Evidentiality and its Interaction with Tense: Evidence from Korean

Dissertation

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ABSTRACT

Evidentiality is a linguistic category that specifies the source of information conveyed, such as direct observation, inference, or hearsay (Aikhenvald 2004). Through a detailed study of three distinct evidential readings that arise from the Korean evidentials –te and –ney, this dissertation studies the close interaction between evidentiality and other semantic categories, particularly temporality and modality. The goal of the dissertation is to develop a formal analysis which adequately captures the following empirical patterns of the meaning of Korean evidential utterances.

First, three distinct evidential readings, i.e. direct vs. inferential vs. reportative, arise from the evidentials –te and –ney, by means of their interactions with tense and mood. Second, Korean evidential sentences behave like epistemically modalized sentences with respect to anchoring patterns, constraints with their subjects, and modal subordination. Third, the meaning contribution of Korean evidentials in discourse has a different status from that of the expressions occurring in the scope of the evidentials: unlike the latter, the former cannot be the main point of utterances. But the two different types of implications exhibit a bi-directional interaction in the course of interpreting a single evidential utterance.

I formally analyze the first two empirical findings in Kratzer’s (1977, 1981, 1991) modal theory. In particular, I capture the evidential meaning of Korean evidentials in terms of the two central components in Kratzer’s modal theory, i.e. the modal base and the ordering source. For the not-at-issue meaning contribution of Korean evidentials, and its
interaction with at-issue meanings, I discuss why Faller’s (2002) and Potts’ (2005) theories cannot be applied to the meaning of Korean evidentials, and a dynamic semantic analysis is sketched out in terms of Murray’s (2010) formal system that models discourse anaphora. The empirical findings presented in this dissertation points to a close connection between evidentiality and temporality and modality, and suggest that a theory of evidentiality should allow for interactions between at-issue and not-at-issue content, as Amaral et al. (2007) has argued for at-issue and not-at-issue content in general.
For my parents and husband
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GLOSSES

The glosses specified here are used for the Korean data. I represent the glosses for other cross-linguistic data as they appear in the original work, and add some explanations for them in footnotes.

ACC       accusative case
CL        classifier
COMP      complementizer
DECL      declarative mood
FUT       future tense
GEN       genitive case
HON       honorific marker
IR.REL    irrealis relativizer
LOC       locative
NEG       negation particle
NMLZ      nominalizer
NOM       nominative case
PAST      past tense
PL        plural
PNE       prenominal expression
POLITE    polite form
PRES      present tense
PROG      progressive aspect
PRP       propositive mood
Q         interrogative mood
REL       relativizer
TOP       topic marker
TRANS     transferentive connective
CHAPTER 1: Introduction

Evidentiality is a linguistic category that specifies the source of information, such as direct perception, inference, or hearsay (Aikhenvald 2004). This dissertation examines the meaning of evidentiality, focusing on its interaction with tense. Korean evidential utterances with –te and –ney are particularly well-suited for addressing these aspects of evidentiality, since they give rise to three distinct evidential interpretations, direct vs. inferential vs. reportative, by means of their interactions with tense and mood.

If the evidentials –te and –ney occur right after the embedded mood morpheme (e.g. the declarative marker –ta in (1)), then a reportative evidential reading arises, as illustrated with –te in (1). Evidentials are in boldface, and their evidential meanings are represented in square brackets below.

(1) Context: The speaker talked to Chelswu on the phone yesterday. Now, she says:

   (Chelswu-ka) pi-ka  o-ass-ta-te-la.
   Chelswu-NOM rain-NOM fall-PAST-DECL-TE-DECL

   ‘[I was told (from Chelswu)] it had rained.’

If the evidentials –te and –ney occur right after tense, then they give rise to direct or inferential evidential readings. The direct vs. inferential evidential readings are determined by which tense the evidential occurs with, as illustrated with –te in (2). The examples in (2) differ only in the tense that occurs with the evidential –te. Example (2a), with present tense, is interpreted as the speaker having direct evidence for the raining eventuality, i.e.
the speaker saw it raining. By contrast, examples (2b) and (2c) with past or future tenses, are interpreted as the speaker having inferential evidence for the raining eventuality, i.e. the speaker did not see it raining, but on the basis of the wet ground and the cloudy sky he inferred that it had rained before or would rain later.

(2) a. Context: The speaker saw it raining yesterday. Now, she says:

\[
\text{Pi-ka o-\text{\textbf{\textit{0}}}-te-la.}
\]
\[
\text{rain-NOM fall-PRES-TE-DECL}
\]
\[
\text{`}[	ext{i saw that}] \text{ it was raining}.`
\]

b. Context: The speaker saw the wet ground yesterday. Now, she says:

\[
\text{Pi-ka o-\text{\textbf{\textit{ass}}}-te-la.}
\]
\[
\text{rain-NOM fall-PAST-TE-DECL}
\]
\[
\text{`}[	ext{i inferred that}] \text{ it had rained}.`
\]

c. Context: The speaker saw the overcast sky yesterday. Now, she says:

\[
\text{Pi-ka o-\text{\textbf{\textit{kyess}}}-te-la.}
\]
\[
\text{rain-NOM fall-FUT-TE-DECL}
\]
\[
\text{`}[	ext{i inferred that}] \text{ it would rain}.`
\]

The meaning of the evidential –te has received many descriptive accounts in the literature, but there have been only a few recent works (e.g. Chung 2005, 2007, 2010) that formally analyze its meaning. The evidential –ney has received relatively little attention in the literature, in particular from the perspective of its formal representation. The main contribution of this dissertation is to take into consideration a wide range of their meanings from a formal semantic perspective. The present work is among the first to analyze their temporal and modal meaning contributions within the standard modal theory (Kratzer

\footnote{Following Bach (1986) I use the term \textit{eventuality} as a cover term for events and states.}
1977, 1981, 1991), and sketch out their not-at-issue meaning contributions within a dynamic semantic framework (Murray 2010).

Evidentials from other languages have been much studied in terms of their formal representations (Faller 2002, Matthewson et al. 2007, Murray 2010 among others). But most of the previous work has been centrally concerned with a distinct evidential meaning arising from an independent expression (cf. Faller 2004), as illustrated with Quechua evidentials in (3). In (3), –mi is a direct evidential, and chá is an inferential evidential. Both sentences in (3) express that it is raining, as represented in \( p \), but different evidential implications arise due to the distinct evidentials, as represented in \( \text{ev} \).\(^2\)

(3) a. Para-sha-n-mi.
    rain-PROG-3-BPG
    \( p = \) ‘It’s raining.’
    \( \text{ev} = \) ‘speaker sees that \( p \).’

b. Para-sha-n-chá.
    rain-PROG-3-CONJ
    \( p = \) ‘It’s raining.’
    \( \text{ev} = \) ‘speaker conjectures that \( p \).’  \(^{\text{(Faller 2002:3)}}\)

By comparing (2) to evidentials from other languages like Quechua in (3), one might argue that –∅, –ass, –kyess in (2) are evidentials, just like –mi and chá in Quechua are evidentials in (3). Chung (2005, 2007) actually makes this proposal on the basis of the following assumption about typology.

\(^2\)Faller (2002) uses the following glosses: 3 = third person, BPG = best possible ground (direct evidential meaning), CONJ = conjectural evidential, PROG = progressive aspect.
In this dissertation, I argue against Chung (2005, 2007), and show that to ‘distinguish direct and indirect evidence’ is not necessarily carried out with distinct morphemes, but it can be done via meaning interactions with tense.

The proposed analysis does not assume ambiguous meanings of tense morphemes (contra Chung 2005, 2007). On the basis of empirical evidence, I argue that –te and –ney are evidentials that encode the meaning of sensory evidence, and analyze their meanings in terms of the two central components in Kratzer’s (1977, 1981, 1991) modal theory, i.e. the modal base and the ordering source. More specifically, the modal base SO (Sensory Observation) and the ordering source ST/DX (Streotypical/Doxastic) are taken as central to the meanings of the evidentials –te and –ney. I show that this modal analysis captures that the proposition occurring in the scope of the evidentials is asserted to be true in the set of accessible worlds compatible with acquired sensory evidence, not in the actual world.

In line with Faller (2004) and Chung (2005, 2007), I account for the direct vs. inferential evidential readings with –te and –ney in terms of the temporal relation between two relevant eventualities, which I call the evidence acquisition eventuality and the described eventuality. The former is the eventuality of the speaker acquiring sensory evidence, e.g. the eventuality of the speaker seeing the wet ground in (2b), which is temporally located by the evidentials. The latter is the eventuality described by the prejacent, e.g. the raining eventuality in (2b), which it is temporally located by tense occurring with the evidentials.
While the evidentials have the meaning of sensory evidence, the direct vs. inferential evidential readings arise indirectly from a temporal relation between the evidence acquisition eventuality and the described eventuality. When the two eventualities are sequentially ordered, an inferential evidential reading arises. But when they overlap, a direct evidential reading is available. This appeals to our world knowledge such that the availability of certain evidence types is constrained in a temporal dimension—for example, we cannot directly observe an event that has not yet occurred.

A closer investigation of the interaction between Korean evidentials and tense reveals that it is a bidirectional interaction between two different types of implications. It has been cross-linguistically observed that the meaning contribution of evidentials from other languages has a different status in discourse from that of the expressions which occur in the scope of the evidentials (Faller 2002, Murray 2010 among others), as Faller (2002) distinguishes them as propositional content ($p$) and the evidential meaning ($ev$) in the translation of her Quechua example in (3). Just like the Quechua evidential utterance in (3), Korean evidential utterances like (2) give rise to two distinct implications, which I call the prejacent implication and the evidential implication throughout this dissertation. The former is the proposition denoted by the expression in the scope of the evidential. The latter is the proposition that the speaker has evidence for the proposition in the scope of the evidential. Based on the diagnostic tests for the at-issue vs. not-at-issue distinction proposed in the literature (Stalnaker 1974, Chierchia and McConnell-Ginet 1990, Potts 2005, Abbott 2000, Roberts et al. 2009), I show that the prejacent implication is at-issue, whereas the evidential implication is not-at-issue. The former can be the ‘main point’ of the utterance and ‘directly related to the conversation at hand’, but the latter is merely ‘backgrounded’.
Faller (2002) argues that Quechua evidentials do not make a truth-conditional meaning contribution, unlike the meaning contribution of the proposition that occurs within the scope of an evidential, i.e. $\rho$ in (3). Faller captures the meaning contribution of Quechua evidentials within speech act theory (Searle and Vanderveken 1985, Vanderveken 1990, Vanderveken 1991), according to which Quechua evidentials do not affect the truth conditions of an utterance, but they are specified in the sincerity conditions of relevant speech acts. The question of how to formally capture that different types of implications arise from a single utterance is not limited to evidential utterances. The same question also arises with utterances containing other types of expressions that give rise to so-called not-at-issue implications, such as presuppositions and conventional implicatures (Potts 2005). For example, in Potts’s (2005) analysis of conventional implicatures, the different status of implications is captured by making a type-theoretical distinction between CI-types vs. at-issue types. The two types of meanings are represented in different dimensions, each with their own logic and types.

One consequence of previous formal systems like Faller (2002) and Potts (2005) is that the two different types of implications are not allowed to interact bi-directionally. Under Faller’s analysis, Quechua evidentials do not affect the proposition that occurs in the scope of the evidential. In Potts’s formal system, CI content, which is viewed as ‘comments upon an asserted core’ (Potts 2005:57), is not allowed to affect the at-issue content.

This dissertation presents empirical evidence for bi-directional interactions of at-issue and not-at-issue content, in the course of interpreting Korean evidential utterances. Building on Amaral et al. (2007), I argue that at-issue content and not-at-issue content, in general, need to be allowed to interact in both directions, whether they occur within a sentence or
across sentences. I present a sketch of a formal analysis for the at-issue/not-at-issue interaction on the basis of Murray’s (2010) dynamic semantic work which can model discourse reference.

This dissertation is organized into two parts: Part I, *The Korean Evidential System*, examines the meanings of Korean evidential utterances with –te and –ney, and Part II presents a formal analysis of the empirical findings presented in Part I and discusses their implications.

In Chapter 2, I discuss the meanings of Korean temporal markers and mood markers, which are centrally relevant to the subsequent discussion of Korean evidentials. I discuss a range of temporal meanings of the three expressions –ess, –nun, and –kyess. I particularly focus on their ‘relative’ tense meanings: when they occur in an embedded context, they are interpreted with respect to the time introduced by a matrix clause tense. Then, I discuss the distributions and the meaning contributions of Korean mood morphemes in both embedded and unembedded contexts. By comparing mood markers in a matrix clause which indicate the force of a speech act, I argue that Korean embedded mood morphemes introduce an independent eventuality into the meaning of a whole sentence.

Chapters 3 and 4 explore the meanings of Korean evidential utterances with –te and –ney, and discuss previous analyses. Chapter 3 focuses on how –te and –ney give rise to direct and inferential evidential readings, and Chapter 4 focuses on how a reportative evidential reading arises from them.

In Chapter 3, I argue that the evidentials –te and –ney encode the meaning of sensory observation, and I show that two distinct evidential readings arise due to the temporal relation constrained by tense. This temporal meaning is compatible with their ‘relative tense’ meanings in an embedded context. I present pieces of supporting evidence for a modal
analysis of Korean evidentials, e.g. projectivity, the non-equi subject constraint, and modal subordination. I also show that Korean evidential utterances give rise to implications that have a different status in discourse: the evidential implication is not-at-issue, but the prejacent implication is at-issue.

In Chapter 4, I show that a reportative evidential reading arises by means of the interaction between the ‘sensory observation’ meaning of evidentials and the embedded declarative marker –ta. I argue that Korean reportative evidential utterances with –te and –ney also make a modal meaning contribution, but they differ from that of the direct and inferential counterparts discussed in Chapter 3: the speaker is not committed to the truth of an embedded proposition, but its truth is asserted by the individual denoted by an overt subject or contextually salient. I discuss that there is the same at-issue vs. not-at-issue distinction among the implications arising from reportative evidential utterances with –te and –ney.

In Part II, Chapter 5 formalizes the temporal and evidential interpretations of Korean evidential utterances in Kratzer’s modal theory. Chapter 6 formalizes the at-issue and not-at-issue implications of Korean evidential utterances in Murray’s formal system.

In Chapter 5, I analyze the evidential meaning of Korean evidentials in terms of the two central components in Kratzer’s modal theory, i.e. the modal base and the ordering source. I propose that the modal base SO (Sensory Observation) and the ordering source ST/DX (Stereotypical/Doxastic) determine the accessible worlds for Korean evidential utterances with –te and –ney. In the proposed analysis, –te and –ney are anlayzed as evidentials that encode the ‘sensory observation’ meaning. But the distinct evidential readings, i.e. direct vs. inferential vs. reportative, arise indirectly by means of interactions of the ‘sensory observation’ meaning of –te and –ney, (i) with the ‘relative’ tense meaning of their co-occurring
tenses (for the direct/inferential evidential reading), and (ii) with the ‘asserting-eventuality’ meaning of the embedded declarative mood markers (for the reportative evidential reading).

In Chapter 6, I examine how the two different types of implications in Korean evidential utterances interact in the course of interpretation. I show that the interaction is bi-directional, and I discuss that it cannot be accounted for in the formal systems proposed in Faller (2002) and Potts (2005). I provide a sketch of a dynamic semantic analysis of the bi-directional interaction in Murray’s (2010) formal system. I capture the bi-directional interaction by means of context updates with discourse referents.

Chapter 7 is the conclusion. I summarize the main claims of this dissertation, and discuss their implications.
Part I

The Korean Evidential System
CHAPTER 2: Temporal and Mood Markers in Korean

The meanings of Korean evidential utterances with –te and –ney are determined by interactions with tense and mood morphemes, as discussed in Chapters 3 and 4. I discuss the meanings of Korean tense and mood morphemes in this chapter.

In section 2.1, I discuss a range of temporal meanings of the three expressions –ess, –nun, and –kyess. I focus on their ‘relative’ tense meanings: when they occur in an embedded context, they are interpreted with respect to the time introduced by a matrix clause tense. In section 2.2, I discuss the distributions and the meaning contributions of Korean mood morphemes in both embedded and unembedded contexts. I argue that Korean embedded mood morphemes introduce an independent eventuality into the meaning of a whole sentence.

2.1 Korean Tenses

This section discusses the temporal meanings of the following three temporal markers in Korean; (i) past –ess, (ii) nonpast –∅, and (iii) future –kyess.3 There is no controversy about the fact that all of these morphemes convey temporal meanings, but previous authors propose different analyses of their temporal meanings.

The most controversial issue about –ess and –nun is whether they should be analyzed as aspectual markers or tense markers. More specifically, the morpheme –ess has been

3The Korean past and nonpast tenses have phonologically conditioned allomorphs: –ess, –ass, –ss, –yess for past, and –nun, –n, –∅ for present. In this chapter, I gloss them as ess and nun, respectively, before I present a conclusion about their temporal meanings.
analyzed as (i) a past tense marker (e.g. Choe 1977, An 1980, Gim 1985, Lee 1987, Chong 1990, Sohn 1995, Yoon 1996, Lee 2007), and (ii) a perfective or perfect aspect marker (e.g. Na 1971, Baek 1986, Lee 1988b, Chung 2005). The morpheme –nun has also received two different analyses: (i) a present/non-past tense (e.g. Choe 1977, Nahm 1978, Baek 1986), and (ii) an imperfective or progressive aspect marker (e.g. Kim 1988, Lee 1991). The morpheme –kyess has been analyzed as a future tense (e.g. Song 1967, Kim 1992) and a future-oriented modal element (e.g. Yoo 1993, An 1980). This section discusses previous analyses of the three morphemes.

2.1.1 Past tense

I analyze the expression –ess as past tense that encodes the so-called ‘relative’ tense meaning in line with previous authors (Yoon 1996, Song 1999 among others). I assume the notion of reference time (Reichenbach 1947), i.e. the time that an utterance is about. The ‘relative’ past tense in Korean locates the reference time (rt) in the past of some time, which is (i) the utterance time (utt), i.e. the time at which an utterance is made, in a matrix clause, and (ii) the matrix clause event time (etmat), i.e. the time at which the eventuality denoted by the matrix clause is located, in an embedded clause. ≺ in (5) stands for a temporal precedence.

(5) a. past tense in a matrix clause: rt ≺ utt

b. past tense in an embedded clause: rt ≺ etmat

This section first presents pieces of supporting evidence for the past tense analysis, and then discusses counterexamples to it. Building on Yoon (1996), Yoo (1999) and Lee (2007), I show how the past tense analysis fares with the examples that apparently give rise to (present) perfect and perfective readings.
Supporting evidence for the past tense analysis

Past tenses can refer to past eventualities, but they cannot refer to present or future eventualities. For example, English sentences with the past tense -ed in (6) are compatible with the past-time denoting time adverbial yesterday, but not with the present-time and the future-time denoting time adverbials, now and tomorrow:

(6) a. John cried yesterday.
    b. #John cried now.
    c. #John cried tomorrow.

The expression –ess exhibits the same co-occurrence pattern with time adverbials. It occurs with a past-time denoting time adverbial as illustrated in (7a). But it is not compatible with present-time denoting or future-time denoting time adverbials as illustrated in (7b)–(7c).

    Chelswu-nom yesterday sleep-ess-decl
    ‘Chelswu slept yesterday.’
    b. #Chelswu-ka  cikum ca-ass-ta.
    Chelswu-nom now  sleep-ess-decl
    Intended: ‘Chelswu is sleeping now.’
    c. #Chelswu-ka  nayil  ca-ass-ta.
    Chelswu-nom tomorrow sleep-ess-decl
    Intended: ‘Chelswu will be sleeping tomorrow.’

Another piece of evidence for the tense meaning of –ess is its compatibility with any lexically specified aspects (Aktionsarten): states, activities, achievements, and accomplishments (Vendler 1967). As exemplified with English past tense sentences, tense morphemes are not restricted with respect to Aktionsarten.

(8) a. States: Mary was happy, Mary believed in God, Mary knew Japanese
b. Activities: *Mary danced, Mary pushed a cart, Mary ran, Mary took a walk*

c. Achievements: *Mary recognized John, Mary arrived in Seoul, Mary died*

d. Accomplishments: *Mary ate a cake, Mary wrote a letter, Mary built a house, Mary ran to the finish line*

This is true of *–ess*: four different Aktionsarten are exemplified in (9). Note that all of them can occur with *–ess*.

(9) a. State

Ku wuiwenhoi-nun ney myeng-ui haksayng-tul-lo kwusengtoi-ess-ta. that committee-top four cl-gen student-pl-with consist.of-ess-decl

‘The committee consisted of four students.’

b. Activity

Chelswu-nun kongwen-ul sanchaykha-ess-ta. Chelswu-top park-acc walk-ess-decl

‘Chelswu took a walk in the park.’

c. Achievement


‘Chelswu arrived in Seoul.’

d. Accomplishment

Chelswu-ka kyelsungsen-kkaci tali-ess-ta. Chelswu-nom finish.line-to run-ess-decl

‘Chelswu ran to the finish line.’

I take the above two pieces of evidence to support the past tense analysis of *–ess*. However, the literature (e.g. Na 1971, Baek 1986, Lee 1988b, Chung 2005) has noted some problematic examples for the past tense analysis of *–ess*. Building on Yoon (1996), Yoo (1999)
and Lee (2007), I argue that they cannot be taken as counterexamples to the past tense meaning of –ess. I show that the examples can be explained once we consider the effect of Aktionsarten and discourse context to the temporal interpretation of sentences with –ess.

**Challenges for the past tense analysis: Perfect meaning with –ess?**

First, –ess occurs with some time adverbials whose temporal reference is not necessarily restricted to the past time. For example, it can occur with the time adverbials cikum-kkaci ‘until now’ and yethay ‘until now’. As indicated by the translations below, such sentences have been taken to argue for the present perfect meaning of –ess:

   Kim-nom now-until study-acc do-ess-decl
   ‘Kim has studied until now.’

   Kim-nom until.now you-acc wait.for-ess-decl
   ‘Kim has waited for you until now.’ (slightly modified from Yoo 1996:139)

Examples like (10) are problematic for the past tense analysis of –ess because they seem to implicate that the eventualities described, i.e. Kim’s studying in (10a) and Kim’s waiting for her friend in (10b), hold at the utterance time.

But the question arises as to whether this implication is attributed to the semantics of –ess or some other pragmatic factors. Yoon (1996) claims that it is not a truth-conditionally encoded meaning, but a contextually dependent meaning. Yoo (1999) and Lee (2007) extend this view, and argue that it is a conversational implicature due to its cancelability as illustrated in (11). The first sentence in (11) is realized with the time adverbial cikum-kkaci/yethay ‘until now’ and –ess. It gives rise to the implication that the eventuality of Minji sleeping holds at the utterance time. But the continuation indicates that the implication in question is cancelable.

The example in (12) illustrates the same point as (11). In the context in (12), the eventuality of Kim’s waiting does not hold at the utterance time. But the sentence with –ess is felicitous in the given context.

(12) Context: When Chelswu arrived at Kim’s apartment, Kim was not there. Kim’s husband said:

Kim-i cikum-kkaci/yethay ne-lul kitali-ess-e.
Kim-nom now-until/until.now you-acc wait.for-ess-decl

‘Kim has waited for you until now.’

The cancelability tests in (11) and (12) show that the implication in question, i.e. the eventuality described holds at the utterance time, is a conversational implicature.

Yoon (1996), Yoo (1999) and Lee (2007) correctly point out that the implication is conversationally implicated. But they do not explain why such an implication arises. I argue that it is due to the Aktionsarten of the propositions in question. In (10) and (11), the propositions ‘Kim study’, ‘Kim wait’, and ‘Minji sleep’ are atelic Aktionsarten (i.e. states and activities), which do not have a culmination point, unlike telic Aktionsarten (i.e. accomplishments and achievements). For example, Mary’s eating a cake in (8d) culminates when she has finished eating the last piece of the cake. But there is no such culmination point of Mary’s being happy in (8a). The atelic Aktionsarten in (10) are interpreted to hold at the utterance time, with the time adverbials cikum-kkaci/yethay ‘until now’. But such an implication does not arise with telic Aktionsarten. When the telic Aktionsarten ‘Kim break the vase’, ‘Kim arrive in Seoul’, and ‘Kim fall’ in (13) occur with the time adverbials cikum-kkaci/yethay ‘until now’, they are infelicitous.
(13) a. #Kim-i cikum-kkaci/yethay kkoptyeng-ul kaytulli-ess-e.
    Kim-nom now-until/until.now vase-acc break-ess-decl
    ‘Kim has broken the vase until now.’

    b. #Kim-i cikum-kkaci/yethay Seoul-ey tochakha-yess-e.
    Kim-nom now-until/until.now Seoul-loc arrive-ess-decl
    ‘Kim has arrived in Seoul until now.’

    c. #Kim-i cikum-kkaci/yethay nemeci-yess-e.
    Kim-nom now-until/until.now fall-ess-decl
    ‘Kim has fallen until now.’

The contrast between (10) and (13) can be accounted for in terms of homogeneity, which is the central notion that underlies the distinction between atelic and telic Aktionsarten. Atelic propositions (i.e. states and activities) are homogeneous, but telic propositions (i.e. accomplishments and achievement) are not. Homogeneity is defined as the subinterval property in an interval-based temporal semantics. Under the definition of the subinterval property in (14), each Aktionsart is characterized as in (15).

(14) A sentence $\phi$ has the subinterval property iff the truth of $\phi$ at interval $I$ entails that $\phi$ is true at subintervals $I'$ of $I$.

(15) a. A sentence $\phi$ stative iff it follows from the truth of $\phi$ at an interval $I$ that $\phi$ is true at all subintervals of $I$.

   (e.g. If John was asleep from 1:00 until 2:00pm, then he was asleep at all subintervals of this interval: be asleep is a stative.)

b. A sentence $\phi$ is an activity iff it follows from the truth of $\phi$ at an interval $I$ that $\phi$ is true of all subintervals of $I$ down to a certain limit in size.

   (e.g. If John walked from 1:00 until 2:00pm, then most subintervals of this time are times at which John walked; walk is an activity.)
c. A sentence $\phi$ is an **accomplishment/achievement** iff it follows from the truth of $\phi$ at an interval $I$ that is false at all subintervals of $I$.

(e.g. If John built a house in exactly the interval from September 1 until June 1, then it is false that he built a house in any subinterval of this interval: *build a house* is an accomplishment/achievement.) *(Dowty 1986:42)*

The subinterval property gives rise to an implicature such that the atelic proposition is actually true at a larger interval properly including the event time of the eventuality in question (See, e.g. Dowty 1986, Hinrichs 1986, Kamp and Rohrer 1983, Partee 1984). This potential of an atelic Aktionsart holding at a superinterval makes it possible for the atelic propositions in (10) and (11) to give rise to an implicature that the described eventualities hold at the utterance time. But such an implicature does not arise from telic propositions in (13).

To summarize, the examples that are realized with –ess and the time adverbials cikum-kkaci/yethay ‘until now’, e.g. (10), do not raise a problem with the past tense analysis of –ess. They seem to give rise to a temporal implication that the eventuality described holds at the utterance time, but it is a cancelable conversational implicature as noted by Yoon (1996), Yoo (1999) and Lee (2007). I showed that the implicature arises from atelic Aktionsarten, but not from telic Aktionsarten, and argued that it can be accounted for in terms of the subinterval property of atelic Aktionsarten.

