicative will be licensed in the complement of a propositional attitude that is veridical objectively (i.e., factive), or subjectively

Objective veridicality and subjective veridicality are defined in (27) and (28), respectively. For example, a factive verb such as *know* is objectively veridical while a doxastic verb such as *believe* is subjectively veridical.

(27) Objective veridicality (Giannakidou and Mari 2020: 49)
   a. A propositional function F is veridical iff $Fp \rightarrow p$ is logically valid
   b. F is nonveridical iff $Fp \not\rightarrow p$;
   c. F is antiveridical iff $Fp \rightarrow \neg p$

(28) Subjective veridicality (Giannakidou and Mari 2020)[9]
   a. A function F that takes a proposition p as its argument is subjectively veridical with respective to an individual anchor i and an information state M(i) iff M(i) entails p

[8] This is also defined in terms of information state of an individual anchor in Giannakidou and Mari (2020), p. 52:

(i) Information state of an individual anchor i
An information state M(i) is a set of worlds associated with an individual i representing worlds compatible with what i knows or believes in the context of utterance

[9] This is an updated version of the definition of subjective veridicality, revised from the preliminary version defined in Giannakidou and Mari (2020), p. 52.

b. M(i) entails p iff $\forall w'[w' \in \mathrm{M}(i) \rightarrow w' \in \{w'' \mid p(w'')\}]$

Next, the nonveridical information state, or the nonveridical equilibrium, is defined as the following (29):

(29) Nonveridical equilibrium (Nonveridical information state) (Giannakidou 2013)
An information state $M(i)$ is in nonveridical equilibrium iff $M(i)$ is partitioned into p and $\neg p$ worlds, and there is no bias towards p and $\neg p$.

In contrast to the veridical information state, the individual's information state contains both p and $\neg p$ worlds, hence, allows uncertainty. As opposed to the veridical information state, the nonveridical state does not entail p. The nonveridical information state also serves as the foundation of the subjunctive mood, as shown in (30).

(30) Subjunctive mood and veridicality (Giannakidou and Mari 2020: 39)
The subjunctive signals the presence of a nonveridical information state

In short, under the assumption that a speaker is truthful, an example of the indicative can be found where the speaker is committed to the truth of the proposition. Meanwhile, the truth of the proposition is not ensured in nonveridical contexts. For example, verbs that trigger subjunctive complements (e.g., 'want', 'suggest', 'insist'), modal verbs, future, and the question operator are all related to nonveridicality.

3.1.2 Veridicality and complementizer

One-paragraph summary The case of Modern Greek is exemplified for illustration, where mood and complementizer are dependent on the choice of the embedding verb. The three types of complementizers are explained by the choice of verb, and accordingly, by mood and veridicality.

From the approach introduced above, complementizers are viewed as a function that introduces a local context, where the information is added to the epistemic state. The mood morphemes are construed as a guidance of directing how to anchor the embedded proposition to the local context. In understanding embedded clauses, what then matters is whether there is an epistemic agent committed to the truth of the embedded proposition. For instance, the different types of complementizers in the case of Modern Greek such as the indicative *oti* and *pu*, and the subjunctive *na* can be construed in terms of (non)verdicality and epistemic state of an individual.

First, what is referred to as assertive indicative is realized as *oti* in Modern Greek. This type of indicative is related to the so-called assertive verbs such as 'say', 'claim', and 'assert'. An assertive indicative has the function of adding the complement proposition to the local attitude holder's doxastic space (31).[10]

[10]This is referred to as "private assertion" in the revised manuscript of Giannakidou and Mari (2020). The preliminary version of the definition on an indicative anchoring *oti* can be found in Giannakidou and Mari 2020, p. 154.

(31) Indicative (*oti*)
Add p to the local Dox(subject)

The indicative complementizer *oti* adds p to Dox(subject). The result of adding the propositional complement p is predicted as follows:

(32) $Dox(\text{i}) + p = \{w'$ in Dox where p is true$\}$ (Giannakidou and Mari 2020: 154)

The complementizer *oti* also has the function of adding the proposition to what is referred to as the "reported conversation":

(33) Reported conversation (rc) information state of an individual anchor i (Giannakidou and Mari 2020: 180)
A reported conversation information state M_{rc} is a set of worlds associated with an individual i representing worlds compatible with what i knows or believes to be true of the reported conversation

The addition to the reported conversation is most relevant when assertive verbs such as 'say' is used. For example, the propositional content embedded under the verb, 'say', is either believed to be true or false by the speaker (34-a). But, the subject of 'say' has committed to the the propositional content and taken it as part of the common ground (34-b). This explains why the embedded content has a veridical state and why an indicative complementizer *oti* is used.

(34) a. O Janis lei **oti** efijan noris, alla dhen ton bpistevo
The John says that.IND left.3PL early, but not him believe.1SG
'John says that they left early, but I don't believe him.'
b. $[\![$Nicholas said that $p]\!]^{i,M_{rc}} = 1$ in w with respect to $M_{rc}(Nicholas)$ iff:
$\forall w'[w' \in M_{rc}(Nicholas) \rightarrow p(w')]$

The presuppositional anchoring *pu* can be understood in a similar vein. The role of the complementizer *pu* is to signal that p is already be in the common ground (35).

(35) Presuppositional indicative anchoring (*pu*) (Giannakidou and Mari 2020: 155)
p is already in the common ground

In the meantime, the subjunctive *na* is a nonveridical anchor. The use of the complementizer *na* does not add p in the common ground (36), and in some individual's epistemic model, the information state is partitioned into p and $\neg p$.

(36) Subjunctive anchoring (*na*): *Nonveridical anchoring* (Giannakidou and Mari 2020: 155)
Do not add p to the common ground

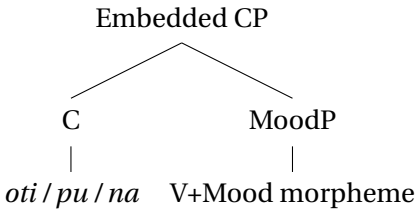
Giannakidou and Mari (2020) also suggest how an inquisitive particle such as 'whether' (or *an* in Modern Greek) would function. It is suggested that the inquisitive particle would function as an anchor

to add ?p to the common ground (37).

(37) Inquisitive anchoring (*an*) (Giannakidou and Mari 2020: 155)
Add ?p to the common ground

With regards to the syntactic structure, Giannakidou (2009) schematizes the syntactic representation of an embedded clause in Modern Greek as in (38). The complementizers are positioned at C head, and the verbal mood morpheme at MoodP head.[11]

(38)



In summary, we saw cases where mood is reflected on the verbal form and the complementizer. The selection of mood can be understood in terms of (non)veridicality. Specifically, we defined three cases of (non)veridical state, including veridical information state, nonveridical (equilibrium) information state, and anti-veridical information state. We also saw that the complementizer in embedded clauses anchor an epistemic agent's attitude towards the embedded proposition. The ideas of (a) choice of mood in relation to (non)veridical state, and (b) the complementizer as an anchor serve as the basis of the analysis I present in the following section.