**Challenges for the past tense analysis: Occurrence with cikum ‘now’**

Previous researchers (e.g. Chung 2005) have pointed out that –ess can occur with the present-time denoting time adverbial cikum ‘now’, contrary to the prediction of the past
tense analysis of –ess. As already exemplified in (7), -ess cannot occur with the time adverbal cikum when it refers to the utterance time. However, there are some restricted sets of felicitous utterances that contain both –ess and cikum ‘now’ as in (16).

(16) Context: The telephone rang right after Kim left. It was Chelswu, and he was looking for Kim. Now, Kim’s husband says:

Kim-i cikum ttena-ess-ta.
Kim-nom now leave-ess-decl.

‘Kim has just left.’ (modified from Yoon 1996:16)

The co-occurrence with cikum ‘now’ in (16) does not simply show that –ess is not a past tense. The sentence in (16) is realized with –ess and cikum ‘now’, but the eventuality described does not hold at the utterance time, as explicitly indicated by the contextual information. The literature (e.g. Suh 1977, Jeong 1981, Yoon 1996) has noted that the time adverbial cikum ‘now’ does not necessarily denote the utterance time. It can denote the recent past and the immediate future. With this ‘extended meaning of now’, the sentences like (16) do not raise any problem for the past tense analysis of –ess.

The more challenging problem with (16), however, is that it implicates the relevance of the past eventuality to the utterance time just like the English present perfect does, i.e. (16) implicates that Kim has not returned yet. However, Yoon (1996) points out that such an implication is also available with the simple past, as illustrated with the following English past tensed sentence.

(17) A: Is Mary in?

B: She left five minutes ago. (Yoon 1996:144)

In (17), the simple past tensed sentence can address the question about Mary’s whereabouts at the utterance time. This suggests that B’s utterance with past tense gives rise to an
implication about the result state of the past eventuality. In line with Yoon (1996), I take the implication about the utterance time arising from (16) to be compatible with the past tense meaning of –ess, and it does not necessitate the present perfect analysis of –ess.

Song (1999) provides a slightly different analysis to capture the seemingly present perfect reading arising from sentences with –ess. He argues that Korean sentences with –ess are ambiguous between the simple past tense reading and the present perfect reading, and it can be disambiguated with time adverbials. For instance, (18a) is ambiguous, as indicated by the translations. By contrast, (18b) and (18c) with time adverbials are not ambiguous; only the simple past reading arises with the time adverbial ecey cenyek-ey ‘at dinner yesterday’ in (18b), and only the present perfect reading arises with the time adverbial cikum ‘now’ in (18c).

(18)  

Sumi-top steamed.rice-ACC eat-ESS-DECL  
‘Sumi ate steamed rice.’  
‘Sumi has eaten steamed rice.’

Sumi-top yesterday dinner-at steamed.rice-ACC eat-ESS-DECL  
‘Sumi ate steamed rice for dinner yesterday.’

Sumi-top now steamed.rice-ACC eat-ESS-DECL  
‘Sumi has eaten steamed rice now.’  

(Song 1999:118–119)

However, the above data does not necessarily require us to analyze –ess as being ambiguous with two temporal meanings. The present perfect reading from examples like (18a) can be treated under the past tense analysis in line with Yoon (1996); -ess truth-conditionally encodes the past tense meaning, but it gives rise to an implication about the result state extending to the utterance time just like the English simple past does in (17). The examples
like (18c) are also compatible with the past tense analysis under the assumption about the ‘extended now meaning’.

In sum, I have shown that the occurrence of –ess with the time adverbial cikum ‘now’ cannot be taken to argue against the past tense analysis of –ess. It can be accounted for in terms of the ‘extended now meaning’ of cikum ‘now’ and the implication about a result state from the simple past, as noted in the literature.

**Challenges for the past tense analysis: Perfective meaning with –ess?**

The other type of counterexample to the past tense meaning of –ess are those in which a perfective reading seems to arise from the construction with the connective –taka (e.g. Nam 1978, Park and Han 1993, Sohn 1995, Nam 1996). The connective –taka means ‘a shift in action or a transition to another action’ (Lee 2007:5). Following Sohn (1995), I gloss the connective –taka as trans (transfrentive) in (19). Consider the contrast between (19a) and (19b), which was taken to show in the literature that –ess has a perfective meaning.

   flowers-nom bloom-ess-trans die-ess-decl
   ‘The flowers bloomed, and then died.’

   flowers-nom bloom-nun-trans die-ess-decl
   ‘The flowers died while they were still blooming.’

   (slightly modified from Sohn 1995:28)

(19a) is realized with –ess and the eventuality of the flower blooming is construed as completed. By contrast, when the phonologically null variant of –nun (analyzed as present tense in next section) occurs with the connective –taka, the eventuality of the flower blooming is interpreted as not completed. Given this temporal meaning about event completion, the previous authors argue that the simple past tense meaning does not suffice for -ess.
However, the example with the connective -taka is not incompatible with the tense analysis. Yoon (1996) and Lee (2007) account for this data in terms of the so-called ‘relative’ tense behavior of –ess in an embedded clause. In some languages like Korean and Japanese, the embedded tense is interpreted with respect to the event time denoted by a matrix clause, not with respect to the utterance time. This pattern of the temporal interpretation of an embedded tense has been noted as a ‘relative’ tense (cf. an ‘absolute’ tense in languages like English) (see, e.g. Yoon 1996, Ogihara 1996). The tenses embedded in a verb complement clause (20) illustrate this temporal meaning of a ‘relative’ tense.

    Chelswu-top rain-nom fall-nun-decl-comp say-past-decl
    ‘Chelswu said that it was raining.’

    Chelswu-top rain-nom fall-ess-decl-comp say-past-decl
    ‘Chelswu said that it had rained.’

In (20a), with the present tense in the embedded clause, the raining eventuality is located at the same past time as the saying eventuality, not at the utterance time. By contrast, with the past tense in (20b), the raining eventuality is located in the past with respect to the time of Chelswu’s saying.

The temporal interpretation of the examples with the connective –taka can be accounted for in terms of the ‘relative’ tense meanings of –ess and –∅, too. Consider Lee’s (2007) examples that contain the connective –taka and –ess.

    I-top home-loc go-ess-trans here come-ess-decl
    ‘I went home, and then came here.’
   I-top home-loc go-nun-trans here come-ess-decl
   ‘I came here while going home.’  (slightly modified from Lee 2007:5)

Under the relative tense analysis, the eventuality of the –taka clause is located with respect to the eventuality of the matrix clause. Assuming that –ess is a past tense marker, it is correctly predicted that the eventuality of the –taka clause is located in the past with respect to the eventuality of the matrix clause. That is, the eventuality of the speaker going home is construed as completed prior to the eventuality of the speaker coming. In the same way, assuming that –∅ is a variant of the nonpast tense, the eventuality of the –taka clause is located in the present with respect to the eventuality of the matrix clause. Thus, the two eventualities temporally overlap. In sum, the temporal interpretation of the examples with the connective –taka is not problematic for the tense analysis of –ess. The correct prediction is borne out, under the ‘relative’ tense meaning of –ess.

By contrast, the perfective analysis of -ess runs into a critical problem because it does not account for the co-occurrence of –ess with the progressive –koiss. Consider (22), which gives rise to the past progressive reading; (i) the reference time is in the past with respect to the utterance time, i.e. yesterday night, and (ii) the eventuality of Chelswu sleeping was ongoing at the reference time.

(22) Nay-ka ecey pam-ey cip-ey tochakha-yess-ul ttay Chelswu-nun
    I-nom yesterday night-at home-at arrive-ess-when Chelswu-top
    ca-koiss-ess-ta.
    sleep-prog-ess-decl
    ‘When I got home last night, Chelswu was sleeping.’
This co-occurrence of –ess and –koiss cannot be accounted for in terms of the perfective analysis of –ess, as pointed out by Lee (2007). The temporal meaning of the perfective contradicts that of the progressive, which is a kind of the imperfective. Such temporal meanings are represented in terms of an inclusion (⊆) relation in the Reichenbachian framework.

(23)  
   a. perfective: \( et \subseteq rt \)  
   b. imperfective (progressive): \( rt \subseteq et \)

In sum, the perfective analysis of –ess runs into a problem with its co-occurrence with the progressive –koiss, whereas the examples with the connective –taka that have motivated the perfective analysis can be correctly analyzed in terms of the ‘relative’ tense meaning of –ess.

**Challenges for the perfective/perfect analysis: occurrence with the time adverbials**

Under the analysis of –ess as a perfective or perfect marker, the restrictions with time adverbials, see e.g. (7), cannot be accounted for. This is because unlike tenses in a matrix clause, aspectual markers are not constrained with respect to the utterance time. Instead, they express ‘different ways of viewing the internal temporal constituency of a situation’ (Comrie 1976:3). More specifically, the situation can be viewed as already completed at the reference time (with perfective aspect), or as ongoing at the reference time (with imperfective aspect). In a Reichenbachian framework, the temporal meanings of aspects are captured by constraining the temporal location of the event time (et) with respect to reference time (rt). For example, the English perfect aspect constrains et to be located prior to rt, but it is not responsible for the temporal relation between rt and utt, as illustrated in (24). (≺ and ○ stand for a sequentially ordered temporal relation and a temporal overlap, respectively.)
(24)  a. John had arrived. \((rt < utt, et < rt)\)  
b. John has arrived. \((rt \cap utt, et < rt)\)  
c. John will have arrived. \((utt < rt, et < rt)\)  

The realization of the perfective aspect is not constrained by the utterance time, either. The Russian examples in (25) illustrate this pattern; the perfective aspect locates \(et\) with respect to \(rt\), but it does not constrain the temporal location of \(rt\) with respect to \(utt\) (Anastasia Smirnova, p.c.). The Russian perfective marker \(pro\) can yield both a past time reference (with past tense as in (25a)) and a future time reference (with present tense as in (25b))

(25)  a. Maria pro-ˇcitala knigu.  
     Maria perf-read.3sg.past book  
     ‘Maria finished reading a book.’ \((rt < utt, et \subseteq rt)\)  
  b. Maria pro-ˇcitaet knigu.  
     Maria perf-read.3sg.pres book  
     ‘Maria will read a book.’ \((utt < rt, et \subseteq rt)\)  

Given that neither perfect nor perfective are constrained with respect to the utterance time, the constraints with time adverbials in (7) provide challenges for the aspectual analysis of –ess. But as already discussed, they provide strong evidence for the past tense analysis of –ess.  

To summarize, I adopt the past tense analysis of the expression –ess: It encodes the ‘relative’ past tense meaning, and its (present) perfect and perfective meaning can be accounted for in terms of the ‘relative’ tense meaning, and cancelable implicatures arising from Aktionsarten and some specific context.

25
2.1.2 Present tense

I analyze the expression –nun as present tense that is responsible for the temporal location of a reference time (rt). Just like past tense, –nun has a ‘relative’ tense meaning. It locates rt in the present with respect to utt (in a matrix clause) or with respect to et_mat (in an embedded clause). In some restricted contexts, it can also locate rt in the future with respect to utt (in a matrix clause) or with respect to et_mat (in an embedded clause). In (26), \( \leq \) stands for a temporal overlap (for present temporal reference) or a temporal precedence (for futurate temporal reference) of nonpast tense.

(26) a. present tense in a matrix clause: \( rt \leq utt \)
    b. present tense in an embedded clause: \( rt \leq et_{mat} \)

In this section, I first provide pieces of supporting evidence for the present tense analysis of –nun, and then discuss its imperfective/progressive meaning, which has been considered problematic for the tense analysis in the literature.

Supporting evidence for the present tense analysis

The occurrence of –nun with time adverbials is restricted as illustrated in (27). –Nun can occur with present-time denoting and future-time denoting adverbials, but not with past-time denoting adverbials. Note that –nun occurs with future-time denoting adverbials only in some restricted contexts, in which it gives rise to a futurate temporal reading for scheduled eventualities, as illustrated in (27b) and (27c).

(27) a. Chelswu-ka #ecey/cikum/#nayil ca-n-ta.
    Chelswu-nom yesterday/now/tomorrow sleep-nun-decl
    ‘Chelswu is sleeping #yesterday/now/#tomorrow.’

Due to the futurate meaning, some researchers (e.g. Yoon 1996) refer to –nun as nonpast tense. I call it present tense throughout this dissertation.
b. Chelswu-ka #ecey/cikum/nayil ttena-n-ta.
Chelswu-nom yesterday/now/tomorrow leave-nun-decl
‘Chelswu is leaving #yesterday/now/tomorrow.’

c. Enehak hakhoi-ka #ecey/cikum/nayil khaymphesu-eyse linguistics conference-nom yesterday/now/tomorrow campus-at yeli-n-ta.
take.place-PRES-decl
‘A linguistics conference is taking place on campus #yesterday/now/tomorrow.’

This kind of a futurate episodic reading from present tense is cross-linguistically quite common, e.g. English, and Russian (Anastasia Smirnova, p.c.)

(28) a. The Red Sox play the Yankees tomorrow. (Copley 2002:27)

b. Maria pro-ˇcitaet perf-read.3sg.PRES book tomorrow
‘Maria will read a book tomorrow.’

I take the occurrence of –nun with time adverbials as supporting evidence for the present tense analysis of –nun.

Next, –nun is compatible with any type of Aktionsarten, like the past tense –ess does. Consider the examples in (29), which involve –nun and four distinct Aktionsarten.5

(29) a. State

Ku wuiwenhoi-nun ney myeng-ui haksayng-tul-lo kwusengtoi-n-ta.
That committee-top four cl-gen student-pl-with consist.of-nun-decl
‘The committee consists of four students.’

b. Activity

Chelswu-nun kongwen-ul sanchaykha-n-ta.
Chelswu-top park-acc walk-nun-decl
‘Chelswu is taking a walk in the park.’

5As discussed later in this section, –nun does not occur with adjectival predicates. But I show that this is not a semantic constraint, building on Yoo (1993) and Yoon (1996).
c. **Achievement**

Chelswu-ka Seoul-ey tochakha-n-ta.
Chelswu-nom Seoul-loc arrive-nun-decl

‘Chelswu is arriving in Seoul.’

d. **Accomplishment**

Chelswu-ka kyelsungsen-kkaci tali-n-ta.
Chelswu-nom finish.line-to run-nun-decl

‘Chelswu is running to the finish line.’

Just like the past tense –*ess*, the expression –*nun* has no co-occurrence restriction with Aktionsarten. The absence of such a co-occurrence constraint with –*nun*, as illustrated in (29), provides supporting evidence for its tense analysis.

**Challenges for the present tense analysis: imperfective/progressive meaning with –nun?**

Previous authors (e.g. Kim 1988, Lee 1991) argue that there are some problematic data for the tense analysis of –*nun*. One of them is its distributional restriction. –*Nun* cannot occur with adjectival predicates as illustrated in (30):

(30)  

a. #John-nun apwu-nun-ta.
    John-top sick-nun-decl
    Intended: ‘John is sick.’ (Song 1999:106)

b. #Mary-ka pwucilenha-nun-ta.
    Mary-nom diligent-nun-decl
    Intended: ‘Mary is diligent’ (Yoon 1996:21)

This distributional restriction has led some authors (e.g. Kim 1992, Lee 1991) to argue that –*nun* is not present tense but imperfective or progressive aspect. This is because the Korean progressive –*koiss* cannot occur with adjectival predicates, either, as illustrated in (31).
(31) a. #John-nun apwu-koiss-ta.
    John-top sick-prog-decl
    Intended: ‘John is sick.’

b. #Mary-ka pwucilenha-koiss-ta.
    Mary-nom diligent-prog-decl
    Intended: ‘Mary is diligent’

However, the advocates of the tense analysis (e.g. Yoon 1996, Lee 2007) argue that it
is due to the constraint on the distribution of present tense: Whenever the present tense
combines with adjectival predicates, it is realized as a phonologically null form –∅. The
adjectival predicates in (32) are realized with –∅ instead of the overt tense form –nun, and
they are felicitous.

    John-top sick-∅-decl
    ‘John is sick.’  (Song 1999:106)

b. Mary-ka pwucilenha-∅-ta.
    Mary-nom diligent-∅-decl
    ‘Mary is diligent’  (Yoon 1996:21)

Yoo (1993) and Yoon (1996) argue that the realization of –∅ with adjectival predicates is
not a semantic constraint. Yoon (1996) illustrates this with the two predicates iss– and
concayha– that have the same meaning ‘exist’. The predicate iss– ‘exist’ is realized with
the phonologically null form as in (33a), but the predicate concayha– ‘exist’ is realized
with –nun as in (33b).

(33) a. Mwul-ey-to sanso-ka iss-∅/#nun-ta.
    Water-in-also oxygen-nom exist-∅-decl
    ‘Oxygen exists in water, too.’
b. Mwul-ey-to sanso-ka concayha-n/#∅-ta.
   Water-in-also oxygen-nom exist-nun-decl
   ‘Oxygen exists in the water, too.’  
   (Yoon 1996:24)

Whereas the examples in (30) can be accounted for in terms of the phonologically-zero form of the present tense, the imperfective/progressive aspect analysis runs into the following problems.

First, the imperfective/progressive analysis cannot account for the co-occurrence pattern of –nun with time adverbials. Just like perfective and perfect markers discussed in the preceding section, e.g. (24) and (25), imperfective or progressive markers are not constrained with respect to the utterance time. This is illustrated with the Korean progressive –koiss in (34), and the English progressive –ing in (35). Both are compatible with any time adverbials that refer to the time prior to, at, and after the utterance time.

   Chelswu-nom yesterday sleep-prog-ess-decl
   ‘Chelswu was sleeping yesterday.’

b. Chelswu-ka cikum ca-koiss-∅-ta.
   Chelswu-nom now sleep-prog-nun-decl
   ‘Chelswu is sleeping now.’

c. Chelswu-ka nayil ca-koiss-kyess-ta.
   Chelswu-nom tomorrow sleep-prog-fut-decl
   ‘Chelswu will be sleeping tomorrow.’

(35) a. John was singing yesterday morning.  
    (RT < UTT, RT ⊆ ET)

b. John is singing now.  
   (RT ⊆ UTT, RT ⊆ ET)

c. John will be singing tomorrow morning.  
   (UTT < RT, RT ⊆ ET)
Under the imperfective/progressive analysis of –nun, there is no way to account for the contrast between –nun and the progressives: –nun cannot occur with past-time denoting time adverbials as in (27), but the progressives can as in (34) and (35).

Next, whereas –nun can occur with any Aktionsarten, the progressive –koiss cannot. The progressive –koiss is not compatible with a stative predicate such as kwusengtoi ‘consist of’ as in (36a), but it is compatible with other eventive predicates as in (36b)–(36d).  

(36) a. State

#Ku wuiwenhoi-nun ney myeng-ui haksayng-tul-lo
that committee-TOP four CL-GEN student-PL-with
kwusengtoi-koiss-∅/ess-ta.
consist.of-PROG-NUN/ESS-DECL

Intended: ‘The committee is/was consisting of four students.’

b. Activity

Chelswu-nun kongwen-ul sanchaykha-koiss-∅/ess-ta.
Chelswu-TOP park-ACC walk-PROG-NUN/ESS-DECL

‘Chelswu is/was taking a walk in the park.’

c. Achievement

Chelswu-NOM Seoul-LOC arrive-PROG-NUN/ESS-DECL

‘Chelswu is/was arriving in Seoul.’

d. Accomplishment

Chelswu-ka kyelsungsun-kkaci tali-koiss-∅/ess-ta.
Chelswu-NOM finish.line-to run-PROG-NUN/ESS-DECL

‘Chelswu is/was running to the finish line.’

There are some stative predicates in Korean that can occur with the progressive –koiss. See Lee (2005) for more details.
Another challenge for the imperfective/progressive analysis of –nun is that it is not clear how its temporal reference is determined. As already discussed, within the Reichenbachian framework, tense is responsible for the temporal location of a reference time. Under the imperfective/progressive view, a sentence with –nun is analyzed as tenseless. Then, the question arises as to how the reference time of a –nun utterance is determined.

In the literature on temporal semantics, it has been argued that a temporal reference is contextually determined, like a nominal reference (Partee 1973). In particular, researchers of tenseless languages (Bohnemeyer 2002, Tonhauser 2006 among others) claim that the reference time of a tenseless utterance is contextually established. Following this approach, the defenders of the imperfective/progressive analysis might argue that the reference time of a –nun utterance is contextually determined. However, this does not obtain as illustrated in (37). (37a) is infelicitous because the contextually given reference time (i.e. yesterday night) is not compatible with the temporal meaning of –nun. This is analogous to the reason why (37b) is infelicitous: the contextually salient individual (i.e. Robin’s son) is not compatible with the meaning of kunye ‘she’. By contrast, (37c) is felicitous because both a nominal reference and a temporal reference are successfully resolved: (i) the contextually given reference time is compatible with the semantics of –nun, and (ii) the contextually salient individual is compatible with the semantics of the pronoun ku ‘he’.

(37)  a. Context: Yesterday night, I opened the door and saw Robin.

   #Ku-nun ca-n-ta.
   he-top sleep-nun-decl

   Intended: ‘He was sleeping.’
b. Context: Now I am taking care of Robin’s son.

#Kunye-nun ca-n-ta.
she-top sleep-NUN-DECL

Intended: ‘Robin’s son is sleeping.’

c. Context: Now I am taking care of Robin’s son.

Ku-nun ca-n-ta.
he-top sleep-NUN-DECL

‘He is sleeping.’

Given the contrast between (37a) and (37c), I argue that the tenseless analysis in which the reference time is contextually determined cannot be extended to Korean utterances with –nun. Crucially, a –nun utterance is not felicitous when the contextually given reference time is prior to the utterance time. Therefore, as the gender meaning is encoded in the semantics of pronouns, the following temporal meaning should be specified in the semantics of –nun: the reference time of a –nun utterance is constrained to be the utterance time or the time after the utterance time. Recall that tense constrains the temporal relation between the reference time and the utterance time in a matrix clause. Consequently, –nun is a tense morpheme that locates a reference time with respect to the utterance time. This temporal meaning cannot be accounted for in terms of the imperfective/progressive analysis.⁷

On the basis of the above discussion, I analyze –nun as present tense. It locates the reference time in the present or future with respect to the utterance time in a matrix clause, and with respect to the matrix clause event time in an embedded clause.

⁷The perfect/perfective analysis of –ess undergoes the same problem for the resolution of the reference time in tenseless sentences.
2.1.3 Future Tense

The expression –kyess has been analyzed as a future tense (e.g. Song 1967, Kim 1992) or a modal element (e.g. An 1980, Yoo 1993, Yoon 1996 Song 1999). I review two sets of examples that support one particular approach.

First, –kyess is compatible with future-denoting time adverbials, but not with present or past-denoting time adverbials.

(38) a. #Chelswu-ka ecey ca-kyess-ta.
    Chelswu-nom yesterday sleep-KYESS-DECL
    Intended: ‘Chelswu slept yesterday.’

b. #Chelswu-ka cikum ca-kyess-ta.
    Chelswu-nom now sleep-KYESS-DECL
    Intended: ‘Chelswu is sleeping now.’

c. Chelswu-ka nayil ca-kyess-ta.
    Chelswu-nom tomorrow sleep-KYESS-DECL
    ‘Chelswu will be sleeping tomorrow.’

In (38c), the time adverbial nayil ‘tomorrow’ locates the reference time of the Chelswu-sleeping eventuality after the utterance time, and it is compatible with the temporal meaning of –kyess. This has led previous authors (Lee 1989 among others) to analyze –kyess as future tense.

However, –kyess can occur with the past tense -ess, as illustrated in (39). In this context, –kyess is not used to refer to future states or affairs, but it has an (epistemic) modal meaning.

(39) Context: Chelswu’s talk was yesterday in Paris.

    Chelswu-ka kuccekkey ttena-ss-kyess-ta.
    Chelswu-nom the.day.before.yesterday leave-ESS-KYESS-DECL
    ‘Chelswu must have left the day before yesterday.’
In (39), it is not asserted that the eventuality of Chelswu leaving occurred the day before yesterday in the actual world. But it is asserted that it is possible that the Chelswu-leaving eventuality occurred the day before yesterday in the actual world. This kind of example has been taken as supporting evidence for the modal meaning of -kyess. (39) is problematic for the future tense analysis of -kyess because it is compatible with past tense and it does not realize future time reference.

I agree that examples like (39) show that –kyess has a modal meaning. I do not present a full analysis of the modal meaning of –kyess, but I believe that it is the right move to assume both temporal and modal meanings for –kyess. It is cross-linguistically attested that future markers convey both temporal and modal meanings, as shown in the following quote.

(40) Most, if not all, future markers that have been explored from a formal semantic perspective have been analyzed as conveying not just future temporal reference but also modal meaning(s): the English auxiliary will, for example, expresses future time reference with circumstantial or deontic modality (e.g. Sarkar 1998, Copley 2002, Kissine 2008), the Turkish suffix -(y)Ecek realizes future time reference with the modal attitude of prediction (Yavaş 1982), and Kalaallisut future markers evoke attitude of states to de se prospects, starts of expected processes, or mark the speech act as a request or wish (Bittner 2005). (Tonhauser 2009:1)

I take into consideration –kyess occurring in contexts like (38a), and focus on the future temporal meaning of –kyess; it locates the reference time of an eventuality described after the utterance time. The exact modal meaning of –kyess and its interactions with evidentials await careful study and analysis from a formal semantic perspective.
2.2 Korean Mood Markers

Korean mood markers determine sentence types (e.g. declarative, interrogative, imperative), with each type associated with certain ‘illocutionary act potentials’ (Pak 2004 among others). I discuss the distributions of Korean mood morphemes, particularly with evidentials, in section 2.2.1, and their meaning contributions in section 2.2.2.

2.2.1 Occurrences with Evidentials

Mood markers in Korean occur at the end of sentences, as illustrated in (41a), unless they occur in embedded clauses. This distributional restriction has led some previous authors (Sohn 1999 among others) to call them ‘sentence enders’. In embedded clauses, Korean mood markers occur right before the complementizer –ko, as illustrated with the declarative marker –ta in (42a). Mood markers are obligatory in both matrix clauses and embedded clauses, as shown in (41b) and (42b).

(41) a. Yenghi-ka  hakkyo-ey ka-ss-ta.
   Yenghi-nom school-to  go-PAST-DECL
   ‘Yenghi went to school.’

   b. #Yenghi-ka  hakkyo-ey ka-ss.
   Yenghi-nom school-to  go-PAST
   Intended: ‘Yenghi went to school.’

   Chelswu-nom Yenghi-nom school-to  go-PAST-DECL-COMP say-PAST-DECL
   ‘Chelswu said that Yenghi went to school.’

   b. #Chelswu-ka  [Yenghi-ka  hakkyo-ey ka-ss]-ko  malha-yess-ta.
   Chelswu-nom Yenghi-nom school-to  go-PAST-COMP say-PAST-DECL
   Intended: ‘Chelswu said that Yenghi went to school.’
In what follows, I take into account a range of all Korean mood markers. I show that Korean mood markers determine sentence types, and discuss their distributions with the evidentials –te and –ney.