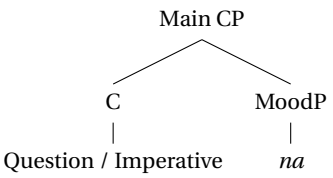
[11] The morpheme *na* is different from other morphemes in that it can be used in a main clause as a possibility modal (i-a) (e.g. Giannakidou, 2016). However, when the morpheme is used in an embedded clause (i-b), it has the function of a subordinator and is treated as a complementizer (Giannakidou, 2009). Giannakidou (2009) also notes that when *na* is used as a subjunctive, it combines with a nonpast or future orientation whereas the indicative particles combine with past, present, or future orientation.

(i) a. Isos **na** efije o Janis
maybe that.SUBJ leave.PST.3SG the John
'Maybe John left.'

b. I Ariadne irthe gia **na** mas di
the Ariadne came.3SG for that.SUBJ us see.3SG
'Ariadne came in order to see us.'

When *na* is used in a main clause, it is positioned at the Mood head, as below:

(ii)



Hence, when *na* is used in an embedded clause, it moves from Mood head to C and functions just as any other complementizers.

3.2 Analysis

One-paragraph summary I show embedded plain CTPs are analyzed as mood, and the choice of the plain CTP is dependent on the verb. I suggest that plain declarative CTP *-ta* is related to (indicative) veridical state, plain interrogative CTP *-nya* to (inquisitive) non-veridical state, and plain imperative CTP *-la* to (subjunctive) anti-veridical state. I also show that *-ko* is a complementizer that introduces an embedded clause and that it is an *umbrella complementizer* that can be used regardless of the mood/CTP.

I return to the key data, presented in (14), repeated here in (49), and show how the embedded plain CTP and the complementizer *-ko* should be analyzed.

(39) a. Amy-ka [Bomi-ka o-ass-**ta**]-**ko** {malhay/*mwule}-ss-ta
Amy-NOM Bomi-NOM come-PST-**DECL.PLN-COMP** {say/*ask}-PST-DECL
'Amy said that Bomi came.'

b. Amy-ka [Bomi-ka o-ass-**nya**]-**ko** {mwul/*malhay}-ess-ta
Amy-NOM Bomi-NOM come-PST-**INT.PLN-COMP** {ask/*say}-PST-DECL
'Amy asked whether Bomi came.'

c. Amy-ka [Bomi-eykey o-**la**]-**ko** {malhay/*mwule}-ss-ta
Amy-NOM Bomi-DAT come-**IMP.PLN-COMP** {tell/*ask}-PST-DECL
'Amy told Bomi to come.'

What is crucial to our analysis is the systematic relation of the verb and the CTP. Recall that the verb 'ask' is used with the embedded interrogative CTP, and 'say' and 'tell' with the embedded declarative CTP and the embedded imperative CTP. This relation shows that the choice of the embedded CTP is tightly associated with the embedding verb. I argue that the choice of plain CTP reflects propositional attitude, which licenses the semantic property of the embedded complement.

I argue that the embedding verb semantically marks the scope of the constraint related to mood and (non)veridicality. Based on the systematic relation between the verb and the embedded CTP, I suggest that there are three classes of verbs that pattern with indicative, subjunctive, and inquisitive mood:

(40) Verb classes and mood in Korean

a. Verbs of (veridical) indicative mood in Korean[12]
   (i) assertive: *malha* ('say')
   (ii) epistemic: *mit* ('believe')
   are marked with plain declarative CTP '***-ta***' + complementizer '***-ko***'

b. Verbs of (anti-veridical) subjunctive mood in Korean
   (i) directive: *malha* ('tell')
   are marked with plain imperative CTP '***-la***' + complementizer ***-ko***'

c. Verbs of (nonveridical) inquisitive mood in Korean
   (i) inquisitive: *mwut*/*mwul* ('ask')[13].

[12] See also Kang and Yoon (2020).

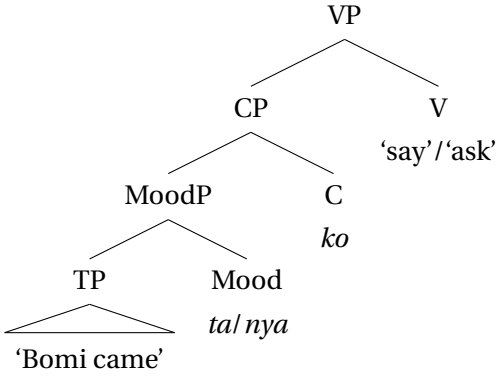
[13] This category is collapsed into subjunctive mood in Kang and Yoon (2020).

is marked with plain inquisitive CTP '***-nya*** + complementizer ***-ko***'

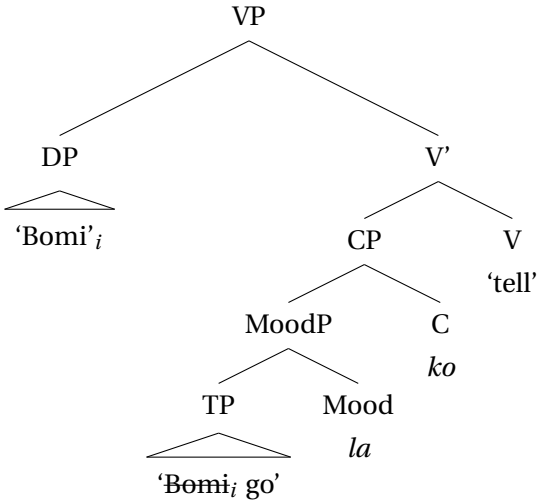
The assertive or epistemic verbs select (veridical) indicative, and this is realized as the embedded plain CTP *-ta* along with the complementizer *-ko* (40-a). The directive verb selects (anti-nveridical) subjunctive, and this is realized as plain imperative CTP *-la* along with the complementizer *-ko* (40-b). The inquisitive verb selects (nonveridical) inquisitive, which is realized as plain inquisitive CTP *-nya* along with the complementizer *-ko* (40-c). As such, there is a dependency such that the verb the semantically selects mood.

The systematic variation and dependency of the verb and mood is further explained by the syntactic representation of the position of mood and verb. I suggest that the embedded *-ko* clause has the structure of (41) and (42), one with the plain declarative CTP and plain interrogative CTP, and the other with the plain imperative CTP.

(41) The syntactic representation (plain declarative CTP *-ta*, and plain interrogative CTP *-nya*)



(42) The syntactic representation (plain imperative CTP *-la*)



First, in the case of plain declarative CTP, *-ta*, the embedded clause with a plain declarative CTP is selected by an attitude verb, 'say'. This plain declarative CTP embedding clause is veridical and the embedded proposition is true in some individual's epistemic model. For instance, the embedded proposition that Bomi came in (43-a) is either true or false, but the subject of the verb 'say' accepts this proposition to be part of the conversation. Just as we saw the case with the assertive verb in Modern Greek (34-b), the embedded proposition under the verb 'say' is defined in (43-b).

(43) a. ney-ka [Bomi-ka o-ass-ta]-ko malha-nun-kes
You-NOM Bomi-NOM come-PST-DECL.PLN-COMP say-REL-KES
'You saying that Bomi came.'

b. $[\![$ney-ka Bomi-ka o-ass-ta-ko malha$]\!]^{i,M_{rc}} = 1$ with respect to $M_{rc}(You)$ iff:
$\forall w'[w' \in M_{rc}(You) \rightarrow p(w')]$

Next, the embedded clause with the plain interrogative CTP (*-nya*) is selected by the higher verb, 'ask', and the plain interrogative CTP embedding clause is nonveridical in the sense that what is embedded is neither entailed or presupposed in some individual's epistemic model. The plain interrogative CTP holds the propositional content to have nonveridical property in that the proposition in uncertain in an individual's epistemic model. In our example below, the subject, 'You', holds the attitude towards the propositional content that Bomi came. The embedded content has nonveridical property in that in the subject ('You')'s epistemic model, it is uncertain that Bomi came; it is both possible that Bomi came in some epistemic state or Bomi did not come in other epistemic state.

(44) a. ney-ka [Bomi-ka o-ass-nya]-ko mwut-nun-kes
Bomi-NOM come-PST-INT.PLN-COMP ask-REL-KES
'(You) asking whether Bomi came.'

b. $[\![$Bomi-ka o-ass-nya$]\!]^{M}$ = {{w'. Bomi came in w'}, {w". Bomi didn't come in w"}}

The function of the plain interrogative CTP is similar to *whether* in English, or *an* in Greek ("epistemic subjunctive" (Giannakidou, 2016) in that it anchors the inquisitiveness of the proposition to the common ground (Ciardelli and Roelofsen, 2011, 2015; Uegaki, 2015; Uegaki and Roelofsen, 2018; Hara, 2018; Giannakidou and Mari, 2020, a.o).

The approach to the plain interrogative CTP that this particle is associated with the inquisitive anchor is not new. Kang and Yoon (2020) discuss the Korean particle *-nka*, what they refer to as "a modalized question", and propose that *-nka* is associated with reflecting the possibility of the propositional content, expressing the speaker's uncertain epistemic state towards the proposition (45-a). This contrasts with a regular question with a question particle *-ni* (45-b) in its use. Contrary to the regular question particle, *-ni* (used in an intimate speech style context) (45-d), *-nka* is infelicitous when it is used towards the addressee for a response (45-c) because it is simply used for conveying the speaker's uncertainty. The *-nka* modalized question is thus analyzed in relation to nonveridical equilibrium.

(45) (Kang and Yoon (2020): 210)

a. Con-i wusungca-i-nka?
John-NOM winner-COP-NKA
[Modalized question] 'Maybe John is the winner, maybe not?"

b. Con-i wusungca-i-ni?
John-NOM winner-COP-INT.INTM
[Regular question] 'Maybe John is the winner, maybe not?'

c. # ney-ka wusungca-i-nka?
You-NOM winner-COP-NKA
[Modalized question] '(I am asking you:) Maybe you are the winner, maybe not?"

d. ney-ka wusungca-i-ni?
You-NOM winner-COP-INT.INTM
[Regular question] 'Are you the winner?'

In line with this approach, I argue that the plain interrogative CTP is associated with reflecting individual's epistemic state of expressing nonveridical property of the propositional content.

Thirdly, the embedded clause with a plain imperative CTP and interrogative CTP is selected by the higher verb, 'tell'. The plain imperative CTP *-la* is associated with anti-veridical property, where the embedded propositional content is believed to be false in the individual's epistemic model (46).

(46) a. ney-ka [na-eykey o-la]-ko malha-nun-kes
you-NOM [I-DAT come-IMP.PLN]-COMP tell-REL-KES
'(You telling me) To come.'

b. A set of worlds $M(i)$ is anti-veridical with respect to the proposition p ('You come') iff $M(i)$ and p are disjoint: $M(i) \cap p = \emptyset$ (adapted from Giannakidou 2014: Example (31))

Following the idea in Giannakidou (2014), the propositional content is not true in the individual's epistemic state. When an individual A makes an order to an individual B to come, it is objectively false or is believed by the speaker (the individual A) that the individual B came. This is why the plain imperative CTP is associated with anti-veridical property. The anti-veridical property is different from nonveridical property, as nonveridical equilibrium posits either p or $\neg p$ can be true but does not commit to the truth value of p. However, p is believed to be false in the speaker's epistemic state; the speaker has committed to the truth value of p that p is false. Hence, we see that the plain imperative CTP embedding clause is evaluated under 'you's epistemic state that 'I' (or 'me') go. As we saw in (46), the imperative CTP embedding clause is anti-veridical with respect to the proposition that 'I go'.

This can also be understood in terms of the felicity conditions for directives (à la Searle (1969)). The propositional content with the embedded plain imperative CTP is the future act that an individual A (speaker) wants an individual B (hearer) to do. The speaker wants the hearer to do the action. Also, the speaker believes the action needs to be done.[14] The anti-veridicality is related to the felicity condition in that the propositional content is false until the felicity conditions are met.

[14] Searle (1969) also adds that the hearer is able to do the action, the hearer has the obligation to do the action, and the speaker has the right to tell the hearer to do the action. These are related to what is called as the preparatory condition.

We have settled the role of the embedded plain CTPs and their relation to the higher embedding verbs in the full form. Based on the observation and the analysis of mood and the complementizer in relation to (non)veridicality, I propose the following licensing conditions, which set the semantic context of the associated higher embedding verb (47). The licensing context allows us to link the higher verb with the embedded plain CTP.

(47) a. Licensing condition for the indicative mood
   (i) Plain declarative CTP in Korean (*-ta*)
   (ii) The indicative be licensed in the complement of a propositional attitude that is veridical objectively or subjectively (à la Giannakidou and Mari (2020) (p. 160))

b. Licensing condition for the inquisitive mood
   (i) Plain interrogative CTP in Korea (*-nya*)
   (ii) The inquisitive will be licensed in the complement of a propositional attitude that is anti-veridical, i.e., the attitude presupposes that the attitude holder i believes either p to be true or false

c. Licensing condition for the subjunctive mood
   (i) Plain imperative CTP in Korean) (*-la*)
   (ii) The subjunctive will be licensed in the complement of a propositional attitude that obeys the nonveridicality axiom, i.e., the attitude presupposes that the attitude holder i does not know that p is true (à la Giannakidou and Mari (2020) (p. 160))

These plain CTPs can be construed along the line with the indicative and subjunctive distinction we saw in Modern Greek, where particles are defined differently in terms of the anchoring to an individual's epistemic model.

(48) a. Plain declarative CTP (*ta*) → veridical indicative anchoring (e.g., *oti* in Modern Greek)
   b. Plain imperative CTP (*la*) → anti-veridical subjunctive anchoring (e.g., *na* in Modern Greek)
   c. Plain interrogative CTP (*nya*) → nonveridical inquisitive anchoring (e.g., *an* in Modern Greek)

Given the role of the embedded CTP and their semantic function associated with the embedding verb, the role of the particle *-ko* is fairly simple. As I assume in (41) and (42), the syntactic position of the *-ko* particle is positioned at C head. Particle *-ko* is construed as an attitudinal reportative particle that embeds propositional complement (a set of possible words), where the attitude is expressed towards the proposition.