**Declaratives**

The two declarative markers –ta and –e are exemplified in (43). They occur right after tense.

(43) a. Yenghi-ka  hakkyo-ey ka-ss/n/kyess-ta.
    Yenghi-nom school-to go-past/pres/fut-decl
    ‘Yenghi went/goes/will go to school.’

b. Yenghi-ka  hakkyo-ey ka-ss/∅/kyess-e.
    Yenghi-nom school-to go-past/pres/fut-decl
    ‘Yenghi went/goes/will go to school.’

As noted in the literature (e.g. Lee and Ramsey 2000), a sentence-ending declarative marker changes to –la when it combines with the evidential –te, as illustrated below:

(44) Yenghi-ka  hakkyo-ey ka-ss/∅/kyess-te-la.
    Yenghi-nom school-to go-past/pres/fut-te-decl
    ‘[I had evidence that] Yenghi was/is/will be going to school.’

Unlike the evidential –te, the evidential –ney itself occurs in a sentence-final position like a mood marker. Thus, it cannot occur with any other declarative markers. This is illustrated with the declarative markers –ta, –e/a, and –la below:

(45) #Yenghi-ka  hakkyo-ey ka-ss/n/kyess-ney-ta/e/la.
    Yenghi-nom school-to go-past/pres/fut-ney.decl-decl
    Intended: ‘[I have evidence that] Yenghi went/goes/will go to school.’
Interrogatives

The interrogative markers -e, -ni, -nya occur after tense, as illustrated in (46).

(46)  a. Yenghi-nun hakkyo-ey ka-koiss-ess/∅/kyess-e?
        Yenghi-top school-to go-prog-pres-q
    ‘Is/was Yenghi going to school?/Will Yenghi be going to school?’

    b. Yenghi-nun hakkyo-ey ka-koiss-ess/∅/kyess-ni?
        Yenghi-top school-to go-prog-pres-q
    ‘Is/was Yenghi going to school?/Will Yenghi be going to school?’

    c. Yenghi-nun hakkyo-ey ka-koiss-ess/∅/kyess-nya?
        Yenghi-top school-to go-prog-pres-q
    ‘Is/was Yenghi going to school?/Will Yenghi be going to school?’

The evidential –te can occur with the interrogative marker –nya, but not the other interrogative markers, as illustrated in (47).

(47)  Yenghi-nun hakkyo-ey ka-ss/∅/kyess-te-nya/#e/#ni?
        Yenghi-top school-to go-past/pres/fut-te-q
    ‘[Given your evidence] was/is Yenghi going to school?/Will Yenghi be going to school?’

As discussed above, the evidential –ney occurs in a sentence-final position. For the same reason that –ney is not compatible with declarative markers, it cannot occur with any interrogative markers –e/a, –ni, and –nya, either.

(48)  #Yenghi-nun hakkyo-ey ka-ss/∅/kyess-ney-nya/e/ni?
        Yenghi-top school-to go-past/pres/fut-ney.decl-q
    Intended: ‘[Given your evidence] was/is Yenghi going to school?/Will Yenghi be going to school?’
**Imperatives**

Unlike declarative and interrogative mood markers, the imperative marker –ela/–ala does not occur after tense, as illustrated in (49a). It occurs right after a verb stem, as illustrated in (49b).

(49)  

a. #Hakkyo-ey ka-ss/nun/kyess-ela.  
   school-to go-PAST/PRES/FUT-IMP  
   Intended: ‘Go to school.’

b. Hakkyo-ey ka-ala.  
   school-to go-IMP  
   ‘Go to school.’

The evidentials –te and –ney cannot occur in imperatives, as illustrated in (50) and (51).

(50) #Hakkyo-ey ka-te-ala.  
   school-to go-TE-IMP  
   Intended: ‘[Given evidence] go to school.’

(51) #Hakkyo-ey ka-ney-ala.  
   school-to go-NEY.DECL-IMP  
   Intended: ‘[Given evidence] go to school.’

**Propositives**

The propositive marker –ca does not occur after tense, as illustrated in (52a). It occurs right after a verb stem, as illustrated in (52b).

(52)  

a. #Hakkyo-ey ka-ss/nun/kyess-ca.  
   school-to go-PAST/PRES/FUT-PROP  
   Intended: ‘Let’s go to school.’

b. Hakkyo-ey ka-ca.  
   school-to go-PROP  
   ‘Let’s go to school.’
The evidentials –te and –ney cannot occur in propositives, as illustrated in (53) and (54).

(53) #Hakkyo-ey ka-te-ca.
    school-to go-te-PROP
    Intended: ‘[Given evidence] let’s go to school.’

(54) #Hakkyo-ey ka-ney-ca.
    school-to go-NEY.DECL-PROP
    Intended: ‘[Given evidence] let’s go to school.’

Sohn (1975) argues that the distributional restriction of the evidential –te in imperative or propositive sentences is due to its temporal meaning. It carries the meaning about the time at which relevant evidence has been acquired, which I call the evidence acquisition time. More details of this temporal meaning will be discussed in section 3.1.1.

To summarize, the Korean evidential –te can occur with declarative and interrogative mood morphemes. But it cannot occur with imperative and propositive mood morphemes. The evidential –ney occurs in the same morphosyntactic slot as a declarative marker, and thus it cannot occur with other mood morphemes, i.e. interrogative, imperative, and propositive markers.

2.2.2 Meaning Contributions of Korean Mood Markers

This section discusses the meanings of Korean mood markers. I show that Korean mood markers in a matrix clause indicate the force of a speech act, and their illocutionary meanings can be contextually overridden. But when Korean mood markers occur in an embedded context, their meanings cannot be contextually overridden. I argue that Korean embedded mood morphemes introduce an independent eventuality into the meaning of a whole sentence.
Mood Markers in Matrix Clauses

We perform speech acts (e.g. making a statement, asking a question, commanding) by making an utterance of a specific type of natural language sentences. Such an illocutionary meaning of a natural language sentence can be expressed by conventionalized grammatical means, which are cross-linguistically varied (see Sadock and Zwicky 1985 for more details). For example, word order distinguishes declaratives (e.g. *John is tall.*) from interrogatives (e.g. *Is John tall?*) in languages like English. As we have seen in the preceding section, sentence types in Korean are determined by mood markers occurring in the sentence-final position.8

The sentence types, determined by distinct grammatical means in different languages, are associated with a certain illocutionary act potential, e.g. declarative sentences express ‘stating, asserting, claiming, testifying, and so on’, interrogative sentences express ‘asking, inquiring, querying, and so on’, and imperative sentences express ‘requesting, demanding, commanding, directing, and so on’ (Sadock 2004). This correlation between sentence types and illocutionary act potentials is observed with Korean mood markers, too, as illustrated in (55). Each sentence in (55) is realized with a distinct mood marker, i.e. the declarative marker –*ta* in (55a), the interrogative marker –*nya* in (55b), the imperative marker –*ala* in (55c), and the propositive marker –*ca* in (55d). By uttering (55a–d), the speaker performs different speech acts, i.e. asserting with (55a), questioning with (55b), commanding with (55c), and proposing with (55d).

8According to Pak (2004), Welsh and Hidats employ special particles to mark sentence types, too.
(55)  a. Context: The speaker saw Yenghi looking for Minswu. Now, the speaker says to Yenghi:

Minswu-ka ttena-ass-ta.
Minswu-nom leave-past-q
‘Minswu left.’

b. Context: The speaker was looking for Minswu. Now, the speaker says to Yenghi:

Minswu-ka ttena-ass-*nya*?
Minswu-nom leave-past-q
‘Did Minswu leave?’

c. Context: The speaker was very mad at Yenghi. Now, he says to Yenghi:

Ttena-*ala*.
leave-imp
‘Leave!’

d. Context: The speaker and Yenghi were being chased by the police. Now, he says to Yenghi:

Ttena-*ca*.
leave-prop
‘Let’s leave.’

However, the relationship between sentence types and their associated illocutionary acts is not necessarily straightforward, as shown in *indirect speech acts*, i.e. speech acts which are indirectly performed by another speech act. The well-known example from Searle (1975) is given in (56). The sentence in (56) is an interrogative, so the speaker asks a question with the utterance. But the speaker’s conversational goal with this utterance is not merely getting an answer to his/her question, but requesting the addressee to pass the salt.
Can you pass the salt?

These indirect speech acts are found in Korean utterances as well. The sentence in (57a) occurs with the declarative marker, and thus the speaker makes a statement. But it can be used as an inquiry in the given utterance context, with which the speaker’s conversational goal is to get an answer to the question about whether Minswu left. In the same way, although the speaker gives a command with the imperative sentence in (57c) and makes a suggestion with the propositive sentence in (57d), the speech acts can be indirectly used for asking a question in the given context of utterance: with (57c–d), the speaker aims to obtain some information. The same point applies to cases of a rhetorical question like (57b): the speaker does not merely request information about the addressee’s ability, but indirectly asserts that the addressee is so cruel or brutal, like a simple declarative sentence you could not have done that as a human being.

(57)  a. Context: The speaker was looking for Minswu. Now, the speaker says to Yenghi:

I-top Minswu-nom leave-PAST-whether-nom really curious-PRES-DECL.
‘I am really wondering whether Minswu left.’

b. Context: The speaker’s daughter was murdered by his neighbor. Now, the speaker says to the murderer:

Ne-ka totaychey inkan-i-∅-nya?
you-nom on.earth human-be-PRES-Q?
‘Are you even human?’
c. Context: The speaker was looking for Minswu. Now, the speaker says to Yenghi:

‘Tell me immediately whether Minswu left.’

d. Context: The speaker asked a question. Now, the speaker is waiting for Yenghi’s answer.

Ku cilmwun-ey.tayhan ne-uy taytap-ul tulepo-ca.
that question-about you-GEN answer-ACC hear-PROP
‘Let’s hear your answer to the question.’

The indirect speech acts suggest that the conventional content of a natural language sentence (e.g. the illocutionary meaning associated with English word order and Korean mood markers) is not sufficient to retrieve its full meaning in an utterance context. Searle (1979) accounts for indirect speech acts in terms of conversational implicature (Grice 1989). I adopt this view of indirect speech acts. While the aforementioned illocutionary meanings are analyzed as the conventional meaning of Korean mood markers, I argue that their non-conventional meanings expressed by, for example, indirect speech acts, can be captured by virtue of conversational principles. It is beyond this dissertation to develop a full analysis of indirect speech acts expressed by Korean utterances. While I strongly believe that analyzing indirect speech acts in terms of Gricean implicatures is the correct move, the exact meaning contributions of Korean utterances for indirect speech acts remain to be investigated in future studies.
Mood Markers in Embedded Clauses

Korean mood morphemes are embeddable under propositional attitude verbs. In an embedded context, they do not indicate the force of a speech act, as illustrated with the verb ha- ‘say’ in (58). By uttering (58b)–(58d), the speaker does not question, command or propose, but he/she asserts that the matrix clause subject, Chelswu, performed the speech act of questioning, proposing, and commanding, respectively. By uttering (58a), the speaker makes a statement, but its illocutionary force for the speech act asserting comes from the matrix clause declarative marker, not from the embedded one. The clause boundaries are represented with square brackets in (58).

(58)  a. Context: Yenghi was looking for Minswu.

Chelswu-nom Yenghi-to MINSWU-nom LEAVE-past-decl-comp say-PAST-decl

‘Chelswu said to Yenghi that Minswu left.’

b. Context: Chelswu was looking for Minswu.

Chelswu-nom Yenghi-to MINSWU-nom LEAVE-past-q-comp say-PAST-decl

‘Chelswu asked Yenghi whether Minswu left.’

c. Context: Chelswu was very mad at Yenghi.

Chelswu-ka Yenghi-eykey [ttene-la]-ko Hay-ss-ta.
Chelswu-nom Yenghi-to LEAVE-IMP-comp say-PAST-decl

‘Chelswu ordered Yenghi to leave.’

9The verb ha- is a contracted form of the verb malha– ‘say’, which is a compound verb from the noun mal ‘speech’ and the verb ha– ‘do’. This type of compound verb is easy to find in Korean, e.g. the verb ilha– ‘work’ from the noun il ‘work’ plus the verb ha– ‘do’. For simplicity, I gloss the verb ha- in (58) as ‘say’, as previous authors (e.g. Kim 2001) have done.

10If a subject in the embedded clause is contextually salient, then it can be realized as a phonologically null anaphor.
d. Context: Chelswu and Yenghi were being chased by the police.

Chelswu-ka Yenghi-eykey [ttena-ca]-ko hay-ss-ta.
Chelswu-nom Yenghi-to leave-prop-comp say-past-decl

‘Chelswu proposed to Yenghi that they leave.’

There are various verbs of saying in Korean, each of which is associated with an illocutionary force for specific speech acts (Lee 1988a), e.g. cinswulha– ‘state’ (for making a statement), mwul– ‘ask’ (for asking a question), myenglyengha– ‘order’ (for commanding), and ceyanha– ‘propose/suggest’ (for proposing/suggesting). Among these verbs, only one of them can occur with each embedded mood marker. The embedded declarative mood marker –ta is felicitous with the matrix clause verb cinswulha– ‘state’, but not the other verbs like mwul– ‘ask’, myenglyengha– ‘order’, and ceyanha– ‘propose/suggest’, as illustrated in (59a). In the same way, in an embedded context, the interrogative marker –nya is felicitous with the matrix clause verb mwul– ‘ask’, the imperative marker –ela/ala is felicitous with the matrix clause verb myenglyengha– ‘order’, and the propositive marker –ca is felicitous with the matrix clause verb ceyanha– ‘propose/suggest’, but not the other verbs.

(59) a. Context: Yenghi was looking for Minswu.

Chelswu-ka Yenghi-eykey [(Minswu-ka) ttena-ass-ta]-ko
Chelswu-nom Yenghi-to Minswu-nom leave-past-decl-comp
cinswulha/#mwul/#myenglyengha/#ceyanha-yess-ta.
state/ask/order/propose-past-decl

‘Chelswu stated to Yenghi that Minswu left.’

b. Context: Chelswu was looking for Minswu.

Chelswu-ka Yenghi-eykey [(Minswu-ka) ttena-ass-nya]-ko
Chelswu-nom Yenghi-to Minswu-nom leave-past-q-comp
#cinswulha/mwul/#myenglyengha/#ceyanha-yess-ta.
state/ask/order/propose-past-decl

‘Chelswu asked Yenghi if Minswu left.’

46
c. Context: Chelswu was very mad at Yenghi.

Chelswu-ka Yenghi-eykey [ttena-la]-ko
Chelswu-NOM Yenghi-to leave-IMP-COMP
#cinswulha/#mwul/myenglyengha/#ceyanha-yess-ta.
state/order/ask/PAST-DECL

‘Chelswu ordered Yenghi to leave.’

d. Context: Chelswu and Yenghi were being chased by the police.

Chelswu-ka Yenghi-eykey [ttena-ca]-ko
Chelswu-NOM Yenghi-to leave-PROP-COMP
#cinswulha/#mwul/myenglyengha/ceyanha-yess-ta.
state/order/ask/PAST-DECL

‘Chelswu proposed to Yenghi that they leave.’

Korean mood markers can occur in nominal complement clauses. The expression –nun, glossed as pne ‘prenominal expression’ below, occurs between an embedded clause and a modified noun, just like the complementizer –ko occurs between an embedded clause and a matrix clause verb as in (58) and (59). When the modified noun corresponds to the matrix clause verb (e.g. cinswulha– ‘state’ vs cinswul ‘statement’), the embedded mood markers exhibit the same compatibility pattern as in verbal complement clauses like (59).

(60) a. Context: Yenghi was looking for Minswu.

Chelswu-ka Yenghi-eykey [(Minswu-ka) ttena-ass-ta]-nun
Chelswu-NOM Yenghi-to MINSWU-NOM leave-PAST-DECL-PNE
#cinswul/#cilmwun/myenglyeng/ceyan-ul ha-yess-ta.
statement/order/question/command/PAST-DECL

‘Chelswu made a statement to Yenghi that Minswu left.’
b. Context: Chelswu was looking for Minswu.

Chelswu-ka Yenghi-eykey [(Minswu-ka) ttena-ass-nya]-nun  
Chelswu-nom Yenghi-to Minswu-nom leave-PAST-Q-PNE  
#cinswul/cilmwun/#myenglyeng/#ceyan-ul ha-yess-ta.  
statement/question/command/suggestion-ACC do-PAST-DECL  
‘Chelswu asked to Yenghi the question of whether Minswu left.’

c. Context: Chelswu was very mad at Yenghi.

Chelswu-ka Yenghi-eykey [ttena-la]-nun  
Chelswu-nom Yenghi-to leave-IMP-PNE  
#cinswul/#cilmwun/myenglyeng/#ceyan-ul ha-yess-ta.  
statement/question/command/suggestion-ACC do-PAST-DECL  
‘Chelswu gave a command to Yenghi to leave.’

d. Context: Chelswu and Yenghi were being chased by the police.

Chelswu-ka Yenghi-eykey [ttena-ca]-nun  
Chelswu-nom Yenghi-to leave-PROP-PNE  
#cinswul/#cilmwun/#myenglyeng/ceyan-ul ha-yess-ta.  
statement/question/command/suggestion-ACC do-PAST-DECL  
‘Chelswu made a suggestion to Yenghi to leave.’

On the basis of the above observation, I argue that embedded mood markers in Korean introduce an independent eventuality to the meaning of a whole sentence, more specifically, (i) an eventuality of asserting from an embedded declarative marker, (ii) an eventuality of questioning from an embedded interrogative marker, (iii) an eventuality of commanding from an embedded imperative marker, and (iv) an eventuality of proposing from an embedded propositive marker. The matrix clause subject is the agent of the eventualities introduced by embedded mood markers.
This view is corroborated by the data in (61), which shows that such a conventional meaning of embedded mood markers cannot be overridden unlike matrix clause mood markers. As shown in indirect speech acts in (57), the illocutionary meanings that are conventionally associated with mood markers can be contextually overridden in some utterance contexts. But when the same sentences in (57) occur in an embedded context, their meanings are not overridden, as illustrated with the same compatibility pattern between the embedded mood markers and the matrix clause verbs below.

(61) a. Context: The speaker was looking for Minswu.

Na-nun [Minswu-ka ttena-ass-nunci kwungkumha-∅-ta]-ko
I-top MINSWU-NOM leave-PAST-WHETHER curious-PRES-DECL-COMP
cinswulha/#mwul/#myenglyengha/#ceyanha-yess-ta.
state/ask/command/propose-PAST-DECL

‘I stated that I am wondering whether Minswu left.’

b. Context: The speaker met the guy who murdered his daughter.

Na-nun [ne-ka totaychey inkani-∅-nya]-ko
I-top you-NOM on.earth human-be-PRES-Q-COMP
#cinswulha/mwul/#myenglyengha/#ceyanha-yess-ta.
state/ask/command/propose-PAST-DECL

‘I asked you whether on earth you are a human being.’

c. Context: The speaker was looking for Minswu.

Na-nun Yenghi-eykey [Minswu-ka ttena-ass-nun ci-lul tangcang
I-top YENGHI-TO MINSWU-NOM leave-PAST-REL thing-ACC immediately
malha-∅]-ko #cinswulha/#mwul/myenglyengha/#ceyanha-yess-ta.
say-IMP-COMP state/ask/command/propose-PAST-DECL

‘I ordered Yenghi to immediately tell whether Minswu left.’
d. Context: The speaker asked a question, and was waiting for Yenghi’s answer.

Na-nun Yenghi-eykey [ku cilmwun-ey.tayhan taytap-ul tulepo-ca]-ko
I-top Yenghi-to that question-about answer-acc hear-prop-comp
#cinswulha/#mwul/#myenglyengha/ceyanha-yess-ta.
state/ask/command/propose-past-decl
‘I proposed to Yenghi that we hear about her answer to the question.’

As we discussed in (57), if the embedded clauses in (61) occur in an unembedded context, they can indirectly perform speech acts other than those conventionally determined by mood markers. In contrast, they cannot express indirect speech acts in an embedded context. For example, whereas the declarative sentence in (57a) can be used for asking a question in an unembedded context, its occurrence as an embedded clause in (61a) does not give rise to the same indirect speech act.

The same pattern holds for nominal complement clauses. If the same sentences in (57) are embedded under a noun that corresponds to a matrix clause verb in (61), the compatibility of the embedded mood markers and the modified nouns are correctly predicted by the conventional meaning of the embedded mood markers: (i) the noun cinswul ‘statement’ with declarative, (ii) the noun cilmwun ‘question’ with interrogative, (iii) the noun myenglyeng ‘command’ with imperative, and (iv) the noun ceyan ‘suggestion’ with propositive.

The relevant examples are given below.

(62) a. Context: The speaker was looking for Minswu.

Na-nun [Minswu-ka ttena-ass-nunci kwungkumha-0-ta]-nun
I-top Minswu-nom leave-past-whether curious-pres-decl-pne
cinswul/#cilmwun/#myenglyeng/#ceyan-ul ha-yess-ta.
statement/question/command/suggestion-acc do-past-decl
‘I made a statement that I am wondering whether Minswu left.’
b. Context: The speaker met the guy who murdered his daughter.

Na-nun [ne-ka totaychey inkan-i-∅-nya]-nun
I-top you-nom on.earth human-be-PRES-Q-FNE
#cinswul/cilmwun/#myenglyeng/#ceyan-ul ha-yess-ta.
statement/question/command/suggestion-ACC do-PAST-DECL

‘I asked a question to you whether on earth you are a human being.’

c. Context: The speaker was looking for Minswu.

Na-nun Yenghi-eykey [Minswu-ka ttena-ass-nun ci-lul tangcang
I-top Yenghi-to Minswu-nom leave-PAST-REL thing-ACC immediately
alha-ala]-nun #cinswul/#cilmwun/myenglyeng/#ceyan-ul ha-yess-ta.
say-IMP-FNE statement/question/command/suggestion-ACC do-PAST-DECL

‘I gave a command to Yenghi to immediately tell whether Minswu left.’

d. Context: The speaker asked a question, and was waiting for Yenghi’s answer.

Na-nun Yenghi-eykey [ku cilmwun-ey.tayhan taytap-ul tulepo-ca]-nun
I-top Yenghi-to that question-about answer-ACC hear-PROP-FNE
#cinswul/#cilmwun/#myenglyeng/ceyan-ul ha-yess-ta.
statement/question/command/suggestion-ACC do-PAST-DECL

‘I made a suggestion to Yenghi that we hear her answer to the question.’

One might take the above examples to show that the embedded mood markers exhibit
a kind of agreement to the matrix clause illocutionary verbs. But I argue that it is not
sufficient to simply specify an agreement feature in embedded mood markers. With more
empirical support from the evidentials –te and –ney in section 4.2.1, I argue that Korean
embedded mood markers introduce an independent eventuality to the meaning of a whole
sentence.
CHAPTER 3: The Evidentials –te and –ney: Direct and Inferential Evidence

This chapter discusses the meanings of the Korean evidential utterances with –te and –ney in the following morpho-syntactic realizations:

(63) a. verb.stem-tense-\textit{te}-mood

\hspace{1cm} b. verb.stem-tense-\textit{ney}.mood

The evidentials –te and –ney realized in this structure give rise to two distinct evidential interpretations, i.e. direct vs. inferential, depending on which tense the evidentials –te and –ney occur with.

I first discuss their temporal interpretations in section 3.1. Korean evidentials encode a temporal meaning, as noted in the literature (Choi 1983, Sohn 1999, Song 2002, Chung 2005, 2007 among others). I account for it in terms of the notion of the evidence acquisition time. Tense that occurs with the evidentials is interpreted with respect to the evidence acquisition time introduced by the evidentials. This interaction affects the evidential interpretation of Korean evidential utterances with –te and –ney.

In section 3.2, I discuss the meaning of sensory observation of the evidentials –te and –ney, and show how it gives rise to the direct and inferential evidential readings by interacting with tense. With past or future tenses, the evidentials –te and –ney give rise to an inferential evidential reading due to the temporal non-overlap between the two times introduced by the evidentials and tense. With present tense, the two times temporally overlap, and this temporal relation allows for a direct evidential reading.
In section 3.3, I present supporting evidence for a modal analysis of Korean evidentials. I discuss parallel behaviors between Korean evidential utterances and English epistemically modalized utterances in terms of projectivity, the non-equi subject constraint, and modal subordination.

In section 3.4, I show that Korean evidential utterances give rise to implications that have a different status in discourse. The evidential implication that is contributed by the evidentials is not-at-issue. But the other proposition denoted by the expressions in the scope of the evidentials gives rise to an at-issue implication. I discuss Chung’s work (2005, 2007) in section 3.5.

3.1 Temporal Interpretation

As discussed in Chapter 2, Korean tenses are interpreted as ‘relative’ tenses; tenses in an embedded clause are interpreted with respect to the matrix clause event time, not with respect to the utterance time. The temporal interpretation of evidential sentences with –te and –ney exhibits the same pattern as those of embedding constructions. This is because the evidentials –te and –ney themselves make temporal contributions, as discussed in section 3.1.1. Tenses occurring with evidentials are not interpreted relative to the utterance time, but relative to the time introduced by the evidentials, as discussed in section 3.1.2.

3.1.1 Temporal Contributions of Korean Evidentials

Korean evidentials locate the time at which the speaker acquires relevant evidence, i.e. the evidence acquisition time, with respect to the utterance time. To be more specific, the evidential –te locates the evidence acquisition time prior to the utterance time. This temporal meaning of –te has been characterized by previous authors in various ways, e.g. a ‘retrospective’ tense (Choi 1983), a ‘retrospective’ mood (Sohn 1999 among others, ‘inherently
carrying the past feature (Sohn 1999:359’), a ‘past’ sensory observation (Song 2002), or a spatial deictic ‘past’ tense (Chung 2005, 2007). The evidential –ney also constrains the evidence acquisition time: with –ney, the evidence acquisition time is located at the utterance time. This temporal meaning of -ney has been characterized by Chung (2005, 2007) as a spatial deictic ‘present’ tense.

These temporal meanings of evidentials are first illustrated with different contexts in (64) and (65), which are all realized with present tense. In (64) where the speaker acquired evidence yesterday, the utterance with –te in (64a) is felicitous, but the utterance with –ney in (64b) is infelicitous. In contrast, in (65) where the speaker acquires evidence at the utterance time, the utterance with –te in (65a) is infelicitous, but the utterance with –ney in (65b) is felicitous.

(64) Context: Chelswu saw it raining yesterday. Now, he says:

a. Ecey pi-ka o-0-te-la.
    yesterday rain-nom fall-pres-te-decl
    ‘[I saw that] it was raining yesterday.’

b. #Ecey pi-ka o-0-ney.
    yesterday rain-nom fall-pres-ney.decl
    Intended: ‘[I saw that] it was raining yesterday.’