I analyze this *-ko* particle as an *umbrella complementizer* that embeds veridical indicative, nonveridical inquisitive, and anti-veridical subjunctive. The reportative *-ko* is an umbrella particle because it can occur with any types of verbs, including assertive verbs ('report', 'say'), inquisitive verbs ('ask'), and directives ('order'). The umbrella use of the *-ko* particle contrasts to the use of the complementizers in Modren Greek, for instance. In Modren Greek, doxastic verbs ('believe'), epistemic verbs ('know'), emotive verbs ('regret'), fiction verbs ('imagine'), and assertive verbs ('say') select an indicative complementizer (*oti*) whereas volitional verbs ('want'), directives ('suggest', 'promise', 'order' (in Italian)), permissive

verbs ('forbid'), and modal verbs select a subjunctive complementizer (*-na*).

(49) Umbrella complementizer *-ko*

a. Attitudinal reportative *-ko* is an *umbrella complementizer* in that it can be used with any mood, be it indicative, subjunctive, or inquisitive

b. Umbrella complementizer *-ko* embeds attitude holder's attitude towards the propositional content

The realization of mood on the complementizer in Korean differs from the pattern exhibited in Modern Greek. We saw earlier in examples (20) and (22) that the dependency of the verb and mood is realized on the subordinators, where they differ depending on the mood. This is not the case in Korea, however, where the same attitudinal reportative *-ko* is used to embed an individual's attitude towards the embedded clause regardless of the embedded plain CTP. It embeds different types of propositional attitudes, characterized by the type of the plain CTP.

Hence, it is now clear from the examples in that the complementizer *-ko* indicates that it introduces an embedded proposition, and that the three types of embedded plain CTPs embed attitude holder's attitude towards the embedded proposition. The analysis of the two key entities, the embedded plain CTP and the complementizer *-ko*, serves as the ground for understanding the stand-alone structure, which is the main data of the current interest.

4 The stand-alone structure

I return to the key examples of the stand-alone structure, where embedded plain CTP and *-ko* particle are used in the utterance-final position (50)-(52).

(50) a. Bomi-ka o-ass-**nya**-**ko** [**H%**]
Bomi-NOM come-PST-**INT.PLN-COMP**
[Question] Int. 'Are you asking whether Bomi came?'

b. Bomi-ka o-ass-**nya**-**ko** [**HL%**]
Bomi-NOM come-PST-**INT.PLN-COMP**
[Self-assurance] Int. 'Oh, you're asking whether Bomi came.'

c. Bomi-ka o-ass-**nya**-**ko** [**LHL%**]
Bomi-NOM come-PST-**INT.PLN-COMP**
[Question] (Annoyance) Int. 'Again, did Bomi come?'

(51) a. o-**la**-**ko** [**H%**]
come-**IMP.PLN-COMP**
[Question] Int. 'Are you telling (me) to come?'

b. o-**la**-**ko** [**HL%**]
come-**IMP.PLN-COMP**
[Self-assurance] Int. 'Oh, you're (me) to come.'

c. o-**la**-**ko** [**LHL%**]
come-**IMP.PLN-COMP**
[Order] (Annoyance) Int. 'Again, come.'

(52) a. Bomi-ka o-ass-**ta**-**ko** [**H%**]
Bomi-NOM come-PST-**DECL.PLN-COMP**
[Question] Int. 'Are you saying that Bomi came?'

b. Bomi-ka o-ass-**ta**-**ko** [**HL%**]
Bomi-NOM come-PST-**DECL.PLN-COMP**
[Self-assurance] Int. 'Oh, you're saying that Bomi came.'

c. Bomi-ka o-ass-**ta**-**ko** [**LHL%**]
Bomi-NOM come-PST-**DECL.PLN-COMP**
[Assertion] (Annoyance) Int. 'Again, Bomi came.'

I suggest that the stand-alone structure is similar to an elided form with an embedding clause.[15] However, this is not to say that there is a fully recoverable underlying syntactic representation of the stand-alone structure. Instead, the stand-alone structure is more of a "deep anaphora" (Hankamer and Sag, 1976), which is interpreted by a coherent semantic unit rather than an identical syntactic entity. While the underlying syntactic representation of the stand-alone structure is absent, the speaker in the context can recover the structure from the linguistic context, from which the speaker finds the semantic content that matches the deep anaphoric structure. Based on the analysis of the plain CTP and *-ko* I have presented in Section 3.2, the plain CTP and *-ko* at the utterance-final position of the stand-alone structure can be taken as a signal of the presence of an embedded clause, whose content can be associated with the semantic content in the linguistic context. Boundary tone of the stand-alone structure has the function of disambiguating what discourse function the sentence has when the embedded clause is used without the embedding verb.

4.1 Background: A conventional function of the boundary tone in Korean intonation

Intonational structure of Seoul Korean has a hierarchical structure that consists of the word tier, the Accentual phrase (AP), and the Intonational Phrase (IP) (Jun, 2005).[16] The AP is composed of multiple words, and it is the smallest unit of intonation, serving the smallest phrase within an IP. One or more APs constitute an IP. IPs are marked with boundary tones, which are realized on the finial syllable of the IP. There are nine known possible boundary tones realized as IP finial boundary tones, and they can be categorized into three groups by the size of the tone: the monotonal group (H%, L%), the bitonal group (LH%, HL%), and the multitonal group (HLH%, LHL%, LHLH%, HLHL%, LHLHL%) (Park, 2003).

The monotonal group The monotonal group is known to have an informational function in that it boosts the sentential meaning along with (or according to the) sentence final particle. Analysis on the

[15] Another possible interpretation of the stand-alone structure is that speakers understand the meaning of the structure by Gricean Maxim. One can say that the *-ko* particle used at the utterance-final position is marked and the one used for embedding a clause is not. When this marked form is used in the discourse, the hearer would rationalize that the speaker is referring back to an earlier utterance. From this approach, positing an underlying syntactic representation is unnecessary.

[16] An intermediate phrase between the AP and the IP, namely the intermediate phrase (iP), is added in the latest version of the theory of Seoul Korean intonation (Jun, 2014).

spoken corpus data show that H% is usually paired with low degree of certainty while L% with high degree of certainty. Speaker also expresses their belief with an authoritative stance towards the hearer with the L% tone (Park, 2003). Tone H% and L% are commonly seen in polar questions and assertions, respectively.

We have seen earlier where the rising or the falling boundary disambiguates the meaning of a sentence. For instance, a sentence with the sentence final particle *-e* (intimate speech style) is ambiguous in that it can be either a question or an assertion (repeated in (53)). The sentence final particle *-e* is *unmarked* in the sense that the particle itself does not have any discourse function. Instead, it is the boundary tone that has the function of signaling whether the sentence is a question or an assertion.

(53) a. Bomi-ka kheyik-ul mek-ess-**e** [**H%**]
Bomi-NOM cake-ACC eat-PST-**SFP.INTM**
'Did Bomi eat cake?'

b. Bomi-ka kheyik-ul mek-ess-**e** [**L%**]
Bomi-NOM cake-ACC eat-PST-**SFP.INTM**
'Bomi ate cake.'

Yet, as we already saw, in the existence of a *marked* particle such as an interrogative particle *-ni* (54), the boundary tone exhibits no or less role. Unlike the *-e* particle, the *-ni* particle has the function as a question operator. Hence, (54) is a question regardless of the boundary tone.[17] The effect of boundary tone gets overridden in the presence of a marked particle that has an explicit function.

(54) a. Bomi-ka o-ass-**ni** [**H%**]/([L%]/[HL%]/[LHL%])
Bomi-NOM come-PST-**INT.INTM**
'Did Bomi come?'

The bitonal group The bitonal group has the function of delivering information and speaker's attitude. Park (2003) explains that LH% is descriptively a combination of the speaker showing his/her assertive perspective (L%) with low degree of certainty (H%). In a similar vein, HL% can be seen as a combination of speaker's weaker assertiveness (H%) and some degree of certainty (L%).

For example, the boundary tone HL%, in combination with an unmarked particle, can signal speaker's assurance about their own belief about the information. Consider the example in (55), where an intimate speech style sentence final particle, *-a*, is used, with two different types of boundary tones. While the sentence with the rising boundary tone (H%) is a canonical polar question, the one with the rise-fall tone (HL%) expresses the speaker's certainty about the propositional content that the hearer will come back home early. This sentence is similar to a confirmation question in that the hearer can respond "Yes" or "No" to what the speaker said, but the response from the hearer is not required.

[17] I acknowledge that we would expect different pragmatic functions depending on what boundary tone is used. However, the key idea is that (54) has a marked particle that already has the function of a question, whose core meaning cannot be overridden by the different use of boundary tone.

(55) (Park 2003: 188)

a. ilccik tuleo-a [**H%**]
early come-SFP.INTM
Int. 'Are you coming (home) early?'

b. ilccik tuleo-a [**HL%**]
early come-SFP.INTM
Int. 'Oh, so you are coming (home) early' / 'Oh, so you are coming (home) early?'

It is also worth to note that the rise-fall HL% boundary tone, for example, is commonly used with an evidential marker. Based on the data extracted from natural conversation and TV shows, Park (2003) found out that an evidential marker, *-kwun*, for instance, is most commonly used with a fall (L%) (46%) or a rise-fall boundary tone (HL%) (38%) (56-a). Similarly, an evidential (or an epistemic) marker, *-ci*, for example, is also commonly used with a rise-fall boundary tone (HL%) (56-b).[18] The *-ci* particle is used for expressing speaker's supposition with high commitment.

(56) a. i ke kacca ton-i-**kwun**-a [**HL%**]
this thing fake money-COP-**EVID**-SFP.INTM
Int. '(I see that / I can tell that) This is fake money.' (Park 2003: 178)

b. ku kapang yekise mandul-**ci** [**HL%**]
that bag here make-**EVID**
Int. 'That bag is made here, right?' (Park 2003: 28)

However, it should be noted that the use of rise-fall boundary tone (HL%) with the evidential marker, *-kwun*, is less crucial than with the intimate sentence final particle, *-a*. In the absence of the boundary tone in (55), the sentence meaning is ambiguous. In contrast, the meaning of the sentence is not ambiguous even when the boundary tone information is absent. Indeed, it is more natural to use the most frequent used boundary tone. Yet, the speaker's certainty about the proposition is already reflected on the particle with the use of *-kwun*; hence, the use of boundary tone is less important in the presence of a such marked particle.

The multitonal group The multitonal group is known to be related to expressing and emphasizing the speaker's attitude and stance towards the propositional content, the situation, and the addressee. The boundary tone LHL%, for instance, is used when the speaker expresses annoyance and irritation, and HLH% is used when the speaker projects a strong authoritative stance (Park, 2003).

For instance, the LHL% boundary tone is related to conveying speaker's high certainty of the propositional content. For instance, in (57-a), with the emphatic particle, *-nikka*, the speaker is emphasizing that it is raining outside and expressing their commitment to the propositional content that it is raining outside. Similarly, the speaker conveys their utterance with the LHL% boundary tone along with the evidential particle, *canh* (57-b). In this case, the speaker believes that the addressee too is aware of the information. It is also worthwhile to note that this evidential particle, *canh*, is most commonly

[18] The particle is most commonly used with H% or HL% boundary tone (Park, 2003).

used with a falling boundary tone family (L%, LHL%) (Park, 2003).

(57) a. pi-ka o-n-ta-nikka [**LHL%**]
rain-NOM come-IMPRF-DECL.PLN-EMPH
Int. 'I'm telling you: It's raining outside.'

b. yenghwa ccik-ko namyen seythucang pwuswu-**cahn**-a [**LHL%**]
movie shoot-and then set destroy-EVID-SFP.INTM
Int. 'You know, the movie sets are destroyed once the movie is shoot.' (adapted from Park 2003: 222)

The fall-rise-fall boundary tone (LHL%) can signal speaker's affective stance and can disambiguate the meaning when an unmarked particle is used. Compare the examples in (58-a) and (58-b). Both sentences are used with an unmarked sentence final particle (intimate speech style), *-e*, but have different meaning due to the different use of boundary tone. While the sentence in (58-a) is a case of a regular wh-question, (58-b) is a wh-question with a speaker expressing irritation and blame. Hence, we also see with the LHL% boundary tone that the the boundary tone plays a role in meaning when an unmarked particle such as *-e* is used.

(58) (Park 2003: 257)

a. way cemsim an mek-**e** [**LH%**]
why lunch not eat-SFP.INTM
'Why do you not eat lunch?'

b. way cemsim an mek-**e** [**LHL%**]
why lunch not eat-SFP.INTM
(Irritation) 'Why aren't you eating lunch?'

4.1.1 Boundary tone for disambiguation

The issue of distinguishing the type of the meaning that the intonation has recently been discussed in discussing "rising declaratives" in English. Rising declaratives are sentences that have a sentence type of a declarative and has a rising terminal pitch. The utterances that speaker B makes in (59) correspond to rising declaratives.[19] In (59-a), while speaker B is making a statement, the rising intonation (expressed as '?' in the example) simply contributes to building rapport (e.g. Pierrehumbert and Hirschberg, 1990). It appears in this case that the intonation plays a significant role in the meaning of the sentence. Meanwhile, the rising intonation in the example in (59-b) appears to have a different flavor. The utterance of speaker B has the function of a question, expressing the speaker's certainty of the proposition (cf. Gunlogson, 2003). Intonation in this case plays a semantic role and affects the meaning of the sentence. The key question is, what kind of meaning, either semantic or pragmatic, intonation has in discourse context (e.g. Gunlogson, 2003; Jeong, 2018; Rudin, 2018; Farkas and Roelofsen, 2017).

[19] Jeong (2018) specifically distinguishes what she refers to as "assertive rising declaratives (ARD)" from "inquisitive rising declaratives (IRD)". Following her notation, the example in (59-a) corresponds to a case of ARD, and the one in (59-b) to a case of IRD.