(65) Context: Chelswu sees it raining now, and says:

a. #Cikum pi-ka o-0-te-la.
    now rain-nom fall-pres-te-decl
    Intended: ‘[I see that] it is raining now.’

b. Cikum pi-ka o-0-ney.
    now rain-nom fall-pres-ney.decl
    ‘[I see that] it is raining now.’
This pattern holds with the evidentials –te and –ney when they occur with past and future tenses. First, consider the examples in (66) and (67) that are realized with past tense. When the evidence acquisition time is prior to the utterance time, i.e. this morning in (66), the utterance with –te is felicitous as in (66a), but the utterance with –ney is infelicitous as in (66b). In contrast, when the evidence acquisition time is at the utterance time in (67), the utterance with –te is infelicitous as in (67a), but the utterance with –ney is felicitous as in (67b). As discussed in section 3.4.3, direct and inferential evidential utterances with –te and –ney are compatible with only one time adverbial, and it constrains the reference time of a described eventuality, not the evidence acquisition time. The exact temporal location of the evidence acquisition time is contextually given, e.g. this morning in (66).

(66) Context: Chelswu saw the wet ground this morning. Now, he says:

a. Ecey pam-ey pi-ka o-ass-te-la.
   yesterday night-at rain-NOM fall-PAST-TE-DECL
   ‘[I inferred that] it rained last night.’

b. #Ecey pam-ey pi-ka o-ass-ney.
   yesterday night-at rain-NOM fall-PAST-NEY-DECL
   Intended: ‘[I inferred that] it rained last night.’

(67) Context: Chelswu sees the wet ground now, and says:

a. #Cokum cen-ey pi-ka o-ass-te-la.
   little ago-at rain-NOM fall-PAST-TE-DECL
   Intended: ‘[I infer that] it rained a minute ago.’

b. Cokum cen-ey pi-ka o-ass-ney.
   little ago-at rain-NOM fall-PAST-NEY-DECL
   ‘[I infer that] it rained a minute ago.’

The evidentials –te and –ney occurring with future tense pattern with the above sentences. In (68), the evidence acquisition time is prior to the utterance time, i.e. today
morning, and the utterance with –te, but not with –ney, is felicitous. In (69), the evidence acquisition time is at the utterance time, and the utterance with –ney, but not with –te, is felicitous.

(68)  Context: Chelswu saw the cloudy sky this morning. Now, he says:

a. Onul pam-ey pi-ka o-kyess-te-la.  
today night-at rain-nom fall-fut-te-decl  
‘[I inferred that] it would rain tonight.’

b. #Onul pam-ey pi-ka o-kyess-ney.  
today night-at rain-nom fall-fut-ney.decl  
Intended: ‘[I inferred that] it would rain tonight.’

(69)  Context: Chelswu sees the cloudy sky now, and says:

a. #Onul pam-ey pi-ka o-kyess-te-la.  
today night-at rain-nom fall-fut-te-decl  
Intended: ‘[I infer that] it will rain tonight.’

b. Onul pam-ey pi-ka o-kyess-ney.  
today night-at rain-nom fall-fut-ney.decl  
‘[I infer that] it will rain tonight.’

To summarize, Korean evidentials encode the following temporal meanings: the evidential –te locates the evidence acquisition time prior to the utterance time, and the evidential –ney locates the evidence acquisition time at the utterance time.

3.1.2 Temporal Contributions of Co-occurring Tenses

Tenses that occur with the evidentials –te and –ney temporally locate the reference time of a described eventuality. As ‘relative’ tenses, they are not interpreted with respect to the utterance time, but with respect to the evidence acquisition time introduced by the evidentials (See Sohn 1995 and Lee and Ramsey 2000 for the evidential –te). More specifically, (i)
with past tense, the reference time of a described eventuality precedes an evidence acquisition time, (ii) with present tense, the reference time of a described eventuality overlaps or follows an evidence acquisition time, and (iii) with future tense, the reference time of a described eventuality follows an evidence acquisition time.

This temporal relation between the evidence acquisition time and the reference time of a described eventuality is related to which evidence the speaker acquires. For example, assuming the normal course of a raining eventuality (according to our world knowledge), e.g. the sky being overcast (as its pre-state), raining (as its ongoing-state), and then the ground being wet (as its post-state), if what the speaker saw is the wet ground, then the reference time of a raining eventuality is located prior to the evidence acquisition time. If the speaker saw an overcast sky, then the reference time of a described eventuality is located after the evidence acquisition time. In what follows, I consider various contexts in which the speaker acquires different pieces of evidence for a raining eventuality.

First, consider the contexts in (70) and (71), where the speaker experiences the ongoing state of a raining eventuality. The present tensed sentences in (70a) and (71a) are felicitous, but the past or future tensed sentences in (70b-c) and (71b-c) are infelicitous.

(70) Context: Chelswu saw it raining yesterday. Now, he says:

a. Ecey pi-ka o-∅-te-la.
   yesterday rain-NOM fall-PRES-TE-DECL
   ‘[I saw that] it was raining yesterday.’

b. #Ecey pi-ka o-ass-te-la.
   yesterday rain-NOM fall-PAST-TE-DECL
   Intended: ‘[I saw that] it was raining yesterday.’

c. #Ecey pi-ka o-kyess-te-la.
   yesterday rain-NOM fall-FUT-TE-DECL
   Intended: ‘[I saw that] it was raining yesterday.’
(71)  Context: Chelswu sees it raining now, and says:

a. Cikum pi-ka o-∅-ney.
now rain-nom fall-PRES-NEY.DECL
‘[I see that] it is raining now.’

b. #Cikum pi-ka o-ass-ney.
now rain-nom fall-PAST-NEY.DECL
Intended: ‘[I see that] it is raining now.’

c. #Cikum pi-ka o-kyess-ney.
now rain-nom fall-FUT-NEY.DECL
Intended: ‘[I see that] it is raining now.’

In contexts where the speaker experiences the post-state of a raining eventuality, a past
tensed evidential sentence is felicitous, as illustrated in (72b) and (73b). But a present or
future tensed evidential sentence is infelicitous, as illustrated in (72a,c) and (73a,c).

(72)  Context: Chelswu saw the wet ground this morning. Now, he says:

a. #Ecey pam-ey pi-ka o-∅-te-la.
yesterday night-at rain-nom fall-PRES-TE-DECL
Intended: ‘[I inferred that] it rained last night.’

b. Ecey pam-ey pi-ka o-ass-te-la.
yesterday night-at rain-nom fall-PAST-TE-DECL
‘[I inferred that] it rained last night.’

c. #Ecey pam-ey pi-ka o-kyess-te-la.
yesterday night-at rain-nom fall-FUT-TE-DECL.
Intended: ‘[I inferred that] it rained last night.’

(73)  Context: Chelswu sees the wet ground now, and says:

a. #Cokum cen-ey pi-ka o-∅-ney.
little ago-at rain-nom fall-PRES-NEY.DECL
Intended: ‘[I infer that] it rained a minute ago.’
b. Cokum cen-ey pi-ka o-ass-ney.
little ago-at rain-nom fall-past-ney.decl
‘[I infer that] it rained a minute ago.’

c. #Cokum cen-ey pi-ka o-kyess-ney.
little ago-at rain-nom fall-fut-ney.decl
Intended: ‘[I infer that] it rained a minute ago.’

If the speaker experiences the pre-state of a raining eventuality, a future tensed evidential sentence is felicitous, as illustrated in (74c) and (75c). But a present or past tensed sentence is infelicitous, as illustrated in (74a-b) and (75a-b).

(74) Context: Chelswu saw the cloudy sky this morning. Now, he says:

a. #Onul pam-ey pi-ka o-∅-te-la.
today night-at rain-nom fall-pres-te-decl
Intended: ‘[I inferred that] it would rain tonight.’

b. #Onul pam-ey pi-ka o-ass-te-la.
today night-at rain-nom fall-past-te-decl
Intended: ‘[I inferred that] it would rain tonight.’

c. Onul pam-ey pi-ka o-kyess-te-la.
today night-at rain-nom fall-fut-te-decl
‘[I inferred that] it would rain tonight.’

(75) Context: Chelswu sees the cloudy sky now, and says:

a. #Onul pam-ey pi-ka o-∅-ney.
today night-at rain-nom fall-pres-ney.decl
Intended: ‘[I infer that] it will rain tonight.’

b. #Onul pam-ey pi-ka o-ass-ney.
today night-at rain-nom fall-past-ney.decl
Intended: ‘[I infer that] it will rain tonight.’

c. Onul pam-ey pi-ka o-kyess-ney.
today night-at rain-nom fall-fut-ney.decl
‘[I infer that] it will rain tonight.’
If a described eventuality is scheduled to take place in the near future, then the present tense can occur with the evidentials. This is not surprising because Korean present tense can give rise to a futurate temporal interpretation in some restricted contexts, as discussed in section 2.1.2. The relevant examples are repeated with slight modifications below: the eventuality of Chelswu’s leaving in (76a) and that of a conference being held in (76b) are temporally located after the utterance time.

(76) a. Chelswu-ka nayil ttena-∅-e.
   Chelswu-nom tomorrow leave-PRES-DECL
   ‘Chelswu is leaving tomorrow.’

   b. Enehak hakhoi-ka nayil khaymphesu-eyse yeli-∅-e.
       linguistics conference-nom tomorrow campus-at take.place-PRES-DECL
   ‘A linguistics conference is taking place on campus tomorrow.’

The corresponding present tense sentences with the evidentials –te and –ney are given in (89) and (90), respectively. In (89) and (90), the speaker does not experience the ongoing state of a described eventuality. But the evidence acquisition eventuality temporally precedes the described eventuality.

(77) a. Context: Chelswu saw a plane ticket on Kim’s desk yesterday. Now, he says:

       Kim-i nayil ttena-∅-te-la.
       Kim-nom tomorrow leave-PRES-TE-DECL
   ‘[I inferred that] Kim is leaving tomorrow.’

   b. Context: Yesterday Yenghi saw the poster for a linguistics conference scheduled for next week on campus. Now, she says:

       Enehak hakhoi-ka taum cwu-ey khaymphesu-eyse linguistics conference-nom next week-at campus-at yeli-∅-te-la.
       take.place-PRES-TE-DECL
   ‘[I inferred that] a linguistics conference is taking place on campus next week.’
(78)  

a. Context: Chelswu is looking at a plane ticket left on Kim’s desk, and now he says:

Kim-i nayil ttena-∅-ney.
Kim-nom tomorrow leave-pres-ney.decl
‘[I infer that] Kim is leaving tomorrow.’

b. Context: Looking at the poster about a linguistics conference, Yenghi says:

Enehak hakhoi-ka taum cwu-ey khaymphesu-eyse linguistics conference-nom next week-at campus-at yeli-∅-ney.
take.place-pres-ney.decl
‘[I infer that] a linguistics conference is taking place on campus next week.’

In sum, tenses occurring with the evidentials –te and –ney constrain the temporal location of the reference time of a described eventuality with respect to an evidence acquisition time. This temporal meaning of tense that occurs with evidentials is parallel to that of Korean embedded tense, e.g. tense in verb complement sentences, see (20). Embedded tenses are not interpreted with respect to the utterance time, but with respect to some other time; (i) the tense occurring in an evidential sentence is interpreted relative to the evidence acquisition time (induced by the evidentials –te and –ney), and (ii) the tense embedded in a verb complement clause is interpreted relative to the event time of the matrix clause eventuality.

3.1.3 Interim Summary

In Table 3.1, I summarize the temporal interpretation of Korean evidential utterances with –te and –ney. (evi, des, and utt stand for evidence acquisition time, the reference time of a described eventuality and utterance time, respectively. ≺ and ◦ represent a temporally sequential relation and a temporal overlap, respectively.)
In sum, Korean evidential utterances with –te and –ney receive a temporal reading as follows: (i) –te locates the evidence acquisition time prior to the utterance time, and –ney locates the evidence acquisition time at the utterance time, and (ii) the tenses that occur with the evidentials locate the reference time of a described eventuality relative to an evidence acquisition time (not relative to the utterance time).

This generalization correctly predicts that there is no temporal expression in Korean evidential utterances that is responsible for the temporal relation between the utterance time (utt) and the reference time of a described eventuality (des). The utt-des temporal relation is indirectly determined by the temporal contributions of the evidentials and their co-occurring tenses, as illustrated in (79). All sentences in (79) are felicitous with the time adverbial ecey ‘yesterday’, which indicates that the reference time of a described eventuality denoted by –te utterances can be located prior to the utterance time, no matter which tense the evidential –te occurs with.

(79) a. Context: Chelswu saw it raining yesterday. Now, he says:

\[\text{Ecey pi-ka o-∅-te-La.}\]
\[\text{yesterday rain-nom fall-PRES-TE-DECL}\]
\[\text{‘[I saw that] it was raining yesterday.’} \quad (\text{evi < utt, evi} \odot \text{des})\]
b. Context: Chelswu saw the wet ground this morning. Now, he says:

\[\text{Ecey pi-ka o-ass-te-la.}\]
\[\text{yesterday rain-nom fall-PAST-TE-DECL}\]
\[\text{‘[I inferred that] it rained yesterday.’} \quad (\text{evi < utt, des < evi})\]

The evidential –te locates the evidence acquisition time (evi) prior to the utterance time (utt), and the tenses are responsible for the temporal location of the reference time of a described eventuality (des). This allows for des to be located prior to utt, as long as des is in a temporal relation to evi as constrained by the tenses, i.e. (i) \text{evi \circ des (with present tense, in (79a))}, (ii) \text{des < evi (with past tense, in (79b))}, and (iii) \text{evi < des (with future tense, in (79c))}.

The temporal relation between evi and des constrained by the embedded tenses affects the evidential interpretation of Korean utterances with –te and –ney. This will be addressed in the next section.

3.2 Evidential Interpretation

Whether the evidence acquired for the existence of a described eventuality is direct or indirect has been noted as a key notion for evidence types in the literature (Willett 1988, Aikhenvald 2004 among others).\textsuperscript{11} According to Willett’s (1988: 96) definition, direct evidence is acquired when ‘the speaker claims to have perceived the situation described’,

\textsuperscript{11}Previous authors (e.g. Aikhenvald 2004) have used the following terms for the same distinction as direct vs. indirect evidence: firsthand vs. non-firsthand, experiential vs. non-experiential.
and indirect evidence is acquired when ‘the speaker claims to know of the situation described only through inference (on the basis of observable results or mental reasoning)’. I adopt this view with slight modifications, and use the terminology direct and inferential in the following sense: (i) direct evidence is available when the speaker perceives a described eventuality, and (ii) inferential evidence is available when the speaker knows of a described eventuality through inference (on the basis of observable results or mental reasoning).

The Korean evidential system differs from those which have received a formal analysis in the literature, e.g. Cuzco Quechua (Faller 2002), St’át’imcets (Matthewson et al. 2007), Cheyenne (Murray 2010) and Gitksan (Peterson 2010). These languages specify a direct vs. inferential distinction of evidence types with distinct morphemes. For example, Cuzco Quechua morphologically expresses distinct sources of information with the direct evidential –mi and the indirect inferential evidential –chá, as illustrated in (80). Both sentences in (80) describe a raining eventuality, but different evidential implications arise due to the distinct evidentials, i.e. the direct evidential -mi in (80a), and the inferential evidential chá in (80b).

\[(80)\]
\[
\text{a. Para-sha-n-} \text{mi.} \\
\text{rain-PROG-3-BPG} \\
\text{p= ‘It’s raining.’} \\
\text{EV = ‘speaker sees that p.’}
\]

\[
\text{b. Para-sha-n-} \text{chá.} \\
\text{rain-PROG-3-CONJ} \\
\text{p= ‘It’s raining.’} \\
\text{EV = ‘speaker conjectures that p.’} \quad (\text{Faller 2002:3})
\]
Unlike languages such as Cuzco Quechua, Korean does not have distinct morphemes to indicate the direct vs. inferential distinction; rather, this distinction is determined by interactions between tense and the evidentials that encode the meaning of sensory observation. I discuss the meaning of sensory observation of the evidentials –te and –ney in section 3.2.1. The direct evidential reading is discussed in section 3.2.2, and the inferential evidential reading is discussed in section 3.2.3.

### 3.2.1 Sensory Observation

The Korean evidentials –te and –ney require the speaker to base his/her statement on what he/she makes a sensory observation of (cf. Song 2002). The lack of appropriate sensory evidence results in an infelicitous utterance, as illustrated with –te in (81) and with –ney in (82). Each described eventuality in (81) and (82) requires the speaker to have specific sensory evidence: visual evidence in (81a) and (82a), auditory evidence in (81b) and (82b), gustatory evidence in (81c) and (82c), olfactory evidence in (81d) and (82d). But the required evidence is not available in each context, and this results in infelicitous utterances.

(81)

a. Context: Chelswu is blind. He was at the same party as Yenghi yesterday. Now, he says:

    #Yenghi-ka  ppalkan  paci-ul  ip-koiss-∅-te-la.
    Yenghi-nom   red   pants-acc wear-prog-pres-te-decl

    Intended: ‘[I had visual evidence that] Yenghi was wearing red pants.’

b. Context: Minswu is deaf. He was at the same party as Yenghi yesterday. Now, he says:

    #Yenghi-ka  moksoli-ka  coh-∅-te-la.
    Yenghi-nom  voice-nom   good-pres-te-decl

    Intended: ‘[I had auditory evidence that] Yenghi has a nice voice.’
c. Context: Chelswu had surgery on his teeth, and his tongue was numb yesterday when he ate soup. Now, he says:

#Swuphu-ka cca-∅-te-la.
soup-nom  taste.salty-pres-te-decl

Intended: ‘[I had gustatory evidence that] the soup was salty.’

d. Context: Chelswu had surgery on his nose yesterday. His nose was stuffed with cotton balls. Now, he says:

#Ecey edise tha-nu-n namsay-ka na-∅-te-la.
yesterday somewhere burn-prog-rel smell-nom exist-pres-te-decl

Intended: ‘[I had olfactory evidence that] yesterday there was a burning smell coming from somewhere.’

(82) a. Context: Chelswu is blind. He is at the same party as Yenghi now, and says:

#Yenghi-ka ppalkan paci-ul ip-koiss-∅-ney.
Yenghi-nom red pants-acc wear-prog-pres-ney.decl

Intended: ‘[I have visual evidence that] Yenghi is wearing red pants.’

b. Context: Minswu is deaf. He is at the same party as Yenghi now, and says:

#Yenghi-ka moksoli-ka coh-∅-ney.
Yenghi-nom voice-nom good-pres-ney.decl

Intended: ‘[I have auditory evidence that] Yenghi has a nice voice.’

c. Context: Since surgery on his teeth yesterday, Chelswu’s tongue has been numb. He is eating soup now, and says:

#Swuphu-ka cca-∅-ney.
soup-nom  taste.salty-pres-ney.decl

Intended: ‘[I have gustatory evidence that] the soup is salty.’
d. Context: Chelswu had surgery on his nose this morning. His nose is stuffed with cotton balls now, and says:

\#Edise  
\text{tha-nu-n  namsay-ka na-\text{\text{-}}\text{ney}.}
\text{somewhere burn-prog-rel smell-nom exist-pres-ney.decl}

Intended: ‘[I have olfactory evidence that] there is a burning smell coming from somewhere.’

The infelicity in (81) and (82) suggests that the two expressions \text{\text{-}te} and \text{\text{-}ney} are evidentials, and they encode the meaning of sensory observation (contra Chung 2005, 2007, as discussed in section 3.5). Such an evidential meaning for sensory observation does not necessarily guarantee the speaker’s direct evidence for a described eventuality.\textsuperscript{12} With present tense, the evidentials \text{\text{-}te} and \text{\text{-}ney} give rise to a direct evidential reading, according to which the speaker perceives the described eventuality. However, with past and future tenses, the speaker’s sensory evidence is taken as the basis for the speaker’s inference, i.e.

\textsuperscript{12}Note that the discussion of the direct vs. indirect evidence here regards a described eventuality, not an eventuality causing or caused by a described eventuality. For example, if the speaker saw a pile of snow, then she acquired direct evidence for the eventuality of there being a pile of snow. This meaning of direct evidence is expressed with the evidentials \text{\text{-}te/\text{-}ney} and present tense as in (i-a) and (ii-a). In the same context, on the basis of a pile of snow, the speaker can infer that it snowed. This meaning of inferential evidence is expressed with the evidentials \text{\text{-}te/\text{-}ney} and past tense as in (i-b) and (ii-b).

(i) Context: Yenghi saw a pile of snow on the street this morning. Now, she says:

a. \text{nwen-i  ssahyeiss-\text{\text{-}}\text{te}-la.}
\text{snow-nom be.piled-pres-te-decl}
‘[I saw that] snow was piled up.’

b. \text{nwen-i  o-\text{ass-\text{-}te}-la.}
\text{snow-nom fall-past-te-decl}
‘[I inferred that] it had snowed.’

(ii) Context: Yenghi sees a pile of snow on the street now, and says:

a. \text{nwen-i  ssahyeiss-\text{\text{-}}\text{ney}.}
\text{snow-nom be.piled-pres-ney.decl}
‘[I see that] snow is piled up.’

b. \text{nwen-i  o-\text{ass-ney}.}
\text{snow-nom fall-past-ney.decl}
‘[I infer that] it snowed.’
the speaker does not acquire direct evidence, but inferential evidence. In the next two subsections, I show how –te and –ney give rise to two distinct evidential readings, direct vs. inferential.

3.2.2 Direct Evidence

The evidential sentences in (83) and (84) are realized with present tense. The evidential –te occurs in (83) and the evidential –ney occurs in (84). They give rise to a direct evidential reading. In (83) and (84), the speaker perceives the described eventuality, i.e. snowing, the library being quiet, Yenghi making curry, and kimchi being salty.

(83) a. Context: Yenghi saw it snowing on the way home yesterday. Now, she says:

   Nwun-i o-\textit{0-te-la}.
   snow-nom fall-pres-te-decl
   ‘[I had visual evidence that] it was snowing.’

b. Context: Yenghi was at the library yesterday. Now, she says:

   Tosekwan-i nemwu coyongha-\textit{0-te-la}.
   library-nom very quiet-pres-te-decl
   ‘[I had auditory evidence that] the library was very quiet.’

c. Context: When Chelswu woke up, he smelled something from the kitchen. Now, he says:

   Yenghi-ka khaley-lul mantul-\textit{0-te-la}.
   Yenghi-nom curry-acc make-pres-te-decl
   ‘[I had gustatory evidence that] Yenghi was making curry.’

d. Context: Chelswu ate the kimchi that Yenghi made yesterday. Now, he says:

   Kimchi-ka cca-\textit{0-te-la}.
   kimchi-nom taste.salty-pres-te-decl
   ‘[I had olfactory evidence that] the kimchi was salty.’
This direct evidential reading with present tense is attributed to the temporal relation between an evidence acquisition time and the reference time of a described eventuality. As discussed in section 3.1, tenses occurring with the evidentials –te and –ney locate the reference time of a described eventuality with respect to an evidence acquisition time. Whether the two times overlap or not affects the availability of direct evidence for the existence of a described eventuality. With present tense, the two times temporally overlap, and this temporal relation allows for a direct evidential reading as illustrated in (83) and (84).
3.2.3 Inferential Evidence

With past or future tenses, –te and –ney give rise to an inferential evidential reading. The speaker does not perceive a described eventuality, but infers it on the basis of observable results or reasoning. This is because the past and future tenses constrain the reference time of a described eventuality to be located prior to or after the evidence acquisition time. This temporal precedence relation prevents the speaker from perceiving a described eventuality, i.e. acquiring direct evidence for a described eventuality. Based on sensory evidence available at the evidence acquisition time, the speaker infers that a described eventuality occurred before or will occur after.

First, consider the evidential utterances with past tense. The evidential –te occurs in (85) and the evidential –ney occurs in (86). In (85a) and (86a), the speaker did/does not perceive the snowing eventuality, but she could only infer it on the basis of a pile of snow. The previous record of a noise decibel level in (85b) and (86b), and the leftover curry in (85c) and (86c) were also taken as indicating the results of the eventuality of a library being noisy and the eventuality of Yenghi cooking curry, respectively.

(85) a. Context: Yenghi saw a pile of snow on the street this morning. Now, she says:

Nwun-i o-ass-te-la.
snow-nom fall-past-te-decl.
‘[I inferred that] it had snowed.’

b. Context: Yenghi works in a library. She regularly checks a noise decibel reader, and takes a note of it. Yesterday she read the previous record of a noise decibel level. Now, she says:

Tosekwan-i nemwu sikkule-ess-te-la.
library-nom very noisy-past-te-decl.
‘[I inferred that] the library had been very noisy.’
c. Context: Yenghi saw leftover curry in Chelswu’s kitchen this morning. Now, she says:

Chelswu-ka  khaley-lul mek-ess-te-la.
Chelswu-nom curry-acc  eat-PAST-TE-DECL.
‘[I inferred that] Chelswu had eaten curry.’

(86) a. Context: Yenghi sees a pile of snow on the street now, and says:

Nwun-i  o-ass-ney.
snow-nom fall-PAST-NEY.DECL
‘[I infer that] it snowed.’

b. Context: Yenghi works in a library. She regularly checks a noise decibel reader, and takes a note of it. She is reading the previous record of a noise decibel level now, and says:

Tosekwan-i nemwu sikkule-ess-ney.
library-nom very  noisy-PAST-NEY.DECL
‘[I infer that] the library was very noisy.’

c. Context: Yenghi sees leftover curry in Chelswu’s kitchen now, and says:

Chelswu-ka  khaley-lul mek-ess-ney.
Chelswu-nom curry-acc  eat-PAST-NEY.DECL
‘[I infer that] Chelswu ate curry.’

Evidential utterances with future tense give rise to an inferential evidential reading, too. This is illustrated in (87) and (88). In (87a) and (88a), the speaker saw the overcast sky. On the basis of this evidence, the speaker inferred/infers that it would be raining later. The examples in (87b) and (88b) also show that the speaker made/makes inferences about the described eventualities: given her visual evidence, the speaker inferred/infers that the library would/will be very quiet. After seeing that the curry powder, vegetables and meat
were ready in (87c) and (88c), the speaker inferred/infers that Yenghi would/will make curry even though the speaker did/does not see Yenghi actually cooking.

(87)  
  a. Context: Yenghi saw that it was very cloudy this morning. Now, she says:

    Onul pam-ey pi-ka o-kyess-te-la.
    today night-at rain-NOM fall-FUT-TE-DECL
    ‘[I inferred that] it would rain tonight.’

  b. Context: Yenghi saw many students leaving campus after the exam week. Now, she says:

    Tosekwan-i coyongha-kyess-te-la.
    library-NOM quiet-FUT-TE-DECL
    ‘[I inferred that] the library would be quiet.’

  c. Context: Yenghi found curry powder with sliced vegetables and meat in Chel-swu’s kitchen yesterday. Now, she says:

    Chelswu-ka khaley-lul mantul-kyess-te-la.
    Chelswu-NOM curry-ACC make-FUT-TE-DECL
    ‘[I inferred that] Chelswu would make curry.’

(88)  
  a. Context: Yenghi sees a very cloudy sky now, and says:

    Onul pam-ey pi-ka o-kyess-ney.
    today night-at rain-NOM fall-FUT-NEY.DECL
    ‘[I infer that] it will rain tonight.’

  b. Context: Yenghi sees many students leaving campus now, and says:

    Tosekwan-i coyongha-kyess-ney.
    library-NOM quiet-FUT-NEY.DECL
    ‘[I infer that] the library will be quiet.’
c. Context: Yenghi sees curry powder with sliced vegetables and meat in Chel-
swu’s kitchen now, and says:

Chelswu-ka khaley-lul mantul-**kyess-ney**.  
Chelswu-nom curry-acc make-fut-ney.decl  
‘[I infer that] Chelswu will eat curry.’

Some present tensed evidential sentences with –te and –ney can also give rise to an 
inferential evidential reading. This has been noted for the evidential –te in previous work 
(e.g. Song 2002, Lee 2010 among others), as illustrated in (89). The corresponding sen-
tences with –ney are given in (90). In (89) and (90), the speaker did/does not perceive the 
described eventuality, but made/makes inferences about it.

(89) a. Chelswu-ka taum cwu-puthe hakkyo-ey ka-∅-te-la.  
Chelswu-nom next week-from school-to go-pres-te-decl  
‘[I inferred that] Chelswu starts school next week.’  
(slightly modified from (27) in Song 2002)

b. Context: Yenghi read the newspaper yesterday that mentioned Obama’s visit to 
Korea next week. Now, she says:

Obama-ka naycwu-ey hankwuk-ey o-∅-te-la.  
Obama-nom next.week-at Korea-to come-pres-te-decl  
‘[I inferred that] Obama comes to Korea next week.’  
(slightly modified from (3) in Lee 2010)

c. Context: Yesterday Yenghi saw the announcement for a linguistics conference 
scheduled for next week on campus. Now, she says:

Enehak hakhoi-ka taum cwu-ey khaymphesu-eyse 
linguistics conference-nom next week-at campus-at 
yeli-∅-te-la.  
take.place-pres-te-decl  
‘[I inferred that] a linguistics conference is taking place on campus next week.’

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(90) a. Chelswu-ka taum cwu-puthe hakkyo-ey ka-∅-ney.
    Chelswu-nom next week-from school-to go-pres-ney.decl
    ‘[I infer that] Chelswu starts school next week.’

b. Context: Yenghi is reading the newspaper that mentioned Obama’s visit to Korea next week, and now she says:

    Obama-ka naycwu-ey hankwuk-ey o-∅-ney.
    Obama-nom next.week-at Korea-to come-pres-ney.decl
    ‘[I infer that] Obama comes to Korea next week.’

c. Context: Yenghi is looking at the announcement for a linguistics conference scheduled for next week on campus, and says:

    Enehak hakhoi-ka taum cwu-ey khymphesu-eyse
    linguistics conference-nom next week-at campus-at
    yeli-∅-ney.
    take.place-pres-ney.decl
    ‘[I infer that] a linguistics conference is taking place on campus next week.’

The availability of the inferential evidential reading in (89) and (90), not the direct evidential reading, is because an evidence acquisition time and the reference time of a described eventuality can be sequentially ordered with present tense, as discussed in the preceding section, see (89) and (90). This temporal ordering is due to the temporal meaning of Korean present tense that is available with a futurate temporal reading in some restricted contexts involving scheduled events. As in the past or future sentences like (85)–(88), the sequential temporal ordering makes it impossible for the speaker to acquire direct evidence for a described eventuality. Instead, the speaker makes inferences about it.
3.3 Modal Contribution

This section motivates a modal analysis of the Korean evidentials –te and –ney by showing the parallel behavior between Korean evidential utterances and English epistemically modalized utterances.

3.3.1 Projection Tests

The first parallel between Korean evidential utterances and English epistemically modalized utterances pertains to the projection behaviors of English modals and Korean evidentials. There is a family of projection tests, which has been proposed in the literature about presupposition (Karttunen 1973, Chierchia and McConnell-Ginet 1990, Simons et al. 2010 among others). They aim to test whether some meaning \( m \) arising from a sentence \( S \) can project globally in the so-called ‘family of sentences’, e.g. embedded under negation, interrogation, or in the antecedent of a conditional.

The projection test has been used by previous researchers of evidentials across languages, too. Faller (2002) and Murray (2010) show that evidentials in Quechua and Cheyenne, respectively, always project globally and do not scopally interact with tense, modals, conditionals and certain embedding verbs. This result of the projection tests supports their analysis of Quechua and Cheyenne evidentials as ‘illocutionary’ evidentials, which do not affect the truth conditions of a whole sentence, but affect the illocutionary meaning of a sentence. Matthewson et al. (2007) use the projection test to support their modal analysis of St´at’ìmcets evidentials, according to which St´at’ìmcets evidentials affect the truth conditions of a whole sentence and their meaning contributions are captured by a modal component.
In this section, I explore the projective behaviors of the following meanings arising from Korean evidential sentences and English modalized sentences:

(91) a. $m'$ (arising from Korean evidential sentences): Some individual $x$ has evidence about the truth of the prejacent $p$.

b. $m''$ (arising from English sentences with epistemic modals): Some individual $x$ has knowledge about the truth of the prejacent $p$.

I consider the aforementioned ‘family of sentences’ tests, and some related embedding constructions in this section. I especially focus on which individual $x$ the meanings $m'$ and $m''$ are anchored to: speaker, addressee, a matrix clause subject, or an indirect object. I compare the results of the projection tests of Korean evidential sentences and English modalized sentences with the two types of evidentials, i.e. ‘illocutionary’ evidentials (e.g. Quechua evidentials in Faller 2002, Cheyenne evidentials in Murray 2010) and modal-like evidentials (e.g. St’át’imcets evidentials in Matthewson et al. 2007, Japanese evidentials in McCready and Ogata 2007). As will be shown in this subsection, there are some tests that do not distinguish the two types of evidentials so that we might want to characterize their results as commonalities of evidentials across languages. But I focus in particular on some projective behaviors of Korean evidentials that are the same as those of the English epistemic modal must and the modal-like evidentials. This will serve as an empirical base for my modal analysis of Korean evidentials –te and –ney, which will be developed in Chapter 5.
Simple Declarative Sentences

First, consider simple declarative sentences before moving on to the ‘family of sentences’ tests. In simple declarative sentences with the Korean evidentials —te and —ney, the evidential implication $m'$ is anchored to the speaker, as illustrated with the infelicitous continuations by which the speaker asserts the negation of the prejacent. The first sentences in (92) are realized with —te, and those in (93) are realized with —ney.

(92)  a. Ecey pi-ka o-∅-te-la. #Kulentay ecey pi-ka
     yesterday rain-nom fall-pres-te-decl but yesterday rain-nom
     an-o-ass-e.
     neg-fall-past-decl
     ‘[I saw that] it was raining yesterday. #But it didn’t rain yesterday.’

    b. Ecey pi-ka o-ass-te-la. #Kulentay ecey pi-ka
     yesterday rain-nom fall-past-te-decl but yesterday rain-nom
     an-o-ass-e.
     neg-fall-past-decl
     ‘[I inferred that] it rained yesterday. #But it didn’t rain yesterday.’

    c. Ecey pi-ka o-kyess-te-la. #Kulentay ecey pi-ka
     yesterday rain-nom fall-fut-te-decl but yesterday rain-nom
     an-o-ass-e.
     neg-fall-past-decl
     ‘[I inferred that] it would rain yesterday. #But it didn’t rain yesterday.’

(93)  a. Cikum pi-ka o-∅-ney. #Kulentay cikum pi-ka
     now rain-nom fall-pres-ney-decl but now rain-nom
     an-o-∅-a.
     neg-fall-pres-decl
     ‘[I am seeing that] it is raining now. #But it is not raining now.’

    b. Ecey pi-ka o-ass-ney. #Kulentay ecey pi-ka
     yesterday rain-nom fall-past-ney-decl but yesterday rain-nom
     an-o-ass-e.
     neg-fall-past-decl
     ‘[I infer that] it rained yesterday. #But it didn’t rain yesterday.’
c. Nayil pi-ka o-kyess-ney. #Kulentay nayil pi-ka
    tomorrow rain-nom fall-fut-ney.decl but tomorrow rain-nom
    an-o-kyess-e.
    neg-fall-fut-decl

    ‘[I infer that] it will rain tomorrow. #But it will not rain tomorrow.’

The same pattern holds in English utterances with the modal auxiliary must: the modal
implication m”, i.e. some individual x has knowledge about the truth of the prejacent, is
anchored to the speaker. The continuation, by which the speaker asserts the negation of the
prejacent, is infelicitous.

(94) It must have rained yesterday. #But it did not rain yesterday.

The parallels between (92)–(93) and (94) suggest that utterring Korean evidential utterances
commits the speaker to the truth of the prejacent.

The theoretical question that arises is that of how to capture the meaning of the speaker
commitment carried by evidential utterances. One possible approach is to analyze it in
terms of modal components, as proposed by previous authors (McCready and Ogata 2007,
Matthewson et al. 2007 among others, see Matthewson 2010 for more references). Matthew-
son et al. (2007) present the same test with St’at’imcets evidentials as shown in (95),
and argue that they are compatible with the predictions made by their modal analysis of
St’at’imcets evidentials: St’at’imcets evidentials encode that the prejacent is possibly or
necessarily true, so evidential sentences in St’at’imcets are infelicitous when they are fol-
lowed by the negation of the prejacent, as illustrated in (95). The St’at’imcets evidentials
are boldfaced in (95): (i) the reportative evidential ku7, (ii) the inferential evidential k’a,
and (iii) the perceived evidential an’.

13 Matthewson et al. (2007) use the following glosses: caus = causative, conj = conjunctive (subjunctive)
    subject, counter = counter to expectations, deic = deictic, det = determiner, dir = directive transfixizer,
    erg = ergative, exis = wide-scope existential, foc = focus, impf = imperfective, inch = inchoative, infer
While the parallel patterns in (92)–(95) are compatible with a modal analysis, it is not necessarily required. Murray (2010) points out that with direct and inferential ‘illocutionary’ evidentials (e.g. Quechua, Cheyenne), the speaker can commit him/herself to the truth of the prejacent, too. The Quechua evidentials in (96) and the Cheyenne evidentials in (97) illustrate that ‘illocutionary’ evidentials, which do not encode any modal meaning, also follow the same pattern as Korean and St’át’imcets evidentials and the English modal must. The first conjuncts in (96a) and (97a) contain a direct evidential and those in (96b) and (97b) contain a conjectural evidential. The evidentials in (96) and (97) are boldfaced. When the first conjuncts with evidentials are followed by the second conjuncts indicating that the speaker does not believe the prejacents, they are infelicitous.14

(96) a. #Para-sha-n-mi, ichaqa mana crei-ni-chu.
    rain-PROG-3-mi but not believe-1-NEG
    #‘It’s raining, but I don’t believe it.’ (Faller 2002:163)

= inferential evidential, neg = negative, nom = nominalizer, obj = object, perc.evid = perceived evidence evidential, pl = plural, poss = possessive, report = reportative evidential, sg = singular, subj = indicative subject, top = non-topical subject marker.

14Murray (2010) use the following glosses: dir = unmarked direct evidential, contr = contrast, mod = agreement that appears with negation and the conjectural evidential, conj = conjectural prefix.
b. #Llave-qa muchila-v-pi-chá ka-sha-n ichaqa mana-n aqhay-pi-chu.
   key-top backpack-1-LOC-chá be-prog-3 but not-mi there-LOC-NEG
   #‘They keys may be/are possibly/probably in my backpack, but they are not there.’

(Faller 2002:178)

(97) a. #E-hoo’koho-∅ naa oha ná-sáa-oné‘seómátsésto-he-∅
   3-rain-dir and cntr 1-neg-believe
   #‘It’s raining, but I don’t believe it.’
   (Murray 2010:54)

b. Mó-hoo’koho-hane-he naa oha ná-sáa-oné‘seómátsésto-he-∅
   cnj-rain-mod B-y/n and cntr 1-neg-believe
   #‘It’s raining, I gather, but I don’t believe it.’
   (Murray 2010:54)

In Faller (2002), the meaning of the speaker commitment carried by Quechua evidential utterances like (96) is not analyzed as the encoded meaning of Quechua evidentials. But it is accounted for in terms of the sincerity conditions of assertions, according to which the speakers are committed to the truth of what he/she asserts. The asserted part in evidential utterances is the prejacent, so the sincerity condition is not satisfied when they are followed by the negation of the prejacent. This dissatisfaction of the sincerity condition of assertions results in infelicity of examples like (96).

On the empirical side of studies about evidentiality, it seems cross-linguistically valid to say that the evidential implication in question is anchored to the speaker in simple declarative sentences with evidentials. However, on the theoretical side, the anchoring pattern described above is not sufficient to argue for either a modal or a non-modal approach to evidentials in a particular language or across languages. I close this subsection by pointing out that, nonetheless, it can be claimed that the modal analysis of Korean evidentials would not be inconsistent with (92) and (93), in line with Matthewson et al.’s (2007) analysis of St’át’imcets evidentials.
Interrogative Sentences

The evidential –ney cannot occur in interrogatives because it encodes the meaning of a declarative marker, as discussed in section 2.2.1. But the evidential –te can combine with the interrogative marker –nya. Unlike in the simple declarative sentences with –te, the evidential meaning \( m' \), i.e. some individual \( x \) has evidence about the truth value of the prejacent, is anchored to the addressee in interrogative sentences. In the context of (98), the truth of the prejacent, which is the target of the interrogation, is not known to the speaker. But the addressee is presupposed to know it. The felicity of the evidential utterances in this context illustrates that the evidential implication in interrogatives is anchored to the addressee, not to the speaker.

(98) Context: The speaker has just returned to Seoul, and asks a question to his son who has been in Seoul for the past two weeks.

a. Ecey Seoul-ey pi-ka o-0-te-nya?
yesterday Seoul-at rain-nom fall-pres-te-Q
‘[Given your sensory evidence] was it raining in Seoul yesterday?’

NOT: ‘[Given my sensory evidence] was it raining in Seoul yesterday?’

b. Ecey Seoul-ey pi-ka o-ass-te-nya?
yesterday Seoul-at rain-nom fall-past-te-Q
‘[Given your sensory evidence] did it rain in Seoul yesterday?’

NOT: ‘[Given my sensory evidence] did it rain in Seoul yesterday?’

c. Nayil Seoul-ey pi-ka o-kyess-te-nya?
yesterday Seoul-at rain-nom fall-fut-te-Q
‘[Given your sensory evidence] would it rain in Seoul tomorrow?’

NOT: ‘[Given my sensory evidence] would it rain in Seoul tomorrow?’

\(^{15}\)The evidential implication arising from Korean evidential utterances cannot be a target of interrogation, see the discussion in section 3.4.2, e.g. (214).
In contrast, in the context of (99), the speaker knows that the addressee does not know the truth of the prejacent. Even though the speaker himself knows the truth of the prejacent, the evidential utterances are infelicitous in (99). This illustrates that the evidential implication in interrogatives cannot be anchored to the speaker.

(99) Context: While Chelswu has been staying in Seoul for the past two weeks, Yenghi was in Europe. She has just arrived in Seoul. Now, Chelswu is giving her a ride and asks:

a. #Ecey Seoul-ey pi-ka o-∅-te-nya?
yesterday Seoul-at rain-nom fall-pres-te-Q
Intended: ‘[Given my sensory evidence] was it raining in Seoul yesterday?’

b. #Ecey Seoul-ey pi-ka o-ass-te-nya?
yesterday Seoul-at rain-nom fall-past-te-Q
Intended: ‘[Given my sensory evidence] did it rain in Seoul yesterday?’

c. #Nayil Seoul-ey pi-ka o-kyess-te-nya?
yesterday Seoul-at rain-nom fall-fut-te-Q
Intended: ‘[Given my sensory evidence] would it rain in Seoul tomorrow?’

This change of anchoring from the speaker (in declaratives) to the addressee (in interrogatives) is observed in English modal sentences, too. The modal implication $m''$, i.e. some individual $x$ has knowledge about the truth of the prejacent, is anchored to the addressee, not to the speaker, in (100).

(100) Must it have rained in Seoul yesterday?

As with simple declarative sentences, however, we cannot draw the conclusion that Korean evidentials are modal elements on the basis of the parallel anchoring patterns between (98) and (100). This change of anchoring in interrogatives, known as ‘interrogative flip’ in the literature (e.g. Speas and Tenny 2003), is cross-linguistically attested in evidentials from...
other languages, whether modal or non-modal, e.g. Quechua (Faller 2002), St’át’imcets (Matthewson et al. 2007), and Cheyenne (Murray 2010). The next projection test, with negation, also shows the same result with modal or non-modal evidentials.

**Sentences with Negation**

When the Korean evidentials –te and –ney are embedded under negation, the evidential meaning $m'$, i.e. some individual $x$ has evidence about the truth value of the prejacent, appears to project. When the negation morpheme –an occurs with –te and –ney, the evidential meaning $m'$ does not fall under the scope of the negation meaning, as illustrated below.

First, consider (101) and (102), where the contexts explicitly indicate that the speaker was capable of acquiring sensory evidence about the raining eventuality. Namely, the contexts force the target of negation to be the prejacent. The felicity of (101) and (102) in this context, thus, illustrates that negation can scope over the prejacent, but not the evidential implication $m'$.

(101) **Context:** The speaker was in the dessert area where it had not rained for the past ten years and was not expected to rain in near future. Now, she says:

a. Pi-ka an-o-∅-te-la.
   
   rain-NOM NEG-fall-PRES-TE-DECL
   
   ‘[I saw that] it was not raining.’
   
   NOT: ‘It is false that [I saw that] it was raining.’

b. Pi-ka an-o-ass-te-la.
   
   rain-NOM NEG-fall-PAST-TE-DECL
   
   ‘[I inferred that] it had not rained.’
   
   NOT: ‘It is false that [I inferred that] it had rained.’

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c. Pi-ka an-o-kyess-\textbf{te-la}.
\begin{tabular}{l}
\text{rain-NOM \textsc{neg}\textsc{-fall-}\textsc{fut-}\textsc{te-decl}}
\end{tabular}
\begin{quote}
[I inferred that] it would not rain.
\end{quote}

\textbf{NOT:} 'It is false that [I inferred that] it would rain.'

(102) Context: The speaker is in the dessert area where it has not rained for the past ten years and is not expected to rain in near future. Now, she says:

a. Pi-ka an-o-\textbf{\textsc{0}-ney}.
\begin{tabular}{l}
\text{rain-NOM \textsc{neg}\textsc{-fall-}\textsc{pres-ney.decl}}
\end{tabular}
\begin{quote}
[I see that] it is not raining.
\end{quote}

\textbf{NOT:} 'It is false that [I see that] it is raining.'

b. Pi-ka an-o-ass-\textbf{ney}.
\begin{tabular}{l}
\text{rain-NOM \textsc{neg}\textsc{-fall-}\textsc{past-ney.decl}}
\end{tabular}
\begin{quote}
[I infer that] it did not rain.
\end{quote}

\textbf{NOT:} 'It is false that [I infer that] it did not rain.'

c. Pi-ka an-o-kyess-\textbf{ney}.
\begin{tabular}{l}
\text{rain-NOM \textsc{neg}\textsc{-fall-}\textsc{fut-ney.decl}}
\end{tabular}
\begin{quote}
[I infer that] it will not rain.
\end{quote}

\textbf{NOT:} 'It is false that [I infer that] it will rain.'

The examples in (103) and (104) provide further illustrations that negation cannot scope over the evidential implication in question. The contexts force the evidential implication to be negated, but the evidential utterances are infelicitous in the given contexts:

(103) Context: For the past three years, Chelswu has been in a jail where there is no available connection to the outside world, i.e. no windows, no noise or smell from outside etc. Now, he says:

a. #Pi-ka an-o-\textbf{\textsc{0}-te-la}.
\begin{tabular}{l}
\text{rain-NOM \textsc{neg}\textsc{-fall-}\textsc{pres-}\textsc{te-decl}}
\end{tabular}
\begin{quote}
Intended: 'It is false that [I saw that] it was raining.'
\end{quote}
b. #Pi-ka an-o-ass-te-la.
   rain-NOM NEG-fall-PAST-TE-DECL
   Intended: ‘It is false that [I inferred that] it had rained.’

c. #Pi-ka an-o-kyess-te-la.
   rain-NOM NEG-fall-FUT-TE-DECL
   Intended: ‘It is false that [I inferred that] it would rain.’

(104)  Context: For the past three years, Chelswu has been in a jail where there is no available connection to the outside world, i.e. no windows, no noise or smell from outside etc. Now, he says:

   a. #Pi-ka an-o-∅-ney.
      rain-NOM NEG-fall-PRES-NEY.DECL
      Intended: ‘It is false that [I see that] it is raining.’

   b. #Pi-ka an-o-ass-ney.
      rain-NOM NEG-fall-PAST-NEY.DECL
      Intended: ‘It is false that [I infer that] it did not rain.’

   c. #Pi-ka an-o-kyess-ney.
      rain-NOM NEG-fall-FUT-NEY.DECL
      Intended: ‘It is false that [I infer that] it will rain.’

However, these examples do not straightforwardly suggest that the evidential meaning $m'$ is projective. McCready and Ogata (2007) points out that the same pattern holds for Japanese inferential evidentials, but it might be due to the morphosyntactic constraint on the post-verbal suffixes: negation occurs in the syntactic scope of the evidential, and thus the semantic scope follows from the morphosyntactic structure. See Speas (2004) for syntactic projection of evidentiality in terms of Cinque’s (1999) functional projections, where a negation projection (NegP) is syntactically dominated by an evidential projection (EvdP). One might argue that the pattern observed in Korean evidential utterances in (101) and (102) is due to the morphosyntactic constraint on the post-verbal suffixes, too.
English utterances with the epistemic modal *must* pattern with the Korean evidential utterances in (101) and (102). The only available scopal reading with (105) is that some individual $x$ has knowledge about the falsity of the prejacent. (Here, $x$ is anchored to the speaker as in simple unembedded declaratives.) The other scopal reading, i.e. *it’s false that* some individual $x$ has knowledge about the truth of the prejacent, does not arise from (105).

(105) It must not have rained.

A modal analysis of Korean evidentials would account for the above parallel between (101)–(102) and (105). But it is not necessarily required. It has been noted that the same projective behavior of the evidential meaning $m'$ is cross-linguistically attested (e.g. Faller 2002, Aikhenvald 2004, Matthewson et al. 2007). The non-modal evidentials from Quechua in (106) and the modal-like evidentials from St’át’imcets in (107) both take wide scope over negation. The only available reading is that the speaker has evidence against the prejacent. They do not mean that the speaker lacks evidence for the prejacent. The relevant evidential morphemes are boldfaced below.

(106) Mana-n/-s/-chá para-sha-n-chu.
\text{not-BPG/REP/CONJ rain-PROG-3-POL}
p = ‘It’s raining.’
\text{ev} = ‘speaker has direct/reportative/conjectural evidence that it isn’t raining.’
\text{NOT} = ‘speaker does not have direct/reportative/conjectural evidence that $p$.’  
\text{(Faller 2006:10)}

(107) a. Cw7aoz ku7 séna7 ku qu7 láti7
\text{neg REPORT COUNTER DET water DEIC}
‘There was necessarily no water there.’
\text{NOT}: ‘I don’t have reported evidence that there was necessarily water there.’  
\text{(Matthewson et al. 2007:29–30)}
b. Aoz k’a k-wa-s Sylvia ku xilh-tal’i
   neg infer det-impf-3poss Sylvia det do(caus)-top
   ‘It is not necessarily Sylvia who did it.’
   NOT: ‘It is not the case that I have indirect evidence that it was necessarily
   Sylvia who did it.’ (Matthewson et al. 2007:29)

   c. Cw7áoz-as-an’ kw s-nilh-ts s-Sylvia ku xilh-tal’i
      neg-3conj-perc.evid det nom-foe-3poss nom-Sylvia det do(caus)-top
      ‘It is not necessarily Sylvia who did it.’
      NOT: ‘I don’t have indirect perceived evidence that it was necessarily Sylvia
      who did it.’ (Matthewson et al. 2007:29)

Although Korean evidentials behave in the same way as the English modal must in simple declaratives, and under interrogatives and negation, I have discussed that their parallel behaviors do not lend support for either a modal or a non-modal analysis of Korean evidentials. Contrary to the aforementioned tests, the tests discussed below make a sharp distinction between two different types of evidentials. I apply them to Korean evidential utterances, and take them as supporting evidence for the modal contribution of Korean evidentials.

**Antecedent clause of a conditional**

The evidential –te can occur in the antecedent of a conditional when it occurs with past tense. The other tenses are not allowed in a conditional antecedent. I will not provide a full account of these restrictions, as this would involve a detailed analysis of the meaning of the conditional sentences in Korean, which is beyond the scope of this work. I focus on the projection behavior of the evidential implication m’ in the conditional antecedent.

Consider (108) and (109). The given contextual information in (108) and (109) differs in terms of whether the speaker has evidence about the truth value of the prejacent in
the antecedent clause; in (108), the speaker has evidence at the utterance time that the student did not submit all the assignments, but in (109) there is no evidence available at the utterance time. The antecedent clause with the evidential –te is felicitous in (108), but not in (109). If and only if the truth value of the prejacent in the antecedent clause is known to be false to the speaker, –te can occur in the antecedent clause.16

(108) Context: A student was consulting the teacher about his grade with the teacher. The teacher checked his grade for each requirement (homework, problem sets etc.), and it turned out that the student did not submit two homework assignments. Now, the teacher says:


‘If you had submitted all of the homework assignments, you could have received a better grade.’

16 This contrasts with a simple antecedent clause without –te. In the same contexts as (108) and (109), the antecedent clauses without –te are felicitous.

(i) Context: same as for (108)


‘If you submitted all of the homework assignments, you could have received a better grade.’

(i) Context: same as for (109)


‘If you submitted all of the homework assignments, don’t worry about the grade.’
(109)  Context: After class on the last day of a regular class, a student asked the teacher about his final grade. The teacher could not remember all details of the student’s grade for each requirement. Now, the teacher says:

#Ne-ka    swukcey-lul    motwu    ceychwulha-yess-te-la-myen,    cemswu-nun
You-nom    homework-acc    all    submit-past-te-decl-if    grade-top
kekcengha-ci.ma-ela.
worry-about-neg-imp

Intended: ‘If you submitted all of the homework assignments, don’t worry about the grade.’

Although I do not have an explanation about how the counterfactual reading arises, the occurrence of –te in a conditional antecedent and its evidential reading seem to suggest that the evidential meaning $m'$, i.e. some individual $x$ has evidence about the truth value of the prejacent, is projective. I leave the counterfactual reading for future work.

There is a contrast between non-modal evidentials and modal-like evidentials with respect to the projectivity in a conditional antecedent. Quechua evidentials, as one of the non-modal evidentials, cannot occur in the antecedent of a conditional, but Japanese evidentials, as one of the modal-like evidentials, can occur in the antecedent of a conditional. Faller (2006) shows that there are two different conditional constructions in Quechua, and evidentials cannot occur in a conditional antecedent, as illustrated in (110).