(59) Some examples of rising declaratives

a. Uptalk (e.g. Jeong, 2018, p. 307)
   (i) A: Tell me about John's family.
   (ii) B: John has a sister? But no other siblings? He's quite close to her?

b. Incredulous question (e.g. Jeong, 2018, p. 307)
   (i) A: John went to the airport to pick up his sister.
   (ii) B: (What?) John has a sister?

The same question, whether intonation contributes to a semantic or a pragmatic meaning, also stands in the Korean data we discuss. Recall the comparison of the stand-alone structure and the full form. In relation to the boundary tone, the two structures differ in the existence of a *complete* or an *incomplete* particle. For instance, we saw in (54) that the interrogative particle *-ni* functions as a question operator, and the function of a sentence as a question is evident even in the absence of the boundary tone. The interrogative particle is *complete* in that it encodes information about the discourse participant and the discourse function (e.g. Portner et al., 2019). As the discourse function of the sentence is fulfilled with the complete particle, the boundary tone is unnecessary. This contrasts with the examples in (53), where the sentence final particle, *-e* is used. While the particle encodes speech style (intimate), it does not have the information about the discourse function. The boundary tone is required in order to tell whether the sentence is a question or an assertion. As such, the particle, *-e*, is in itself *incomplete* in that it requires an additional linguistic component such as boundary tone to disambiguate the discourse function.

4.2 Understanding the stand-alone structure in terms of the full form

One-paragraph summary In this section, I introduce what I refer to as the FULL FORM, and I suggest that the stand-alone structure can be understood in terms of the full form. The full form has the structure of an NP with an embedded CP. While the full form is not the underlying syntactic representation of the stand-alone structure, it demonstrates how the stand-alone structure with three different boundary tones can be analyzed. From the full form, we see a tight association of the embedded plain CTP and the higher verb that embeds the CP. This serves as evidence that the embedded plain CTP and the *-ko* particle can be construed the same as they were in embedding verbs and embedded clauses. Secondly, we see that the boundary tone is required for the stand-alone *-ko* structure.

I present pairs of examples, which include the stand-alone *-ko* structure (a), and the full form of the stand-alone structure (b). The examples in (60), (61), and (62)) contain pairs of the stand-alone form with an embedded interrogative CTP and its full-form counterpart. The full form has the structure of 'Bomi said + complementizer (*-ko*) + 'ask' + the relativizer (*-(n)un*) + the pronominal form (*-kes*)'.

(60) Embedded plain interrogative particle with H%

a. Bomi-ka o-ass-**nya**-**ko** [**H%**] (*Stand-alone structure*)
   Bomi-NOM come-PST-**INT.PLN**-**REP**
   [Question] 'Are you asking whether Bomi came?'

b. (ney-ka) Bomi-ka o-ass-{**nya**/*ta}-**ko** **mwut**-nun
(you-NOM) Bomi-NOM come-PST-{**INT.PLN**/*DECL.PLN}-**REP** **ask**-REL
kes-i-**ni** (*Full form*)
KES-COP-**INT.INTM?**
[Question] 'Are you asking whether Bomi came?'

(61) Embedded plain interrogative particle with HL%

a. Bomi-ka o-ass-**nya**-**ko** [**HL%**] (*Stand-alone structure*)
Bomi-NOM come-PST-**INT.PLN**-**REP**
[Self-assurance] 'Oh, you're asking whether Bomi came.'

b. (ney-ka) Bomi-ka o-ass-{**nya**/*ta}-**ko** **mwut**-nun
(you-NOM) Bomi-NOM come-PST-{**INT.PLN**/*DECL.PLN}-**REP** **ask**-REL
kes-i-**kwun**-a (*Full form*)
KES-COP-**EVID**-DECL.INTM
[Self-assurance] 'Oh, you're asking whether Bomi came.'

(62) Embedded plain interrogative particle with LHL%

a. Bomi-ka o-ass-**nya**-**ko** [**LHL%**] (*Stand-alone structure*)
Bomi-NOM come-PST-**INT.PLN**-**REP**
[Question] (Annoyance) Int. 'Again, did Bomi come?'

b. (nay-ka) Bomi-ka o-ass-{**nya**/*ta}-**ko** **mwut**-nun
(I-NOM) Bomi-NOM come-PST-{**INT.PLN**/*DECL.PLN}-**REP** **ask**-REL
kes-i-**canh**-a (*Full form*)
KES-COP-**EVID**-DECL.INTM
[Question] (Annoyance) Int. 'I'm asking (this) again: Did Bomi come?'

First, what we see across the three full forms is the use of the same attitude verb, 'ask'. More importantly, it is only with the plain interrogative CTP (*-nya*) but not others such as plain declarative CTP (*-ta*) that can be used with the the attitude verb, 'ask'. What this indicate is the tight association of the embedded CTP and the higher attitude verb; there is a link between the presence of the plain interrogative CTP (*-nya*) and the verb 'ask'. Secondly, we see that boundary tones contribute to the meaning of the stand-alone *-ko* structure. Given the full form counterpart, the resulting meaning of the use of three different boundary tones, H%, HL%, LHL%, can be construed as using an interrogative particle *-ni* and evidential markers, *-kwun* and *-canh*, respectively. The role of tone with the stand-alone structure is not exhibited with the full form.

The same two patterns are observed also in the following case, where the embedded plain imperative CTP *-la* is used. Below are pairs of examples of the stand-alone structure and the corresponding full form with the imperative CTP ((63), (64), (65)).

(63) Embedded plain imperative particle with H%

a. o-**la**-**ko** [**H%**] (*Stand-alone structure*)
come-**IMP.PLN**-**REP**
[Question] 'Are you telling (me) to come?'

b. (ney-ka) (na-eykey) o-{**la**/*nya}-**ko** **malha**-nun kes-i-**ni**?
(you-) (me-DAT) come-{**IMP.PLN**/*INT.PLN}-**REP** **tell**-REL KES-COP-**INT.INTM?**

(*Full form*)

[Question] 'Are you telling (me) to come?'

(64) Embedded plain imperative particle with HL%

a. o-**la**-**ko** [**HL%**] (*Stand-alone structure*)
come-**IMP.PLN**-**REP**
[Self-assurance] 'Oh, you're telling (me) to come.'

b. (ney-ka) (na-eykey) o-{**la**/*nya}-**ko** **malha**-nun kes-i-**kwun**-a (*Full form*)
(you-) (me-DAT) come-{**IMP.PLN**/*INT.PLN}-**REP** **tell**-REL KES-COP-**EVID**-DECL.INTM
[Self-assurance] 'Oh, you're telling (me) to come.'

(65) Embedded plain imperative particle with LHL%

a. o-**la**-**ko** [**LHL%**] (*Stand-alone structure*)
come-**IMP.PLN**-**REP**
[Order] (Annoyance) Int. 'Again, come.'

b. (nay-ka) (ne-eykey) o-{**la**/*nya}-**ko** **malha**-nun kes-i-**canh**-a (*Full form*)
(I-NOM) (you-DAT) come-{**IMP.PLN**/*INT.PLN}-**REP** **tell**-REL KES-COP-**EVID**-DECL.INTM
[Order] (Annoyance) Int. 'I'm telling you again: Come.'