(110)  a.  Chayta-(*n/-s/-chá)    hasp’i-ru-n-ku-man    chayqa    tari-ru-n-ku-man-mi
This-(BPG/REP/CONJ)    dig-hort-3-pl-cond    then    find-hort-3-pl-cond-bpg
unu-ta
water-acc
‘If they were to dig (there), they would find water.’

b.  Allin-ta-(*n/-s/-chá)    yacha-hti-yki-qa    astawan    yacha-chi-sqayki
goodl-acc-(BPG/REP/CONJ)    learn-nmlz-2-top    more    learn-caus-1s2o.fut
‘If you learn well, I will teach you more’  (Faller 2006:10)
In contrast, all the Japanese inferential evidentials that McCready and Ogata (2007) discuss can occur in conditional antecedents. The evidential meaning \( m' \) does not scope out from the conditional, as indicated by the translations in (111). The inferential evidentials in Japanese are boldfaced below:

(111)  

a. Taro-ga kuru **yoo** da-ttara osiete kudasai  
Taro-NOM come YOO COP.PRES-COND teach please  
‘If it looks like Taro will come, please tell me.’  

b. Taro-ga **ki-soo** da-ttara osiete kudasai  
Taro-NOM come SOO-COP.PRES-COND teach please  
‘If it looks like Taro will come, please tell me.’  

c. Taro-ga kuru **mitai** da-ttara osiete kudasai  
Taro-NOM come MITAI COP.PRES-COND teach please  
‘If it looks like (Taro) will come, please tell me.’  

d. Taro-ga kuru **soo** ta-ttara osiete kudasai  
Taro-NOM come SOO COP.PRES-COND teach please  
‘If you hear that Taro will come, please tell me.’  

e. Taro-ga kuru **soo** nara osiete kudasai  
Taro-NOM come SOO COP COND teach please  
‘If you hear that Taro will come, please tell me.’

(McCready and Ogata 2007:27)

Even though the projectivity patterns differ between (108) and (111), the occurrence of Korean evidential –te in the conditional antecedents suggests that it differs from ‘illocutionary’ evidentials attested in languages like Quechua.

**Embedding Sentences with Verbs of Saying**

When an epistemically modalized sentence is embedded under verbs of saying, its modal meaning is anchored to the matrix clause subject, not the speaker. Crucially, under the
same embedding condition, the evidential meaning of –te is also anchored to the matrix clause subject, not the speaker. Due to this anchoring pattern, the continuations in (112) and (113) are felicitous.

(112) John said that it must have rained yesterday. But it did not rain yesterday.

(113) a. Chelswu-nun pi-ka ecey o-∅-te-la-ko malha-yess-e.
   Chelswu-top rain-nom yesterday fall-pres-te-decl-comp say-past-decl
   Kulentay ecey pi-ka an-o-ass-e.
   but yesterday rain-nom neg-fall-past-decl
   ‘Chelswu said that [he saw that] it was raining yesterday. But it did not rain yesterday.’

   Chelswu-top rain-nom yesterday fall-past-te-decl-comp say-past-decl
   Kulentay ecey pi-ka an-o-ass-e.
   but yesterday rain-nom neg-fall-past-decl
   ‘Chelswu said that [he inferred that] it rained yesterday. But it did not rain yesterday.’

c. Chelswu-nun pi-ka nayil o-kyess-te-la-ko malha-yess-e.
   Chelswu-top rain-nom tomorrow fall-fut-te-decl-comp say-past-decl
   Kulentay nayil pi-ka an-o-kyess-e.
   but tomorrow rain-nom neg-fall-fut-decl
   ‘Chelswu said that [he inferred that] it would rain tomorrow. But it will not rain tomorrow.’

The above examples contrast with unembedded sentences in (94)–(92) in which the evidential or modal implications are anchored to the speaker: this anchoring results in infelicity when they are followed by the assertion of the negated prejacent. In contrast, when embedded under the verbs of saying as in (112) and (113), the same continuation is felicitous

because the evidential meaning $m'$ and the modal meaning $m''$ are anchored to the matrix clause subject. This projective behavior is compatible with a modal analysis of Korean evidentials.

Matthewson et al. (2007) presents the St’át’imcets examples in (114) to argue for a modal analysis. St’át’imcets evidentials are embeddable under the verb of saying, and the evidential meaning $m'$ is anchored to the matrix clause subject, not to the speaker. In (114), the St’át’imcets evidentials are boldfaced: (i) the reportative evidential $ku7$, (ii) the inferential $k’a$, and (iii) the direct evidential $an’$.

(114) a. Tsut kw s-Lémya7 kw s-melyih $ku7$ ta i7mats-s-a s-Rose say DET nom-L DET nom-marry report DET grandchild-3poss-exis nom-R ‘Lémya7 said that [she was told that] Rose’s grandchild got married.’

(Lémya7 was told; Lémya7 did not witness it; ku7 relates to the report given to Lémya7) (Matthewson et al. 2007:44)

b. Context: Lémya7 was babysitting your nephew and niece and she noticed at one point that the boy had a red mark on his face and his sister was looking guilty. She tells you when you get home what she noticed. Then you tell the mother of the kids.

tsut s-Lémya7 kw s-tup-un’-a’s $k’a$ s-Maria ta say nom-Lémya7 det nom-punch-dir-3erg infer nom-María det sésq’wez’-s-a younger.sibling-3poss-exis

‘Lémya7 said that Maria must have hit her younger brother.’

($k’a$ relates to Lémya7’s belief; Lémya7 has evidence) (Matthewson et al. 2007:47)
c. Context: same as for (114b)

*tsut* s-Lémya7 *kw* s-tup-un’-ašt-*an’* s-Maria *ti* say nom-Lémya7 det nom-punch-dir-3erg-perc.evid nom-Maria det sésq’wez’-s-a younger.sibling-3poss-exis

‘Lémya7 said that Maria must have hit her younger brother.’

(–*an’* relates to Lémya7’s belief; Lémya7 has evidence)

(Matthewson et al. 2007:48)

The empirical pattern observed in Korean and Stát’í’imcets evidential utterances in (113)–(114), respectively, poses a problem for the Faller-style analysis of evidentials, according to which evidentials always globally project. This holds in languages with the ‘illocutionary’ evidentials like Quechua. In (115), the Quechua direct evidential –*n* (allomorph of –*mi*, glossed as bpg ‘best possible ground’ below) is anchored to the speaker. If the matrix clause subject, Marya, is construed as acquiring direct evidence, then it is infelicitous.

(115) Marya *ni-wa-rqa-n* Pilar chayamu-sqa-n-ta-n
Marya say-1o-pst1-3 Pilar arrive-pp-3-acc-bpg

\[ p = \text{‘Marya told me that Pilar arrived.’} \]

\[ \text{EV} = (i) \text{ speaker has direct evidence that Marya told her or him that Pilar arrived.} \]

(ii) Marya has direct evidence that Pilar arrived. (Faller 2002:222)

This contrast in the projective behavior makes it impossible to extend Faller’s analysis to Korean evidentials. I take this parallel projective behavior between Korean evidentials, and English modals and Stát’í’imcets modal-like evidentials to lend support for the modal analysis of Korean evidential utterances.
Embedding Sentences with Verbs of Asking

The evidential –ney is not embeddable under the verb mwul- ‘ask’ for the same reason that it cannot occur in interrogatives; it carries the meaning of a declarative mood morpheme, so it is not compatible with interrogatives. In contrast, the evidential –te can be embedded under the verb mwul- ‘ask’. Crucially, its evidential meaning m’, i.e. some individual x has evidence about the truth value of the prejacent, is anchored to the indirect object of the verb mwul- ‘ask’ (cf. interrogative flip), as illustrated in (116). The first sentences in (116) have the matrix clause verb mwul- ‘ask’ and the indirect object Yenghi denoting a female individual. The continuations indicate that the evidential implication is anchored to the indirect object, not the matrix clause subject Chelswu and the speaker.

(116) a. Chelswu-ka Yenghi-eykey ecey Seoul-ey pi-ka
    Cheslwu-nom Yenghi-to yesterday Seoul-at rain-nom
    o-∅-te-nya-ko mwul-ess-ta. Kunye, nun kuleh-∅-ta-ko
    fall-PRES-TE-Q-COMP ask-PAST-DECL she-TOP SO-PRES-DECL-COMP
    taytapha-yess-ta. Kulente Chelswu-nun kunye, ka thulli-ess-ta-ko
    answer-PAST-DECL but Chelswu-TOP she-NOM wrong-PAST-DECL-COMP
    sayngkakha-yess-ta. Na-to kunye, ka thulli-ess-ta-ko
    think-PAST-DECL I-too she-NOM wrong-PAST-DECL-COMP
    sayngkakha-yess-ta.
    think-PAST-DECL

    ‘Chelswu asked Yenghi whether [Yenghi saw that] it was raining in Seoul yesterday. She answered that it was so. But Chelswu thought that she was wrong. I thought that she was wrong, too.’

‘Chelswu asked Yenghi whether [Yenghi inferred that] it rained in Seoul yesterday. She answered that it was so. But Chelswu thought that she was wrong. I thought that she was wrong, too.’


‘Chelswu asked Yenghi whether [Yenghi inferred that] it would rain in Seoul yesterday. She answered that it was so. But Chelswu thought that she was wrong. I thought that she was wrong, too.’

This is parallel to the comparable construction with the English epistemic modal must in which the modal meaning $m''$, i.e. some individual $x$ has knowledge about the truth of the prejacent, is anchored to the direct object, too, as illustrated in (117).

(117) John asked Mary, if it must have rained in Seoul. She answered that it seemed so.

But John thought that she was wrong. I thought that she was wrong, too.

To my knowledge, the literature has not discussed evidentials under the verbs of asking. I take the anchoring patterns in this embedded context to provide another counterargument to a Faller-style analysis of Korean evidentials. In contrast, it is not problematic for a modal
analysis of Korean evidentials, as suggested by their parallel anchoring patterns to English epistemic modals.

**Embedding Sentences with Verbs of Ordering and Suggesting**

As the evidentials –te and –ney cannot occur in imperatives and propositives as discussed in section 2.2.1, they cannot be embedded under verbs of ordering and suggesting. This is true of the English epistemic modal –must.

(118)  
| a. #John ordered Mary that she must be playing tennis. |
| b. #John suggested Mary that she must be playing tennis. |

(119)  
| a. #Chelswu-ka Yenghi-eykey theynisu-lul chi-∅/ess/kyess-te-la-ko |
| Cheslwu-nom Yenghi-to tennis-acc play-pres/past/fut-te-decl-comp |
| myenglyengha-yess-ta. |
| Intended: ‘Chelswu ordered Yenghi to play tennis.’ |
| b. #Chelswu-ka Yenghi-eykey theynisu-lul chi-∅/ess/kyess-te-la-ko |
| Cheslwu-nom Yenghi-to tennis-acc play-pres/past/fut-te-decl-comp |
| ceyanha-yess-ta. |
| suggest-past-decl |
| Intended: ‘Chelswu suggested to Yenghi that she play tennis.’ |

In (118), the English modal *must* for its epistemic modal meaning is not embeddable under the verbs *order* and *suggest*.\(^\text{18}\) In (119), the evidential –te cannot be embedded under

\(^{18}\)The deontic modal meaning of –*must* is embeddable under verbs of ordering and suggesting. Consider the same examples as (118) in the following context:

(i) Context: John is Mary’s tennis coach, who wants her to practice harder before next game.
| a. John ordered Mary that she must be playing tennis when he returns. |
| (For the meaning: John ordered Mary to play tennis.) |
| b. John suggested to Mary that she must be playing tennis when he returns. |
| (For the meaning: John suggested to Mary that she play tennis.) |
the verbs *myenglyengha* ‘order/command’ and *ceyanha* ‘suggest’, no matter which tense occurs with –*te*.

**Embedding Sentences with Verbs of Believing and Thinking**

In contrast to verbs of saying and asking, the evidential –*te* cannot be embedded under the verbs *mit*– ‘believe’ and *sayngkakha*– ‘think’.

(120)  

a. #Chelswu-nun Yenghi-ka ecey ul-∅-te-la-ko mit-yess-ta.  
Chelswu-top Yenghi-nom yesterday cry-pres-DECL-comp believe-past-DECL  
Intended: ‘Chelswu believed that [he saw that] Yenghi was crying yesterday.’

b. #Chelswu-nun Yenghi-ka ecey ul-ess-te-la-ko mit-yess-ta.  
Chelswu-top Yenghi-nom yesterday cry-past-DECL-comp believe-past-DECL  
Intended: ‘Chelswu believed that [he inferred that] Yenghi cried yesterday.’

c. #Chelswu-nun Yenghi-ka ecey ul-kyess-te-la-ko mit-yess-ta.  
Chelswu-top Yenghi-nom yesterday cry-fut-DECL-comp believe-past-DECL  
Intended: ‘Chelswu believed that [he inferred that] Yenghi would cry yesterday.’

(121)  

a. #Chelswu-nun Yenghi-ka ecey ul-∅-te-la-ko  
Chelswu-top Yenghi-nom yesterday cry-pres-DECL-comp  
sayngkakha-yess-ta.  
think-past-DECL  
‘Chelswu thought that [he saw that] Yenghi was crying yesterday.’

b. #Chelswu-nun Yenghi-ka ecey ul-ess-te-la-ko  
Chelswu-top Yenghi-nom yesterday cry-past-DECL-comp  
sayngkakha-yess-ta.  
think-past-DECL  
‘Chelswu thought that [he inferred that] Yenghi cried yesterday.’

c. #Chelswu-nun Yenghi-ka ecey ul-kyess-te-la-ko  
Chelswu-top Yenghi-nom yesterday cry-fut-DECL-comp  
sayngkakha-yess-ta.  
think-past-DECL  
‘Chelswu thought that [he inferred that] Yenghi would cry yesterday.’
On the basis of the nonembeddability of the evidential –te under the verbs mit- ‘believe’ and tanenha- ‘assert’, Chung (2010) argues that the evidential –te expresses the ‘non-assertive mode’ and performs a ‘presentative’ speech act in line with Faller’s (2002) analysis of Quechua evidentials. However, the Faller-style analysis is not applicable to Korean evidential utterances for various reasons, as already discussed above.

In (120) and (121), the evidential meaning is anchored to the matrix clause subject Chelswu, as in the embedding constructions with verbs of saying. Whereas it is pragmatically plausible for one to say that he/she perceived that Yenghi was crying, it is not pragmatically plausible for one to assert about the probability of the proposition that he perceived that Yenghi was crying. This is because the speaker cannot make a weak claim about what he/she is doing and what’s happening to himself/herself. I present more examples that motivate a modal analysis of Korean evidentials in the next section, and argue that the examples like (120) and (121) do not require a non-modal analysis of Korean evidentials (contra Chung 2010).

### 3.3.2 Non-equi Subject Constraint

The next piece of evidence for a modal analysis of Korean evidentials comes from the so-called ‘Non-equi subject constraint’ on –te sentences noted in the literature (e.g. Yang 1972, Suh 1977, Song 2002, Chung 2005). The constraint specifies that the subject of a -te sentence with the present tense –∅ cannot be the speaker. This constraint also obtains with the evidential –ney although the literature has noted the ‘Non-equi subject constraint’ only for the evidential –te (cf. Chung 2005). This section explores the constraint in various constructions, i.e. simple declaratives, interrogatives, and embedding constructions with
verbs of saying and the verb mwul ‘ask’, and argues that it lends strong support for the modal analysis of the evidentials –te and –ney.

**Non-equi Subject Constraint in Simple Declarative Sentences**

First, consider the Non-equi subject constraint in simple declaratives. In (122) and (123), the third person subject is felicitous, but the first person subject is not.

(122)  

a. **Context:** The speaker met Mary on the school bus yesterday. Now, he says:

   Mary/#nay-ka hakkyo-ey ka-∅-te-la.  
   Mary/I-nom school-loc go-pres-te-decl  
   ‘[I made a sensory observation that] Mary/#I was going to school.’

b. **Context:** The speaker saw Mary in a gym yesterday. Now, he says:

   Mary/#nay-ka theynis-lul chi-∅-te-la.  
   Mary/I-nom tennis-acc play-pres-te-decl  
   ‘[I made a sensory observation that] Mary/#I was playing tennis.’

(123)  

a. **Context:** The speaker and Mary are on the school bus now. Now, he says:

   Mary/#nay-ka hakkyo-ey ka-∅-ney.  
   Mary/I-nom school-loc go-pres-ney.decl  
   ‘[I make a sensory observation that] Mary/#I is/am going to school.’

b. **Context:** The speaker and Mary are in a gym now. Now, he says:

   Mary/#nay-ka theynis-lul chi-∅-ney.  
   Mary/I-nom tennis-acc play-pres-ney.decl  
   ‘[I make a sensory observation that] Mary/#I is/am playing tennis.’

Notice that this constraint is also imposed on English modal sentences. In the same context, the first person subject is infelicitous, unlike the third person subject.

(124)  

a. **Context:** The speaker and Mary are on the school bus now. Now, he says:

   Mary/#I must be going to school.
b. Context: The speaker and Mary are in a gym now. Now, he says:

Mary/#I must be playing tennis.

I propose that the ‘Non-equi subject constraint’ arises from the modal meaning of the evidentials –te and –ney. Then, the question arises as to how the modal approach can account for this constraint. I argue that it is because an epistemically modalized utterance expresses a weaker claim than an unmodalized utterance, as noted in the literature (e.g. Karttunen 1972, Groenendijk and Stokhof 1975, Kratzer 1991). The following examples illustrate this point.

(125)  

a. John must have left.

b. John has left.  

(Karttunen 1972:12)

With a must statement like (125a), the speaker expresses less certainty than an unmodalized statement like (125b). That is, a must statement makes a weaker claim. In most situations, if the target of the speaker’s perception is what she is doing or what is happening to herself at the perception time, then its truth value is known to herself. For instance, whether it’s true or false that the speaker is playing tennis at the evidence acquisition time (in (122) and (123)) or at the utterance time (in (124)) is already known to herself in most situations. (The exceptional situations will be discussed later in this section.) So the speaker doesn’t need to weaken its assertive strength with a modalized utterance. Rather, the speaker would just assert it. This explains why the weakened statements with evidentials in (122) and (123) and modals in (124) are infelicitous. I take the parallels in (122)–(123) and (124) as indicating that the evidentials –te and –ney make a weak statement due to their modal meaning contribution.
Non-equi Subject Constraint in Interrogatives

The evidential implication is anchored to the addressee in interrogatives, as exemplified in (98). Due to this anchoring pattern, the ‘Non-equi Subject Constraint’ holds with a second person subject in interrogatives. In (126), interrogative utterances with the evidential –te and the second person subject (denoting the addressee) are infelicitous. But interrogative utterances with the evidential and the first or the third person subjects are felicitous.

(126)  a. Context: The speaker woke up and found many empty bottles around him. He barely remembered that he drank with Mary and his wife, but could not remember the details. Now, he asks his wife:

Mary/nay/#ne-ka ecey  pam-ey manhi masi-∅-te-nya?
Mary/I/you-nom yesterday night-at a.lot  drink-pres-te-decl.
‘[Given your evidence] were/was Mary/I/#you drinking a lot?’

The same pattern holds in English utterances with the epistemic modal must.

(127)  a. Context: The speaker is on the school bus with Mary and the addressee. Now, he says:

Must Mary/#you be going to school?

b. Context: The speaker is in a gym with Mary and the addressee. Now, he says:

Must Mary/#you be playing tennis?

The examples in (126) and (127) can receive the same explanations as the examples we have discussed above. If the target of interrogation is what the addressee is doing or what is happening to the addressee at the evidence acquisition time (in (126)) or at the utterance time (in (127)), then its truth value is already known to the addressee. So the speaker does not make a weak statement with evidentials and epistemic modals. In contrast, if the
prejacent is about someone other than the addressee, e.g. Mary in (126) and (127), then no such problem arises.

The above parallels between evidential sentences and modalized sentences requires us to restate the ‘Non-equi subject constraint’: it is not a direct constraint against first person subjects, but a pragmatic constraint on contexts that make a weak statement felicitous. In what follows, I examine the ‘Non-equi subject constraint’ in embedding constructions, and corroborate this pragmatic view of it.

**Non-equi Subject Constraint in Embedded Clauses**

If the evidential –te is embedded under verbs of saying, its evidential meaning is anchored to the matrix clause subject, e.g. see (113) in the preceding section. Consequently, the pronominal expression caki ‘(s)he’ in the embedded clause cannot be construed as referring back to the matrix clause subject Chelswu in (128).

(128)  a. Context: Chelswu was on the school bus with the speaker, the addressee, and Yenghi yesterday. Chelswu talked to the speaker, and now he says:

```
Chelswu-i-nun nay/ne/Yenghi/#caki,-ka ecey hakkyo-ey Chelswu-top I/you/Yenghi/(s)he,-nom yesterday school-loc ka-∅-te-la-ko malha-yess-ta. go-pres-te-decl-comp say-past-decl 'Chelswu said that [Chelswu saw that] I/you/Yenghi/#he, was/were going to school yesterday.'
```
b. Context: Chelswu was in a gym with the speaker, the addressee, and Yenghi yesterday. Chelswu talked to the speaker, and now he says:

Chelswu, n-un nay/ne/Yenghi/#caki, ka ecey theynis-lul
Chelswu-top I/you/Yenghi/(s)he,-nom yesterday tennis-acc
chi-∅-te-la-ko malha-yess-ta.
play-PRES-TE-DECL-COMP say-PAST-DECL

‘Chelswu said that [Chelswu, saw that] I/you/Yenghi/#he, was/were playing tennis yesterday.’

This pattern obtains in English counterparts with the epistemic modal *must*. The pronoun *he* in the embedded clause cannot refer back to the matrix clause subject.

(129)  
a. Context: John was on the school bus with the speaker, the addressee, and Mary yesterday. John talked to the speaker, and now he says:

John, said that I/you/Mary/he/i/#j must be going to school.

b. Context: John was in a gym with the speaker, the addressee, and Mary yesterday. John talked to the speaker, and now he says:

John, said that I/you/Mary/he/i/#j must be playing tennis.

If the evidential –te is embedded under the verb *mwul* ‘ask’, the evidential implication is anchored to the indirect object, as already discussed in (116). This anchoring pattern leads to infelicity when the pronominal expression *caki* ‘(s)he’ in the embedded clause is coreferential with the indirect object, as illustrated below.
The English modal utterances with *must* exhibit the same pattern. In (131), the pronoun coindexed with the indirect object cannot occur felicitously in the embedded clause.

(131)  a. Context: Mary was on the school bus with the speaker, the addressee, and John yesterday. Mary talked to the speaker, and now she says:

John asked Mary if I/you/he/she i/# j must be going to school.

b. Context: Mary was in a gym with the speaker, the addressee, and John yesterday. Mary talked to the speaker, and now she says:

John asked Mary if I/you/he/she i/# j must be playing tennis.

So far I have shown that the ‘Non-equi Subject Constraint’ is a kind of misnomer: the constraint is not about a subject of an evidential utterance with –te and –ney, but it is
about an agent of an evidence acquisition eventuality introduced by the evidentials, i.e. the speaker in declaratives, the addressee in interrogatives, a matrix clause subject when embedded under verbs of saying, an indirect object when embedded under verbs of asking. In each of these constructions, the agent of an evidence acquisition eventuality would not make a weak statement about what he/she is doing or what is happening to him/herself because its truth value is known to him/her. This is the same as English utterances with the epistemic modal must. This parallel pattern motivates a modal analysis of Korean evidentials.

**Counterexamples to the Non-equi Subject Constraint?**

However, there are some situations in which the agent of an evidence acquisition eventuality would prefer a weak statement about him/herself. In this subsection, I discuss what have been known as counterexamples to the ‘Non-equi Subject constraint’. I argue that they are not actually counterexamples to the constraint, but they are correctly predicted once we capture the modal meaning of the evidentials –te and –ney. In what follows, I focus on declarative sentences with –te and –ney, but the same pattern also holds in interrogatives and the embedding constructions discussed in the previous sections.

For example, (122b)–(123b) and (124b) with the first person subject are felicitous in a situation where the speaker is hit on the head by a ball and momentarily loses consciousness. (122a)–(123a) and (124a) with the first person subject can also be uttered felicitously if the speaker is talking about what she did in her dream last night. In such situations, the speaker’s degree of certainty is lowered, so she would prefer uttering a weak statement.
The following Korean evidential sentence (modified from the example in Suh 1977 and Gim 1980) and English modal sentence also illustrate that such situations are possible.\footnote{Aikhenvald (2004) discusses restrictions on the use of evidentials and first person subject from a cross-linguistic perspective. She argues that if direct or inferential evidentials occur with a first person participant, then her action is construed as ‘non-intentional, non-volitional, and generally lacking in control or awareness of what is happening (Aikhenvald 2004:220)’. Taking an example from Abkhaz, she adopts Chirikba’s (2003) description about the possible situations for the use of Abkhaz evidentials with first person: ‘such situations as dreams, actions carried out under the influence of alcohol, or when the speaker’s actions have been performed without their control and come to them as a surprise’ (Aikhenvald 2004:222). For more data from a variety of languages, see section 7.2. in Aikhenvald (2004).}

(132) a. Context: Last night Chelswu was drunk and fell asleep. When he woke up, he realized that he was in front of his ex-girlfriend Yenghi’s house. Now, he says:

\[
\begin{align*}
\text{Cam-ul } & \text{ kkay-ni } \text{nay-ka } \text{Yenghi cip } \text{aph-ey } \text{iss-∅-te-la.} \\
\text{sleep-acc } & \text{wake.up-and.then } \text{I-nom } \text{Yenghi home front-at be-PRES-TE-decl.} \\
\text{‘When I woke up, [I could see that] I was in front of Yenghi’s house.’}
\end{align*}
\]

b. Context: Chelswu is watching a very touching movie now, and says:

\[
\begin{align*}
\text{Nay-ka } & \text{cikum na-to } \text{molu-key ul-koiss-∅-ney.} \\
\text{I-nom } & \text{now I-even not.know cry-PROG-PRES-NEY.decl}.
\end{align*}
\]

‘I started crying without even knowing it.’

c. Context: Chelswu got drunk and fell asleep. When he woke up, he realized that he was in his wife’s car. He said, looking at his wife:

\[
\text{I must be on the way home now.}
\]

The subject of all sentences in (132) is the speaker, but they are felicitous in the given context. Note that the speaker is not capable of full control of himself in the above context, as illustrated with the contextual information in (132a) and (132c), and the explicit phrase \textit{na-to molukey} ‘without realizing/noticing it’ in (132b). So, in such a context the speaker would prefer uttering a weak statement about himself. This suggests that (132a)–(132c) are not counterexamples to the ‘Non-equi subject constraint’ once we capture its property
correctly: it is not merely a constraint against first person subjects, but it is a constraint on contexts that make a weak statement felicitous.20

Another type of counterexample to the ‘Non-equi subject constraint’ noted in the literature (e.g. Sohn 1975, Suh 1977, Chung 2007) is given in (133). The comparable examples with –ney are provided in (134).

I-alone-only school-loc go-preserved-decl
‘[I noticed] only I was going to school.’ (Sohn 1975:93)

b. Nay-ka ceyil yeppu-∅-te-la.
I-nom the.most-pres-ney-decl
‘[I noticed] I was the prettiest.’ (Chung 2007:193)

I-alone-only school-loc go-pres-ney-decl
‘[I notice] only I am going to school.’

b. Nay-ka ceyil yeppu-∅-ney.
I-nom the.most-pres-ney-decl
‘[I notice] I am the prettiest.’

Contrary to the prediction of the ‘Non-equi subject constraint’, the sentences in (133) and (134) are felicitous despite their first person subjects. These examples, however, do not pose any problems in a modal analysis of the evidentials –te and –ney. Notice that (133) and

20Lisa Matthewson (p.c) points out that my account of the ‘Non-equi subject constraint’ is intuitively similar to Chung’s explanation. Chung (2005, 2007) accounts for the constraint as follows:

(i) Perception Condition on –te
The speaker of a –te sentence cannot be an active participant but should be a passive perceiver of a given situation. (Chung 2007:200)

The notion of ‘active participants’ in (i) is defined as ‘participants that engage in the situation consciously and voluntarily’ (Chung 2007:200). Chung argues that the above Perception Condition is imposed because the process by which we perceive things with our senses is ‘more of a passive cognitive behavior than a voluntary action’. However, I account for the constraint in terms of the modal meaning of –te and its assertive strength. See section 3.5 for detailed discussion of her analysis.
(134) differ from (122) and (123) because what the speaker perceived in (133) and (134) is not just what she was/is doing or what happened/happens to her at the perception time. The speaker perceived/perceives that (i) no one else is going to school at the perception time in (133a) and (134a), and (ii) the speaker seems to be the prettiest among the contextually salient people in (133b) and (134b). There is no reason why the speaker cannot make a weaker claim about (i) and (ii), as the following English modal sentences do not sound odd at all.

(135)  
   a. No one else must be going to school now.
   b. I must be the prettiest among the people around me now.

In this section, I examined the ‘Non-equi Subject’ Constraint in various constructions with the Korean evidentials –te and –ney and the English epistemic modal must. I take the parallels discussed in this section to indicate that Korean evidentials make weak statements, just as English epistemic modals do. This lends strong support for the claim that the Korean evidentials –te and –ney are modal elements.

### 3.3.3 Modal Subordination

Further support for a modal analysis of the evidentials –te and –ney is the observation of modal subordination phenomena (Roberts 1987, 1989) with them. The well-known example of modal subordination from Roberts (1989:697) is given in (136). An unmodalized sentence is asserted to be true in the actual world, but a modalized one is not. This prevents the anaphor he occurring in the unmodalized sentence from referring back to the preceding nominal expression a thief in the modalized sentence, as illustrated in (136a). But such an anaphoric dependency is possible with the following modalized sentence, as illustrated in (136b).
(136)  a. A thief might break into the house. #He took/takes the silver.

b. A thief might break into the house. He would take the silver.

Korean evidential utterances exhibit exactly the same contrast, as shown in (137) and (138). Given the sensory evidence (i.e. his room being messy and the window being open), the speaker hypothesized/hypothesizes that a thief broke in, but he did/does not commit himself to the truth of the prejacent in the actual world. This uncertainty on the part of the speaker blocks anaphoric dependency unless the following sentence is modalized.

(137) Context: When Chelswu got home yesterday, he found his room messy with his belongings scattered on the floor. He found a small window in the room left open. Now, he says:

   thief-nom break.in-PAST-DECL he-TOP height-NOM short-PRES-DECL
   ‘[I inferred that] a thief broke in. #He is short.’

   thief-nom break.in-PAST-DECL he-TOP height-NOM short-must-DECL
   ‘[I inferred that] a thief broke in. He must be short.’

(138) Context: Chelswu has just gotten home, and found his room messy with his belongings scattered on the floor, and a small window in the room left open. Now, he says:

   thief-nom break.in-PAST-NEY.DECL he-TOP height-NOM short-PRES-DECL
   ‘[I infer that] a thief broke in. #He is short.’

   thief-nom break.in-PAST-NEY.DECL he-TOP height-NOM short-must-DECL
   ‘[I infer that] a thief broke in. He must be short.’
The parallels between the English modal sentences in (136) and the Korean evidential sentences in (137)–(138) reinforce the conclusion that the Korean evidentials –te and –ney encode an epistemic modal meaning.

It has been noted that modal subordination arises from Japanese inferential evidentials, too. The examples from McCready and Ogata (2007) in (139) have been taken as strong supporting evidence for the modal analysis of Japanese inferential evidentials. In (139), the first sentences occur with the inferential evidential mitai (glossed as such). The second sentences are felicous with an epistemic modal expression kamoshirenai ‘might’ as in (139b), but infelicitous without such modal items.

(139) a. Ookami-ga kuru mitai da. #Anta-o taberu.  
   wolf-nom come mitai cop.pres you-acc eat  
   ‘A wolf will come in, it seems. # It will eat you.’

   wolf-nom come mitai cop.pres you-acc eat might  
   ‘A wolf will come in, it seems. It might eat you.’

(McCready and Ogata 2007:23)

Whereas the discussions of the projection behaviors (in section 3.3.1) and the non-equi subject constraint (in section 3.3.2) suggest that the empirical patterns can be explained in line with a modal analysis of the Korean evidentials –te and –ney, the data from the modal subordination provides strong support for the view that the Korean evidentials should be analyzed as encoding modal meanings. However, the semantics and pragmatics of the Korean evidentials are much more complex than are generally assumed for modal expressions. In the next section, I show that Korean evidential utterances give rise to implications that have a different status in discourse.
3.4 Not-at-issue and At-issue Implications

This section examines the status of the implications arising from \(--te\) and \(--ney\) utterances in terms of (not-)at-issueness. In the literature (Stalnaker 1974, Chierchia and McConnell-Ginet 1990, Potts 2005, Abbott 2000, Simons et al. 2010), at-issue content is defined as the content that can be the ‘main point’ of the utterance and that is ‘directly related to the conversation at hand’. Not-at-issue content is ‘backgrounded’. Consider the Non-Restrictive Relative Clauses (NRRCs) in (140), which give rise to two distinct implications. The literature (Chierchia and McConnell-Ginet 1990, Beaver 2001, Potts 2005 among others) has analyzed the two implications as at-issue vs. not-at-issue content.

(140) Bob, who likes pizza, is at the pizza parlor.
   a. **At-issue** content: Bob is at the pizza parlor.
   b. **Not-at-issue** content: Bob likes pizza.

Korean evidential utterances with \(--te\) and \(--ney\) also give rise to at least two distinct implications. One is the prejacent implication, i.e. the proposition denoted by the expression in the scope of the evidential. The other implication is the evidential implication, i.e. the proposition that the speaker has sensory evidence for the proposition in the scope of the evidential. Consider the example in (141).

(141) Context: Chelswu saw it raining. Now, he says:

Pi-ka  o-Ø-te-la.
rain-nom fall-PRES-TE-DECL

‘[I had sensory evidence that] it was raining.’

**prejacent implication**: It was raining.

**evidential implication**: I had sensory evidence that it was raining.
In this section, on the basis of empirical evidence, I argue that the evidential implication is not-at-issue, and the prejacent implication is at-issue.

### 3.4.1 Addressing the QUD?

Amaral et al. (2007) and Simons et al. (2010) define (not-)at-issueness in terms of Roberts’ (1996) notion of the ‘Question Under Discussion (QUD)’, i.e. the question that reflects the immediate goal of the current discourse (Roberts 1996). In her discourse model of information flow, all speech acts are assumed to have a discourse-level constraint due to Gricean Relevance, according to which they must move the discourse forward by addressing the current QUD or raising a new one relevant to the current one. However, not every type of content can do this, as illustrated with non-restrictive relative clauses (NRRCs) below:

(142) Q: Where’s Bob?

A1: Bob, who likes pizza, is at the pizza parlor.

A2: #Bob, who is at the pizza parlor, likes pizza.

(142) illustrates that the content of the matrix clause can address the QUD, but that of the relative clause cannot. Namely, QUD can be addressed by at-issue content, but not by not-at-issue content.

We can find exactly the same contrast from the implications arising from Korean evidential utterances with –te and –ney. The prejacent implication can address the QUD as in (143) and (144):

(143) a. Yenghi: Ecey nalssi-ka etteha-yess-ni?
   yesterday weather-nom how-past-q
   ‘How was the weather yesterday?’
b. Minswu: Pi-ka o-∅-te-la.
  rain-nom fall-pres-te-decl
  ‘[I had sensory evidence that] it was raining.’

(144) a. Yenghi: Cikum keki nalssi-ka etteha-∅-ni?
  now there weather-nom how-pres-q
  ‘How is the weather there now?’

b. Minswu: Pi-ka o-∅-ney.
  rain-nom fall-pres-ney.decl
  ‘[I have sensory evidence that] it is raining.’

In (143) and (144), the QUD in the given context is yesterday’s weather or the weather at
the utterance time, and it is addressed by the evidential utterances in (143b) and (144b).

In contrast, the evidential implications do not address the QUD. First, compare the
evidential implication contributed by the evidential –te with that contributed by the lexical
verb po- ‘see’. The evidential implication contributed by the lexical verb po- ‘see’ has a
different status depending on the construction it is realized in: a simple declarative sentence
in (145b), and a wh-cleft construction in (145c).

(145) a. Yenghi: Ne-nun oay Chelswu-ka ne-uy sikyey-lul
  You-top why Chelswu-nom you-gen watch-acc
  hwumchi-ess-ta-ko sayngkakha-∅-ni?
  steal-past-decl-comp think-pres-q
  ‘Why do you think that Chelswu stole your watch?’

  I-nom that thing-acc see-past-decl
  ‘I saw (it).’

c. Minswu: #Nay-ka po-n kes-un Chelswu-ka ku kes-ul
  I-nom see-rel thing-top Chelswu-nom that thing-acc
  hwumchi-nun kes-i-∅-ta.
  steal-rel thing-be-pres-decl
  Intended: ‘What I saw is that Chelswu was stealing it.’
As indicated by the translations, (145b–d) all convey the same meaning such that the speaker, Minswu, had visual evidence for Chelswu’s stealing the watch. But they differ in terms of the informational status of the evidential implication. In the given context, it is backgrounded information that Chelswu stole the watch. The QUD is what evidence the speaker has for its truth. (145b) addresses the QUD; (i) The use of the null pronoun or the demonstrative ku ‘that’ signals that their denotations are old information, and thus (ii) the evidential implication contributed by the lexical verb po– ‘see’ is new information in the context, resulting in a felicitous utterance. In contrast, (145c) and (145d) do not address the QUD. In the wh-cleft construction in (145c), the evidential implication is offered as backgrounded information, resulting in an infelicitous utterance. The infelicity of (145d) is attributed to the same reason; the evidential implication of a –te sentence does not address the QUD.

The evidential implication contributed by –ney also does not address the QUD, either. Although the evidential implication arises from utterances with –ney in (146c), it does not

21The infelicity of (145d) is not due to the repetition of the same phrase as the prior utterance. The utterance in (i-b) repeats the same part as the prior question in (i-a), as in (145d). But (i-b) is felicitous with the lexical verb po– ‘see’, which indicates that repeating the same phrase as the prior utterance does not affect the (in)felicity of the given sentences.

(i) a. Yenghi: Ne-nun oay Chelswu-ka ne-uy sIKyey-lul hwumchi-ess-ta-ko sayngkakha-∅-ni? 
You-top why Chelswu-NOM YOU-GEN watch-ACC steal-PAST-DECL-COMP think-PRES-Q ‘Why do you think that Chelswu stole your watch?’

Chelswu-NOM that thing-ACC steal-R.REL thing-ACC I-NOM see-PAST-DECL ‘I saw that Chelswu was stealing it.’

The contrast between (i-b) and (145d) also suggests that the evidential implication contributed by –te has a different status from the conventionally encoded evidential meaning of the lexical verb po– ‘see’.

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answer the QUD. This contrasts the evidential implication contributed by the lexical verb

\( p_o \) ‘see’ in (146b).

(146) a. Yenghi: Ne-nun cikum Seoul-ey pi-ka o-nun kes-ul ettehkey
You-top now Seoul-at rain-nom fall-rel thing-acc how
al-∅-ni?
know-PRES-Q
‘How do you know that it is raining in Seoul now?’

b. Minswu: Nay-ka cikum (ku kes-ul) po-koiss-∅-e.
I-nom now that thing-acc see-prog-PRES-DECL
‘I am seeing (it) now.’

c. Minswu: #Cikum pi-ka o-∅-ney.
now rain-nom fall-PRES-NEY
Intended: ‘[I see that] it is raining now.’

The results of the above test in terms of QUDs suggest that, in Korean evidential utter-
ances with \( –te \) and \( –ney \), the prejacent implication is at-issue, and the evidential implication
is not-at-issue.

3.4.2 Challengibility Test

(Not-)at-issueness can also be tested by means of the challengibility test (Faller 2002, Matthewson et al. 2007, Roberts et al. 2009, Murray 2010 among others). According to a
challengibility test, at-issue content can be directly challenged, but not-at-issue cannot be
a target of direct denial and investigation, as illustrated with the NRRC example below.

(147) A: Bob, who likes pizza, is at the pizza parlor.

B1: No, that’s false. Bob is in the office.

B2: No, that’s false. # Bob does not like pizza.
(148) A: Is Bob, who likes pizza, at the pizza parlor?

B1: No, he is in the office.

B2: #No, he does not like pizza.

However, not-at-issue content can be indirectly denied by expressions like *Hey, wait a minute!* or *What d’you mean?* (e.g. Shannon 1976, von Fintel 2004, Roberts 2006).

(149) A: Bob, who likes pizza, is at the pizza parlor.

B: Hey, wait a minute, what do you mean by that? Bob HATES pizza!

In Korean evidential utterances with –te and –ney, the prejacent implication can be challenged, but the evidential implication cannot be. I first examine direct denial in declarative sentences. (150a) contains the evidential –te, and (151a) contains the evidential –ney. In (150b–c) and (151b–c), the continuations show that the anaphoric expression kuleh ‘so’ is interpreted as referring back to the prejacent implication, not the evidential implication. In other words, the response ani ‘no’ is compatible with the denial of the prejacent implication as in (150–151b), but the evidential implication cannot be a target of the direct denial as in (150–151c).

(150) Context: Yenghi and Minswu ate soup together that Chelswu made yesterday. Now, Yenghi says:

   ‘[I had sensory evidence that] the soup that Chelswu made yesterday was very salty.’
no, so-neg-pres-decl bland-past-decl
‘No, it was not so. It was bland.’

c. Minswu: Ani, kuleh-cianh-ass-e. #Ne-nun ku ttay hye mabi-ka
no, so-neg-past-decl you-top that time tongue numbness-nom
an-pwulli-ese cenghwakhan mas-ul nukki-il
neg-be.relaxed-and.thus correct taste-acc feel-ir.rel
swu-ka ep-ess-e.
possibility-nom not.exist-past-decl
‘No, it was not so. Your tongue was still numb at that time, so you
could not taste it correctly.

(151) Context: Yenghi and Minswu are eating soup together now.

this soup very salty-pres-te-decl
‘[I have sensory evidence that] this soup is very salty.’

no, so-neg-pres-decl Bland-past-decl
‘No, it is not so. It’s bland.’

c. Minswu: Ani, kuleh-cianh-∅-e. #Ne-nun acik hye mabi-ka
no, so-neg-pres-decl you-top yet tongue numbness-nom
an-pwulli-ese cenghwakhan mas-ul nukki-il
neg-be.relaxed-and.thus correct taste-acc feel-ir.rel
swu-ka ep-∅-e.
possibility-nom not.exist-past-decl
‘No, it is not so. Your tongue is still numb, so you cannot taste it
correctly.

This pattern is true of interrogative utterances with the evidential –te. (Recall that
the evidential –ney cannot occur in interrogatives, so it cannot be tested in interrogatives.)

Notice the different felicity in (152b) and (152c): in (152b), the continuation that denies the
prejacent implication is felicitous. But in (152c), the continuation that denies the evidential
implication is not felicitous. This suggests that the prejacent implication can be a target of interrogation, but the evidential implication cannot. In other words, the former is at-issue, but the latter is not-at-issue.

(152) Context: Yenghi and Minswu ate soup together that Chelswu made yesterday. Now, Yenghi says:

a. Yenghi: Ecey Yenghi-ka mantu-un swuphu-ka yesterday Yenghi-NOM make-REL soup-NOM cca-0-te-nya?
salty-PRES-TE-Q
‘[Given your sensory evidence] was the soup that Yenghi made yesterday very salty?’

no, so-NEG-PRES-DECL bland-PAST-DECL
‘No, it was not so. It was bland.’

c. Minswu: Ani, kuleh-cianh-ass-e. #Ne-nun ku ttay hye mabi-ka
no, so-NEG-PAST-DECL you-TOP that time tongue numbness-NOM
an-pwulli-ese cenghwakhan mas-ul nukki-il
NEG--be.relaxed-and.thus correct taste-ACC feel-IR.REL
swu-ka ep-ess-e.
possibility-NOM not.exist-PAST-DECL
‘No, it was not so. Your tongue was still numb at that time, so you could not taste it correctly.

Like other not-at-issue content, the evidential implications contributed by –te and –ney can be indirectly denied by expressions like Camsiman ‘Hey, wait a minute!’ or Melako? ‘What d’you mean?’ as illustrated below. (153b) and (154b) do not deny the prejacent implication, but they indirectly denies the evidential implication by indicating that the speaker is not capable of acquiring relevant evidence.
I take the above results of the direct and indirect challengibility test as indicating that
the prejacent implication is at-issue content, but the evidential implication is not-at-issue
content.

3.4.3 Occurrences with Time Adverbials

The status of the two implications available with Korean evidential utterances can also be
tested with time adverbials. When a time adverbial occurs in an evidential utterance with
–te and –ney, it constrains the reference time of the eventuality (located by tense in the
prejacent), but not the evidence acquisition time (located by the evidentials –te and –ney), as noted by Sohn (1975). This is illustrated in (155) and (156).

(155) Context: Yenghi saw the wet ground yesterday, and inferred that it rained the day before yesterday. Now, she says:

a. #Kucekkey ecey pi-ka o-ass-te-la.
   the.day.before.yesterday yesterday rain-NOM fall-PAST-TE-DECL
   Intended: ‘[I had sensory evidence yesterday that] it rained the day before yesterday.’

b. #Ecey pi-ka o-ass-te-la.
   yesterday rain-NOM fall-PAST-TE-DECL
   Intended: ‘[I had sensory evidence yesterday that] it rained.’

c. Kucekkey pi-ka o-ass-te-la.
   the.day.before.yesterday rain-NOM fall-PAST-TE-DECL
   ‘[I had sensory evidence that] it rained the day before yesterday.’

(156) Context: Yenghi is looking at the wet ground now, and infers that it rained yesterday. Now, she says:

a. #Ecey cikum pi-ka o-ass-ney.
   yesterday now rain-NOM fall-PAST-NEY
   Intended: ‘[I have sensory evidence now that] it rained yesterday.’

b. Ecey pi-ka o-ass-ney.
   yesterday rain-NOM fall-PAST-NEY
   ‘[I have sensory evidence that] it rained yesterday.’

22Sohn (1975) has not used terms like ‘evidence acquisition time’ and ‘reference time’, but the same empirical pattern has been noted, as shown in the following quote:

(i) In John-i ecey ka-ss-te-la ‘I noticed that John went yesterday’, for example, what the speaker noticed is not the completed action of going, but ‘John’s having gone yesterday’. The adverb ecey refers to the time when the action of going took place, and does not specify the time of the speaker’s notice of the event. The speaker may have noticed it a few minutes ago. (Sohn 1975:89)
c. #Cikum pi-ka o-ass-ney.
   now rain-nom fall-past-ney

   Intended: ‘[I have sensory evidence now that] it rained.’

In both contexts in (155) and (156), there are two time intervals which are semantically related to the utterances: (i) yesterday and the day before yesterday in (155), and (ii) now and yesterday in (156). But both of them cannot be constrained by overt time adverbials, as we see in (155–156a). The evidential utterances are compatible with only one time adverbial, and crucially, it constrains the time for the prejacent implication (e.g. the time at which it rains in (155) and (156)), but not the time for the evidential implication (e.g. the time at which the speaker acquires sensory evidence in (155) and (156)), as shown in (155–156b) and (155–156c). In other words, the overt time adverbial modifies the prejacent implication, but not the evidential implication. This suggests that the two implications arising from evidential utterances have a different status: the former is at-issue but the latter is not-at-issue.

23The word orders in (155a) and (156a) do not affect their felicity. The following –te sentences with two time adverbials in every possible different word order are infelicitous for the intended meaning, too. The same applies to the other evidential –ney, too. (Korean is a verb-final language, so the verb in (i) is restricted to occur in the sentence-final position.)

   (i) a. #Kucekkey pi-ka ecey o-ass-te-la.
      the.day.before.yesterday rain-nom yesterday fall-past-te-decl
   b. #Ecey kucekkey pi-ka o-ass-te-la.
      yesterday the.day.before.yesterday rain-nom fall-past-te-decl
   c. #Ecey pi-ka kucekkey o-ass-te-la.
      yesterday rain-nom the.day.before.yesterday fall-past-te-decl
   d. #Pi-ka kucekkey ecey o-ass-te-la.
      rain-nom the.day.before.yesterday yesterday fall-past-te-decl
   e. #Pi-ka ecey kucekkey o-ass-te-la.
      rain-nom yesterday the.day.before.yesterday fall-past-te-decl

   Intended: ‘[I had sensory evidence yesterday that] it rained the day before yesterday.’
3.4.4 Anaphoric Dependency

The different status between the prejacent and the evidential implications can also be tested with respect to the interpretation of relevant anaphoric expressions. Just like the reference time for the prejacent implication can be modified with an overt time adverbial, it can be referred back to by a temporal anaphoric expression. In contrast, it is impossible for a temporal anaphoric expression to refer back to the evidence acquisition time introduced by the evidentials.

Consider the example in (157). The time adverbial *kucekkey* ‘the day before yesterday’ in (157a) constrains the time for the prejacent implication, and this time can be referred back to by the anaphoric expression *ku ttay* ‘that time’ in (157b). This is followed by the two alternative continuations in (157c) and (157d). (157c) addresses what the speaker did at the time of a described eventuality, i.e. the day before yesterday. (157d) addresses what the speaker did at the evidence acquisition time, i.e. yesterday.

(157) Context: Yesterday morning, Minswu saw Chelswu’s car broken. Now, he says to Yenghi:

a. Minswu: Chelswu-ka kucekkey kyothon sako-ka Chelswu-nom the.day.before.yesterday traffic accident-nom khukey na-ass-te-la. seriously occur-PAST-TE-DECL
   ‘[I inferred that] Chelswu had a serious traffic accident the day before yesterday.’

   ‘Where were you and what were you doing at that time?’
c. Minswu: Na-nun kucekkey halwucongil tosekwan-eyse
I-top the.day.before.yesterday all.day.long library-at
sihem cwunpi-lul ha-koiss-ess-ci.
exam preparation-acc do-prog-past-decl
‘The day before yesterday, I was preparing for the exam at the
library all day long.’

d. Minswu: #Na-nun ecey achim-ey Chelswu aphatu
I-top yesterday morning-at Chelswu apartment
cwuchacang-eyse ku pwusecin cha-lul po-koiss-ess-ci.
parking.lot-at that broken car-acc see-prog-past-decl
‘Yesterday morning, I was looking at the broken car in the parking
lot of Chelswu’s apartment.’

As a response to (157b), (157c) is felicitous, but (157d) is not. This indicates that the
anaphoric expression ku ttay ‘that time’ in (157b) refers to the time of a described eventu-
tuality (constrained by the tense in the prejacent), but not the evidence acquisition time
(introduced by –te).

The above data in (157) reinforces the conclusion that the prejacent and the evidential
implications have a different status: the prejacent implication is at-issue, and the evidential
implication is not-at-issue.

3.5 Previous Analysis: Chung 2005, 2007

In this section, I review Chung’s (2005, 2007) analysis of –te and –ney.

Ambiguity analysis

Chung (2005, 2007) argues that –te and –ney are not themselves evidential markers, but
they induce an environment for evidentials. In her analysis, what have been analyzed as
tenses in the literature, –∅, –ess and –kess, are analyzed as evidentials if they occur with
–te and –ney. She analyzes (i) –∅ as a direct evidential, (ii) –ess as a (result-states based) indirect evidential, and (iii) –kyess as a (reasoning based) indirect evidential. This is represented in the following tree diagram with the functional projections ‘Evidential Phrase (EviP)’ and ‘Spatial Deictic Tense Phrase’ (TPs).

![Tree Diagram]

However, due to absence of evidential readings without –te and –ney as illustrated in (159), Chung assumes that –∅, –ess, and –kyess are ambiguous; (i) they are evidentials with –te and –ney, but (ii) they are temporal markers without –te and –ney.

(159)  a. Cikum pi-ka o-∅-a.  
      now rain-nom fall-pres-decl  
      ‘It is raining now.’

      b. Ecey pi-ka o-ass-e.  
      yesterday rain-nom fall-past-decl  
      ‘It rained yesterday.’

      c. Nayil pi-ka o-kyess-e.  
      tomorrow rain-nom fall-fut-decl  
      ‘It will rain tomorrow.’

This ambiguity analysis is neither independently motivated, nor empirically correct. Under Chung’s ambiguity analysis, –∅ that occurs with –te and –ney are direct evidentials. But

\[24\text{Chung does not provide a syntactic analysis of evidential sentences with –te and –ney, but her semantic analysis is LF-based with a syntactic structure like (158).}\]
–te and –ney utterances with present tense do not necessarily give rise to a direct evidential reading, as discussed in section 3.2.3. The examples in (89) and (90) are repeated below:

       Chelswu-nom next week-from school-to go-pres-te-decl
       ‘[I inferred that] Chelswu starts school next week.’

       (slightly modified from (27) in Song 2002)

       b. Context: Yenghi read the newspaper yesterday that mentioned Obama’s visit to Korea next week. Now, she says:

       Obama-ka naycwu-ey hankwuk-ey o-∅-te-la.
       Obama-nom next.week-at Korea-to come-pres-te-decl
       ‘[I inferred that] Obama comes to Korea next week.’

       (slightly modified from (3) in Lee 2010)

       c. Context: Yesterday Yenghi saw the announcement for a linguistics conference scheduled for next week on campus. Now, she says:

       Enehak hakhoi-ka taum cwu-ey khaymphesu-eyse linguistics conference-nom next week-at campus-at yeli-∅-te-la.
       take.place-pres-te-decl
       ‘[I inferred that] a linguistics conference is taking place on campus next week.’

(161)  a. Chelswu-ka taum cwu-puthe hakkyo-ey ka-∅-ney.
       Chelswu-nom next week-from school-to go-pres-ney.decl
       ‘[I infer that] Chelswu starts school next week.’

       b. Context: Yenghi is reading the newspaper that mentioned Obama’s visit to Korea next week now, and she says:

       Obama-ka naycwu-ey hankwuk-ey o-∅-ney.
       Obama-nom next.week-at Korea-to come-pres-ney.decl
       ‘[I infer that] Obama comes to Korea next week.’
c. Context: Yenghi is looking at the announcement for a linguistics conference scheduled for next week on campus, and says:

Enêhâk hâkhoi-ka tâum cwû-ey khaymphesu-eyse linguistics conference-nom next week-at campus-at yêli-∅-ney.
take.place-pres-ney.decl

‘[I infer that] a linguistics conference is taking place on campus next week.’