Just as we saw with the embedded plain interrogative CTP example above, first, there is an association of the CTP and the higher attitude verb in the full form. The use of the embedded imperative CTP is linked to the use of the higher verb, 'tell'. The association is tight such that only a plain imperative CTP is allowed when the higher verb, 'tell' is used. A plain declarative CTP, for instance, cannot be used with the higher verb, 'tell'. In addition to the association of the CTP and the higher verb, we also see the role of the boundary tone with the stand-alone structure. The meaning of each type of boundary tone can be understood in terms of the interrogative or evidential particles used in the full form. As such, we see a contribution of the boundary tone to the stand-alone *-ko* structure, whose role is less essential with the full form.

The same patterns are exhibited with the use of the the embedded declarative CTP *-ta* ((66), (67), (68)). Again, we see the following two observations: the association of the CTP and the higher verb, and the use of the boundary tone in the stand-alone structure.

(66) Embedded plain declarative particle with H%

a. Bomi-ka o-ass-**ta**-**ko** [**H%**] (*Stand-alone structure*)
Bomi-NOM come-PST-**DECL.PLN**-**REP**
[Question] 'Are you saying that Bomi came?'

b. (ne-ka) Bomi-ka o-ass-{**ta**/*nya}-**ko** **malha**-nun kes-i-**ni**? (*Full form*)
(you-NOM) -NOM come-PST-{**DECL.PLN**/*INT.PLN}-**REP** **say**-REL KES-COP-**INT.INTM**
[Question] 'Are you saying that Bomi came?'

(67) Embedded plain declarative particle with HL%

a. Bomi-ka o-ass-**ta**-**ko** [**HL%**] (*Stand-alone structure*)
Bomi-NOM come-PST-**DECL.PLN**-**REP**
[Self-assurance] 'Oh, you're saying that Bomi came.'

b. (ne-ka) Bomi-ka o-ass-{**ta**/*nya}-**ko** **malha**-nun
(you-NOM) Bomi-NOM come-PST-{**DECL.PLN**/*INT.PLN}-**REP** **say**-REL

kes-i-**kwun**-a (*Full form*)
KES-COP-**EVID**-DECL.INTM
[Self-assurance] 'Oh, you're saying that Bomi came.'

(68) Embedded plain declarative particle with LHL%

a. Bomi-ka o-ass-**ta**-**ko** [**LHL%**] (*Stand-alone structure*)
Bomi-NOM come-PST-**DECL.PLN**-**REP**
[Assertion] (Annoyance) Int. 'Again, Bomi came.'

b. (nay-ka) Bomi-ka o-ass-{**ta**/*nya}-**ko** **malha**-nun
(I-NOM) Bomi-NOM come-PST-{**DECL.PLN**/*INT.PLN}-**REP** **say**-REL
kes-i-**canh**-a (*Full form*)
KES-COP-**EVID**-DECL.INTM
[Assertion] (Annoyance) Int. 'I'm saying (this) again: Bomi came.'

First, all the three examples with the full form have a higher attitude verb, 'say'. The use of the verb is tightly linked to the use of the plain declarative CTP *-ta*. For instance, it is ungrammatical to use the plain interrogative CTP *-nya* when the high verb, 'say', is used. Secondly, we see the contribution of the boundary tone to the meaning of the stand-alone *-ko* structure; the function of the three boundary tones can be expressed as an interrogative particle or an evidential marker in the full form. Meanwhile, the role of boundary tone is less essential when it comes to the full form.

What the three sets of examples show is that, first, the stand-alone *-ko* structure can be expressed in terms of the full form. Crucially, the verb has a systematic association with the embedding CTP such that 'ask' is used with the plain interrogative CTP, 'tell' is used with the plain imperative CTP, and 'say' is used with the plain declarative CTP. Secondly, the role that the boundary tone in the stand-alone structure plays is evident.

Based on the parallel I discussed regarding the stand-alone *-ko* structure and the full form, I suggest that the stand-alone *-ko* structure be analyzed as in (69)-(71). I begin by analyzing the stand-alone structure with the rising boundary tone (H%). For example, (69-a) can be understood as (69-b), the CPNP, where the embedding verb is 'ask'. The CPNP embeds an epistemic agent's ('you') epistemic information state being nonveridical.

(69) a. Stand-alone structure

(i) Bomi-ka o-ass-**nya**-**ko** [**H%**]
Bomi-NOM come-PST-**INT.PLN**-**REP**
[Question] 'Are you asking whether Bomi came?'

b. CP embedding NP (CPNP)

(i) ney-ka [Bomi-ka o-ass-**nya**]-**ko** mwut-nun-kes
you-NOM Bomi-NOM come-PST-**INT.PLN**-**COMP** ask-REL-KES
'(You) asking whether Bomi came.'

(ii) $[\![$Bomi-ka o-ass-nya$]\!]^{M}$ = {{w'. Bomi came in w'}, {w". Bomi didn't come in w"}}

c. Full form

(i) (ney-ka) [Bomi-ka o-ass-**nya**]-**ko** mwut-nun kes-i-**ni**
(you-NOM) Bomi-NOM come-PST-**INT.PLN**-**REP** ask-REL KES-COP-**INT.INTM?**

[Question] 'Are you asking whether Bomi came?'

This is then followed by the speaker expressing his/her certainty about the embedded proposition. We see in (69-c) that the full form corresponds to an CPNP, followed by an interrogative particle. This signals that the speaker is not committed to this embedded propositional content. That is, the speaker is not liable to the truth of the individual, 'you', hence the addressee, having an inquisitive anchor to the embedded proposition. In our case, by uttering (69-a), the speaker is not committed to whether the addressee has an inquisitive state of Bomi came; the speaker is questioning whether the addressee is questioning about the propositional content that Bomi came. This explains how the stand-alone structure with the rising boundary tone (H%) has the meaning of, "Are you asking whether Bomi came?" Moreover, when one responds, "Yes" to this question, it means that the individual has an inquisitive state on the propositional content that Bomi came, but not that Bomi came. In a similar vein, when one responds, "No" to this question, it means that the individual does not have an inquisitive state on the propositional content that Bomi came, but not that Bomi did not come. Hence, the current analysis makes the correct prediction that the embedded *-ko* clause reflects the individual's epistemic information state about the proposition, and the boundary tone is related to the speaker's certainty and commitment to the proposition.

We see the same type of analysis with the stand-alone structure with the HL% boundary tone, only different in terms of the speaker's certainty. Just as we saw earlier, the stand-alone *-ko* structure in (70-a) can be understood as in (70-b), with the relevant verb 'ask'.

(70) a. Stand-alone structure

(i) Bomi-ka o-ass-**nya**-**ko** [**HL%**]
Bomi-NOM come-PST-**INT.PLN-REP**
[Self-assurance] 'Oh, so you asking whether Bomi came.'

b. CP embedding NP (CPNP)

(i) ney-ka [Bomi-ka o-ass-**nya**]-**ko** mwut-nun-kes
you-NOM Bomi-NOM come-PST-**INT.PLN-COMP** ask-REL-KES
'(You) asking whether Bomi came.'

(ii) $[\![$Bomi-ka o-ass-nya$]\!]^{M}$ = {{w'. Bomi came in w'}, {w". Bomi didn't come in w"}}

c. Full form

(i) (ney-ka) [Bomi-ka o-ass-**nya**]-**ko** mwut-nun kes-i-**kwun**-a
(you-NOM) Bomi-NOM come-PST-**INT.PLN-REP** ask-REL KES-COP-**EVID**-SFP.INTM?
[Self-assurance] 'Oh, so you asking whether Bomi came.'

The attitudinal embedding clause in (70-b) amounts to the meaning of the sentence in (70-c) with the use of the HL% boundary tone. In this case, the speaker is certain that the individual, 'you', has an inquisitive state towards the embedded propositional content that Bomi came. This follows that when one responds "Yes" to the speaker's utterance in (70), it means the addressee indeed has an inquisitive state about the proposition that Bomi came; it does not mean that Bomi came. Similarly, when one responds "No" to the speaker's utterance in (70), it means that the addressee does not have an inquisitive state about the proposition that Bomi came. The response is orthogonal to the truth of the the embedded

proposition; rather, the response has to do with the individual's epistemic state about the embedded proposition. Hence, the interpretation that the boundary tone is related to delivering the speaker's certainty and commitment to the propositional content correctly predicts the meaning we get with the use of HL% boundary tone with the stand-alone *-ko* structure.

We also observe the same type of analysis with the stand-alone structure with the LHL% boundary tone. Just as the examples above, the stand-alone *-ko* structure in (71-a) can be understood as a CP embedding NP as in (71-b).[20] The stand-alone structure is an embedded clause with the embedding verb, 'ask', and embeds an individual's attitude towards the embedded propositional content. When this CP embedding NP is uttered with a fall-rise-fall boundary tone (LHL%), it signals speaker's certainty about the proposition and the speaker's assumption about the hearer's belief that the hearer also believes the proposition to be true. The example in (71-b) illustrate the individual's (the speaker's) epistemic state or attitude towards the embedded proposition that (s)he has an inquisitive stance to whether Bomi came or not.

(71) a. Stand-alone structure

(i) Bomi-ka o-ass-**nya**-**ko** [**LHL%**]
Bomi-NOM come-PST-**INT.PLN-REP**
[Question] (Annoyance) 'Again, did Bomi come?'

b. CP embedding NP (CPNP)

(i) nay-ka [Bomi-ka o-ass-**nya**]-**ko** mwut-nun-kes
I-NOM Bomi-NOM come-PST-**INT.PLN-COMP** ask-REL-KES
'(I) asking whether Bomi came.'

(ii) $[\![$Bomi-ka o-ass-nya$]\!]^{M}$ = {{w'. Bomi came in w'}, {w". Bomi didn't come in w"}}

c. Full form

(i) (nay-ka) [Bomi-ka o-ass-**nya**]-**ko** mwut-nun kes-i-**canh**-a
(I-NOM) Bomi-NOM come-PST-**INT.PLN-REP** ask-REL KES-COP-**EVID**-SFP.INTM?
[Question] (Annoyance) 'I'm asking (this) again: Did Bomi come?'

As shown in (71-c), the speaker then expresses the certainty towards the CPNP, which embeds an attitude holder's attitude towards the embedded proposition. This is expressed by the evidential particle, *canh*, which in turn corresponds to the function of the LHL% boundary tone in the stand-alone *-ko* structure.

A question that can arise is why the boundary tones play a role with the stand-alone *-ko* structure but not with the full form. We saw earlier that the three variations of boundary tone disambiguate the meaning of the *-ko* structures whereas those boundary tones were not crucial in defining the meaning of the full form. The asymmetric function of the boundary tone can be explained by comparing the function of the stand-alone *-ko* structure and the full form have.

If we assume the distinction of a *complete* and an *incomplete* particle, the full form is marked

[20] It is though not explained here, compared to the two examples with the H% and HL% boundary tone, how the matrix subject in (71-b) is 'I' but not 'you'. The *agent flip* from 'you' to 'I' is also observed with an embedded plain declarative CTP and an embedded plain imperative CTP. It remains of further study how we can account for the flip when the stand-alone structure is uttered with a fall-rise-fall boundary tone (LHL%).

with a complete particle. The counterpart of the stand-alone structure with the H% boundary tone is marked with a complete *-ni* particle; the stand-alone structure with the HL% boundary tone is marked with a complete *-kwun* particle; the stand-alone structure with the LHL% boundary tone is marked with a complete *-canh* particle. In contrast, the stand-alone *-ko* structure without the boundary tone is incomplete as it does not contain any marked particles. The stand-alone structure hence is incomplete, as in the (53) case, and requires a supporting component that can disambiguate the meaning of the structure. Moreover, if the stand-alone structure is construed as an elided form with the embedding verb, the absence of the boundary tone makes the stand-alone structure ambiguous what the discourse function is. Hence, the boundary tone is used with the stand-alone *-ko* structure, making the sentence more *complete* and have a discourse function. The presence of the boundary tone of the stand-alone structure disambiguates what discourse function the embedded clause has. The boundary tone amounts to the speech act that the speaker performs when it is used in the stand-alone structure.

5 Conclusion

This paper examined a phenomenon in Korean, where the complementizer *-ko* is used as an utterance-final particle. I referred to this structure as the STAND-ALONE *-ko* STRUCTURE. I explored what the function of the complementizer *-ko* is such that it can be used as at the utterance-final position. More crucially, I discussed how it is possible to embed different clause type particles under the complementizer *-ko*, and how different boundary tones lead to different semantic meaning in the stand-alone structure.

I showed that the particle *-ko* is an attitudinal reportative particle that embeds a clause, which convey individual's attitude towards the embedded propositional content. What underlies also is an analysis of the embedded plain CTPs, which I argue to be mood, selected by the embedding verb. I argued that the embedded clause with the plain CTPs is understood in terms of (non)veridicality, associated with an individual's epistemic anchor to the proposition. Hence, the stand-alone *-ko* structure can be understood as an embedded clause, which reflects individual's epistemic state towards the embedded propositional content. The current observation that the embedding verb selects the type of the plain CTP can further be generalized to recent work on embedded clauses such as embedded questions related to clause embedding verbs (e.g., rogative, anti-rogative, and responsive verbs) (e.g. Lahiri, 2002; Uegaki, 2015; Elliott, 2020).

I also identified the role of boundary tone in the stand-alone structure. The boundary tone in this structure amounts to delivering the speaker's certainty and commitment to the propositional content that is being uttered. However, such role of the boundary tone is not evident when the tone is used with, what I referred to as the *marked* particle. This indicates a fundamental difference between the embedded clause and the matrix clause such that the boundary tone is influential in deciding the meaning of the embedded clause but not the matrix clause. The observation can be further extended to the recent issue of the discourse effect of the embedded clause and the main clause (e.g. Farkas and Roelofsen, 2017; Rudin, 2019) and its relation to intonation (e.g. Truckenbrodt, 2006; Westera, 2017).

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