In the above examples, an inferential evidential reading arises due to the futurate temporal meaning of present tense.

My analysis does not assume ambiguous meanings of the expressions –∅, –ess and –kyess. Whether or not they occur with –te and –ney, I analyze them as tenses that locate reference time with respect to some time (i.e. the utterance time in a matrix clause, and the matrix clause event time in an embedded clause), as will be formally represented in (225).

I do not stipulate that ∅ is a direct evidential and the other two are inferential evidentials. The distinct evidential meanings arise by means of interactions between –te and tenses, as will be presented in Chapter 5.

Assumption about Typology

Chung’s ambiguity analysis is motivated by her assumption about typology: one evidential marker gives rise to one evidential meaning, as given in (162).

(162) ... -te itself is not an evidential. The very purpose of an evidential system is to distinguish direct and indirect evidence, and thus it is unlikely that both direct evidence and indirect evidence are expressed by the same morpheme.

(Chung 2007:195)
But this assumption is not supported by cross-linguistic studies. According to Aikhenvald (2004), one of the widespread evidential systems is an A3-system that involves two evidentials: (i) a reportative evidential, and (ii) an evidential that covers every other evidence type. This evidential system is found in Tibeto-Burman languages, languages of South America, South Arawak languages (Ignaciano, Waurá, Pareci, Piro), North Arawak languages (Resígaro) etc. (See Aikhenvald 2004 for more details.) In such a two-fold evidential system, the distinction between direct evidence vs. inferential evidence is not marked by distinct morphemes. Under Chung’s assumption about ‘the very purpose of an evidential system’, there is no way to account for the existence of numerous languages attesting the A3-system (and also other evidential systems in which direct vs. inferential evidence type is not marked by distinct morphemes).

There is one language, to my knowledge, that exhibits the same kind of interactions of temporal categories and evidential markers as the Korean evidential –te: this is Sherpa, with evidential markers –nok and –su]. (Sherpa is a Sino-Tibetan language spoken in Tibet and Nepal.) According to Woodbury (1986), the two expressions –nok and –su] are evidentials although they do not indicate a specific source of information conveyed. The relevant evidence types, i.e. experiential vs. nonexperiential (inferential), are determined by temporal categories. Consider Woodbury’s (1986) ‘testable cross-linguistic predictions’.25

25Kelly (2004) provides a slightly different account, but her insight is basically the same as Woodbury’s view.

(i) In its evidential function –nok is used in perfective sentences to mark an event as having been inferred (either from hearsay or from inferential evidence), but not directly witnessed by a speaker. Use of –nok with imperfectives indicates that the speaker is relating a currently occurring event or a past witnessed event. (Kelly 2004:252)
When the time reference of an evidential category is different from that of the proposition with which it occurs, the resulting evidential value will be nonexperiential. (Woodbury 1986:196)

Woodbury’s work demonstrates that evidence types are not necessarily encoded in the meaning of evidentials, but they can be expressed by interactions between temporal categories and evidential markers. This is exactly the same pattern as the Korean evidentials –te and –ney exhibit. In sum, Chung’s assumption about typology in (162) does not hold cross-linguistically.

**Spatial Meanings?**

The next problem with Chung’s analysis pertains to her claim that –te is a ‘spatial deictic past tense that provides a vantage point for evidentials (Chung 2007:204)’, and –ney is a ‘spatial deictic present tense’ in the same sense. In Chung’s analysis, –te and –ney make reference to locations as well as to time intervals. She takes the contrast in the following examples with –te to make that point.

(164) a. Keki-nun akka pi-ka o-∅-te-la.
  There-top a.while.ago rain-nom fall-pres-decl
  ‘[I noticed] it was raining there a while ago.’

  b. #Yeki-nun cikum pi-ka o-∅-te-la.
  Here-top now rain-nom fall-pres-decl
  ‘[I noticed] it is raining here now.’ (Chung 2007:190)

Based on the examples in (164), Chung argues that –te is felicitous only in ‘there and then’ situations like (164a), but not in ‘here and now’ situations like (164b). However, note that the infelicity of (164b) is due to the occurrence of the temporal adverbial cikum ‘now’,
not to the locative adverbial *yeki* ‘here’. The following sets of minimal pairs illustrate this point explicitly:

(165)  
  There-*top* yesterday rain-*nom* fall-*pres-*te-*decl*  
  ‘[I made a sensory observation that] it was raining there yesterday.’
- b. Yeki-nun ecey pi-ka o-∅-te-la.  
  Here-*top* yesterday rain-*nom* fall-*pres-*te-*decl*  
  ‘[I made a sensory observation that] it was raining here yesterday.’

(166)  
- a. #Keki-nun cikum pi-ka o-∅-te-la.  
  There-*top* now rain-*nom* fall-*pres-*te-*decl*  
  Intended: ‘[I made a sensory observation that] it is raining there now.’
- b. #Yeki-nun cikum pi-ka o-∅-te-la.  
  Here-*top* now rain-*nom* fall-*pres-*te-*decl*  
  Intended: ‘[I made a sensory observation that] it is raining here now.’

The minimal pair in (165) illustrates that a present tensed –*te* sentence is felicitous with a past-time denoting adverbial, whatever locative adverbial it occurs with. In contrast, as illustrated in (166), a present tensed –*te* sentence is not felicitous with the utterance time denoting adverbial *cikum* ‘now’, whatever locative adverbial it occurs with.26 These data show that spatial references do not affect felicity of evidential utterances with –*te*. Therefore, the example in (164b) is infelicitous due to the occurrence of the time adverbial *cikum* ‘now’. This is correctly predicted in my analysis; –*te* locates an evidence acquisition time prior to the utterance time, and present tense locates the reference time of the raining eventuality as overlapping with the evidence acquisition time. Thus, the reference time of the raining eventuality is located in the past of the utterance time. This is not compatible

26The adverbial *cikum* ‘now’ can refer to a recent past time. With this temporal meaning, the sentence (166a) is felicitous, as illustrated with contextual information in (168).
with the meaning of the time adverbial cikum ‘now’. The infelicity of (164b) is attributed to this conflict of temporal meanings. It has nothing to do with spatiality.

Chung also compares a non-evidential sentence with a –te sentence to argue for a spatial meaning of the latter. Consider her examples in (167). Both sentences in (167) are realized with the time adverbial cikum ‘now’ and the locative adverbial pakk-ey ‘outside-loc’. The non-evidential sentence in (167a) is infelicitous, but the evidential sentence in (167b) is felicitous.27

(167)  a. #Cikum pakk-ey-nun pi-ka o-koiss-essess-ta.  
   now outside-LOC-TOP rain-NOM fall-PROG-ESSESS-DECL
   Intended: ‘It was raining outside now.’

   b. Cikum pakk-ey-nun pi-ka o-∅-te-la.  
   now outside-LOC-TOP rain-NOM fall-PRES-TE-DECL
   ‘[I noticed] it is raining outside now.’ (Chung 2007:201)

Chung attributes the above contrast to the spatial meaning of –te. She argues that the locative adverbial pakk-ey ‘outside-loc’ does not improve the ungrammaticality of (167a) because a spatial reference is not required for the non-evidential sentence (167a). In contrast, (167b) is grammatical because –te encodes a spatial reference compatible with the adverbial pakk-ey ‘outside’.

However, the examples in (167) do not illustrate Chung’s claim about spatiality. The two sentences in (167) have different grammaticality for other reasons, namely the presence of cikum ‘now’. The time adverbial cikum ‘now’ has the so-called ‘extended now’ meaning; (i) it refers to an utterance time, but (ii) it can also denote a recent past. Both (167a) and

(167b) are infelicitous when *cikum* ‘now’ refers to the utterance time, e.g. in the context where the speaker sees it raining now. However, with a recent past meaning of *cikum* ‘now’, there is a contrast between the two examples. The –*te* sentence in (167b) is felicitous with the recent past meaning of *cikum* ‘now’, as in the following example.

(168) Context: The speaker saw on TV that it was raining in Hawaii. Five minutes later, he got a call from his friend who lives in Hawaii. The speaker said to his friend:

Keki-nun *cikum* pi-ka o-∅-te-la.
There-top recent.past rain-nom fall-pres-te-decl.

‘[I made a sensory observation that] it was raining there at some time in recent past.’

In (168), the contextually salient time is the time at which the speaker watched TV, i.e. five minutes prior to the utterance time. This recent past time can be constrained by the time adverbial *cikum* ‘now’, and this temporal meaning is compatible with the –*te* sentence in (168).

In contrast, the non-evidential sentence in (167a) is infelicitous with the recent past meaning of *cikum* ‘now’. This infelicity is well known in the literature (e.g. Lee 2007). The post-verbal morpheme –*essess* gives rise to a preterit pluperfect reading that is not compatible with the recent past meaning of *cikum* ‘now’ (parallel to English past perfect). This is illustrated in the following example.

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28The sentence in (168) does not pose any problem for my analysis of the temporal meaning of –*te*. In my analysis, –*te* itself encodes the meaning that the evidence acquisition time is prior to the utterance time, here at the recent past time. And with present tense, the reference time of the raining eventuality and the evidence acquisition time temporally overlap.
When Yenghi arrived, Chelswu was not at home. Now, Chelswu’s wife says:

a. #Chelswu-ka cikum ttena-essess-ta.  
   Chelswu-nom now leave-ESSESS-DECL  
   Intended: ‘Chelswu had left minutes ago.’

b. #Chelswu-ka pangkum ttena-essess-ta.  
   Chelswu-nom a.minute.ago leave-ESSESS-DECL  
   Intended: ‘Chelswu had left minutes ago.’

Given this, the contrast between (167a) and (167b) is due to the (in)compatibility of the temporal meaning of –te and –essess with the recent past meaning of cikum ‘now’.

The spatial meaning arising from pakk-ey ‘outside’ has nothing to do with the contrast in (167). The examples in (164) and (167) are the only examples discussed in her work to argue for a spatial meaning of –te. Moreover, Chung provides no empirical evidence that the evidential –ney makes a spatial reference. On the basis of some parallel behaviors between –te and –ney (such as the Non-equi Subject constraint), she draws the conclusion that they make both temporal and spatial references as ‘spatial deictic tenses’. However, once the meanings of –te and –ney are examined more thoroughly, her analysis of them as spatio-temporal operators is not empirically supported. The same arguments hold for the evidential –ney, too, even though I do not discuss them here.

Non-modal Analysis

The spatio-temporal trace functions utilized by Chung make incorrect predictions about a described eventuality in question. Chung formalizes the meanings of –te and –ney in terms
of the following three spatio-temporal trace functions. (She adopts the first two functions from Faller 2004).  

(170) a. \( e\text{-trace}(e) = \{\langle t, l \rangle \mid t \subseteq \tau(e) \land \text{at}(e, t, l) \} \)  

\( \text{at}(v, t, l) \) is true iff the eventuality \( e \) takes place at location \( l \) at time \( t \).  

b. \( P\text{-trace}(s_c) = \{\langle t, l \rangle \mid t \subseteq \tau(s_c) \land \text{perceive}(s_c, t, l) \} \)  

\( \text{perceive}(s_c, t, l) \) is true iff the speaker \( s_c \) perceives location \( l \) at time \( t \).  

c. \( v\text{-trace}(e) = \{\langle t, l \rangle \mid \exists v[\text{evidence-for}(v, e) \land \text{at}(v, t, l)] \} \)  

\( \text{at}(v, t, l) \) is true iff the evidence \( v \) for the occurrence of the eventuality \( e \) appears at a location \( l \) at time \( t \).  

(Chung 2007:196, 203)  
The \( e\text{-trace} \) function maps an eventuality \( (e) \) to its time-space coordinates \( \langle t, l \rangle \), and the \( P\text{-trace} \) function maps a speaker \( (s_c) \) to his/her perceptual field for each time \( t \) in his/her life time (i.e. during his/her run time \( \tau(s_c) \)). The \( v\text{-trace} \) function maps an eventuality \( (e) \) to the time-space coordinates \( \langle t, l \rangle \) of the evidence of the eventuality. Now, in terms of these spatio-temporal trace functions, consider the denotations of –∅, –ess, –kyess that Chung analyzes as evidentials in (255). Her definition of –te as a spatial deictic past tense is given in (172). (The variable \( L \) for spatiotemporal locations denotes a set of time-space coordinates.)  

(171) a. \( \llbracket -\emptyset \rrbracket^c = \lambda P\lambda L \exists e[P(e) \land \tau(L) \subseteq \tau(e) \land L \subseteq v\text{-trace}(e) \land e\text{-trace}(e) \land P\text{-trace}(s_c) \neq \emptyset] \)  

(simplified as \( \llbracket -\emptyset \rrbracket^c = \lambda P\lambda L \exists e[P(e) \land L \subseteq e\text{-trace}(e)] \))  

b. \( \llbracket -\text{ess} \rrbracket^c = \lambda P\lambda L \exists e[P(e) \land \tau(e) < \tau(L) \land L \subseteq v\text{-trace}(e) \land e\text{-trace}(e) \land P\text{-trace}(s_c) = \emptyset] \)  

Chung utilizes the temporal trace function \( \tau \) in two different ways, (i) mapping an eventuality to its run time (e.g. (170)), and (ii) mapping a spatiotemporal location to its temporal dimension (e.g. (255)).
c. $\llbracket \neg kyess \rrbracket^c$

$$= \lambda P \lambda L \exists e [P(e) \land \tau(L) < \tau(e) \land L \subseteq v\text{-trace}(e) \land e\text{-trace}(e) \land P\text{-trace}(s_c) = \emptyset]$$

(Chung 2007:207)

(172) $\llbracket \neg te \rrbracket^c$ is only defined if $c$ provides a unique salient spatiotemporal location $L_c$ such that $\tau(L_c) < t_c \land L_c \subseteq P\text{-trace}(s_c)$

If defined, then $\llbracket \neg te \rrbracket^c = L_c$

$t_c$ = the speech time

$s_c$ = the speaker of the context $c$  

(Chung 2007:204)

As indicated by the existential binding of a described eventuality $e$ in (255), Chung’s analysis says that a described eventuality is realized in the actual world if the speaker infers it based on her evidence.

However, with a Korean –te/-ney utterance for direct or inferential evidence, the speaker does not assert the truth of the prejacent proposition in the actual world, as we have seen in section 3.3. This is because the speaker’s evidence from her sensory observation does not necessarily lead to her committing to the existence of corresponding eventuality in the actual world. Consider the following examples for auditory evidence:

(173) Context: Chelswu woke up from the sound of somebody using water in the bathroom. Now, he says to his roommate:

a. #Ne ecey pam-ey shyawueha-yess-e.
   You yesterday night-at take.shower-PAST-DECL
   ‘You took a shower last night.’

b. Ne ecey pam-ey shyawueha-∅-te-la.
   You yesterday night-at take.shower-PRES-TE-DECL
   ‘[I made a sensory observation that] you were taking a shower last night.’

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In (173), the speaker perceived the water dripping sound from the bathroom, and hypothesized that the water dripping sound was caused by his roommate’s taking a shower. If the speaker makes such a hypothetical assumption, he is not committing himself to its truth in the actual world. Thus, the speaker cannot make a full assertion as in (173a), but prefers a weak statement as in (173b). My modal analysis, which will be provided in Chapter 5, correctly predicts this assertive strength of Korean evidential sentences. They are weak statements involving a necessity modal: the prejacent of an evidential sentence with –te and –ney is asserted to be true in the most highly ranked relevant worlds, but not in the actual world, as will be formally analyzed in (251).

In Chung’s analysis, however, the lack of a modal component in the denotation of an evidential sentence with –te and –ney leads to the following wrong prediction: whatever the speaker infers from her sensory observation is true in the actual world. For example, given the wet ground, different people can draw different conclusions about what happened prior to the evidence acquisition time; some might infer that it rained, and others might infer that it snowed. Crucially, all possible scenarios cannot be true in the actual world. However, her analysis says that a described eventuality is realized in the actual world if the speaker infers it based on her evidence. In a nutshell, Chung’s analysis does not capture the modal nature of our inferences based on evidence, and this leads to wrong predictions about the actual world.
CHAPTER 4: The Evidentials –te and –ney: Reportative Evidence

This chapter discusses the meanings of the Korean evidential utterances with –te and –ney in the following morpho-syntactic realizations:

(174) a. verb.stem-(aspect)-tense-decl-tee-mood

b. verb.stem-(aspect)-tense-decl-ney-mood

The Korean –te/-ney utterances realized in this structure can receive a reportative evidential reading.

This chapter first outlines their temporal interpretations in section 4.1. I show that the generalizations about the temporal meanings of the evidentials and their co-occurring tenses, discussed in section 3.1, hold for the temporal interpretation of the reportative evidential utterances.

In section 4.2, I discuss that a reportative evidential reading arises by means of the interaction between the ‘sensory observation’ meaning of evidentials and the embedded declarative marker –ta. I also show that all subtypes of reportative evidential readings are available with –te and –ney.

In section 4.3, I argue that the Korean –te/-ney utterances realized in the structure in (174) also make a modal meaning contribution. I show that their modal contribution differs from that of the direct and inferential counterparts discussed in Chapter 3: the speaker is not committed to the truth of an embedded proposition, but its truth is asserted by the individual denoted by an overt subject or contextually salient.
In section 4.4, I discuss whether there is an at-issue vs. not-at-issue distinction among the implications that arise from Korean reportative evidential utterances. I show that the evidential implication is not-at-issue, and the other two available implications (i.e. propositions denoted by the expressions that occur in the scope of the evidentials) are at-issue. I discuss a previous analysis proposed by Kim (2001) in section 4.5.

4.1 Temporal Interpretation

When the evidentials –te and –ney occur right after a declarative marker, they make the same temporal contribution as those discussed in Chapter 3: they locate the evidence acquisition time (evi) with respect to the utterance time (utt). To be more specific, the evidential –te locates evi prior to utt, and the evidential –ney locates evi at utt. These temporal meanings of evidentials will be discussed in section 4.1.1. Tenses also make the same temporal meaning contributions as those discussed in Chapter 3: as ‘relative’ tenses, they locate the reference time of a described eventuality with respect to the evidence acquisition time. The temporal contribution of tenses will be discussed in section 4.1.2.

4.1.1 Temporal Contributions of Korean Evidentials

This section discusses the temporal meanings of Korean evidentials that occur right after a declarative marker. I illustrate them by considering the felicity of –te/–ney utterances in different contexts. In (175), the speaker acquired evidence prior to the utterance time, and in (176) the speaker acquired evidence at the utterance time. In the former context, the utterance with –te is felicitous, but the utterance with –ney is not felicitous. In the latter context, the utterance with –ney is felicitous, but the utterance with –te is not felicitous. The clause boundaries are represented with square brackets in (175) and (176).
(175) Context: Yesterday Chelswu talked to Yenghi about the weather. Now, Yenghi says:

Chelswu-nom rain-nom fall-past/pres/fut-decl-te-decl
‘[Chelswu said] it had rained/was raining/would rain.’

b. #Chelswu-ka [pi-ka o-ass/n/kyess-ta]-ney.
Chelswu-nom rain-nom fall-past/pres/fut-decl-ney.decl
Intended: ‘[Chelswu said] it had rained/was raining/would rain.’

(176) Context: Now Chelswu is talking to Yenghi and Mary about the weather. Mary does not understand it, so Yenghi is repeating it to Mary now:

a. #Chelswu-ka [pi-ka o-ass/n/kyess-ta]-te-la.
Chelswu-nom rain-nom fall-past/pres/fut-decl-te-decl
Intended: ‘[Chelswu says] it had rained/was raining/would rain.’

Chelswu-nom rain-nom fall-past/pres/fut-decl-ney.decl
‘[Chelswu says] it had rained/was raining/would rain.’

(175) and (176) show that Korean evidentials encode the following temporal meanings: the evidential –te locates the evidence acquisition time prior to the utterance time, and the evidential –ney locates the evidence acquisition time at the utterance time. In (175) and (176), the occurrences of tense morphemes do not affect the felicity of the utterances. The meaning contribution of tenses will be discussed in the next section.

4.1.2 Temporal Contributions of co-occurring Tenses

When the evidentials –te and –ney occur right after a declarative morpheme, tenses embedded by the declarative marker have the same temporal meaning contributions as ‘relative’ tense: they locate the reference time of a described eventuality with respect to the evidence acquisition time introduced by the evidentials.
First, consider the contexts in (177) and (178), where an eventuality of Minswu crying overlaps the evidence acquisition eventuality. The sentence in (177) is realized with the evidential –te, and the sentence in (178) is realized with the evidential –ney. The present tensed sentences in (177a) and (178a) are felicitous, but the past or future tensed sentences in (177b-c) and (178b-c) are infelicitous.

(177) Context: When Chelswu was talking to Yenghi on the phone yesterday, Chelswu’s little baby boy Minswu was crying in the bedroom. Yenghi could not identify the crying sound, but Chelswu told her that it was from his baby. Now, Yenghi says:

   Chelswu-nom Minswu-nom bedroom-loc cry-pres-decl-te-decl
   ‘[Chelswu said] Minswu was crying in the bedroom.’

b. #Chelswu-ka [Minswu-ka chimsil-eyse ul-ess-ta]-te-la.
   Chelswu-nom Minswu-nom bedroom-loc cry-past-decl-te-decl
   Intended: ‘[Chelswu said] Minswu was crying in the bedroom.’

c. #Chelswu-ka [Minswu-ka chimsil-eyse ul-kyess-ta]-te-la.
   Chelswu-nom Minswu-nom bedroom-loc cry-fut-decl-te-decl
   Intended: ‘[Chelswu said] Minswu was crying in the bedroom.’

(178) Context: Chelswu is talking to Yenghi and Mary in the living room. Chelswu’s little baby boy Minswu is crying in the bedroom now. While Yenghi does not identify the crying sound, Chelswu is saying to Yenghi and Mary that the sound is from his baby. Mary does not understand it, so Yenghi is repeating it to Mary now:

   Chelswu-nom Minswu-nom bedroom-loc cry-pres-decl-ney.decl
   ‘[Chelswu says] Minswu is crying in the bedroom.’

b. #Chelswu-ka [Minswu-ka chimsil-eyse ul-ess-ta]-ney.
   Chelswu-nom Minswu-nom bedroom-loc cry-past-decl-ney.decl
   Intended: ‘[Chelswu says] Minswu is crying in the bedroom.’
c. #Chelswu-ka  [Minswu-ka chimsil-eyse ul-k\textit{y}ess-ta]-ney.  
Chelswu-nom Minswu-nom bedroom-loc cry-fut-decl-ney.decl  
Intended: ‘[Chelswu says] Minswu is crying in the bedroom.’

In (179) and (180), an eventuality of Minswu crying precedes the evidence acquisition eventuality. In this context, a past tensed evidential sentence is felicitous, as illustrated in (179b) and (180b). But a present or future tensed evidential sentence is infelicitous, as illustrated in (179a,c) and (180a,c).

(179) Context: Yesterday Chelswu talked to Yenghi about how his little baby boy Minswu behaved in the hospital a week ago. Now, Yenghi says:

a. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-n-ta]-te-la.  
Chelswu-nom Minswu-nom hospital-loc cry-pres-decl-te-decl  
Intended: ‘[Chelswu said] Minswu had cried at the hospital.’

Chelswu-nom Minswu-nom hospital-loc cry-past-decl-te-decl  
‘[Chelswu said] Minswu had cried at the hospital.’

c. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-k\textit{y}ess-ta]-te-la.  
Chelswu-nom Minswu-nom hospital-loc cry-fut-decl-te-decl  
Intended: ‘[Chelswu said] Minswu had cried at the hospital.’

(180) Context: Chelswu is talking to Yenghi and Mary about how his little baby boy Minswu behaved in the hospital yesterday. Mary does not understand it, so Yenghi is repeating it to Mary now:

a. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-n-ta]-ney.  
Chelswu-nom Minswu-nom hospital-loc cry-pres-decl-ney.decl  
Intended: ‘[Chelswu says] Minswu cried at the hospital.’

Chelswu-nom Minswu-nom hospital-loc cry-past-decl-ney.decl  
‘[Chelswu says] Minswu cried at the hospital.’
c. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-kyess-ta]-ney.
    Chelswu-nom Minswu-nom hospital-loc  cry-fut-decl-ney.decl
    Intended: ‘[Chelswu says] Minswu cried at the hospital.’

If the evidence acquisition time precedes the Minswu-crying eventuality, a future tensed evidential sentence is felicitous, as illustrated in (181c) and (182c). But a present or past tensed sentence is infelicitous, as illustrated in (181a-b) and (182a-b).

(181)  Context: Yesterday Chelswu told Yenghi that he has a doctor’s appointment for his little baby boy tomorrow. Now, Yenghi says:

    a. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-n-ta]-te-la.
       Chelswu-nom Minswu-nom hospital-loc  cry-pres-decl-te-decl
       Intended: ‘[Chelswu said] Minswu would cry at the hospital.’

       Chelswu-nom Minswu-nom hospital-loc  cry-past-decl-te-decl
       Intended: ‘[Chelswu said] Minswu would cry at the hospital.’

       Chelswu-nom Minswu-nom hospital-loc  cry-fut-decl-te-decl
       ‘[Chelswu said] Minswu would cry at the hospital.’

(182)  Context: Chelswu is telling Yenghi and Mary that he has a doctor’s appointment for his little baby boy tomorrow. Mary does not understand it, so Yenghi is repeating it to Mary now:

    a. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-n-ta]-ney.
       Chelswu-nom Minswu-nom hospital-loc  cry-pres-decl-ney.decl
       Intended: ‘[Chelswu says] Minswu will cry at the hospital.’

    b. #Chelswu-ka  [Minswu-ka pyengwen-eyse ul-ess-ta]-ney.
       Chelswu-nom Minswu-nom hospital-loc  cry-past-decl-ney.decl
       Intended: ‘[Chelswu says] Minswu will cry at the hospital.’

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Present tense can occur with the evidentials for a scheduled eventuality, as discussed in section 3.1.2. This is due to the futurate temporal meaning of Korean present tense available in some restricted contexts for a scheduled eventuality, as discussed in section 2.1.2. The examples in (183) and (184) are constructed on the basis of the simple sentences in (76) and the evidential sentences for direct/inferential evidence in (89) and (90) in which present tense gives rise to a futurate reading. In (183) and (184), the reference time of a described eventuality is located in the future with respect to the evidence acquisition time, as we can see from the overt time adverbials \textit{nayil} ‘tomorrow’ and \textit{taum cwu-ey} ‘next week’.

(183) a. Context: Yenghi talked to the speaker about Chelswu yesterday. Now, the speaker says:

\begin{verbatim}
Yenghi-ka [Chelswu-nun nayil ttena-n-ta]-te-la.
\end{verbatim}

‘[Yenghi said] Chelswu is leaving tomorrow.’

b. Context: Yesterday Yenghi talked to the speaker about the linguistics conference scheduled for next week. Now, the speaker says:

\begin{verbatim}
Yenghi-ka [enehak hakhoi-ka taum cwu-ey khaymphesu-eyse linguistics conference-nom next week-at campus-at yeli-n-ta]-te-la.
\end{verbatim}

‘[Yenghi says] a linguistics conference is taking place on campus next week.’
(184)  a. Context: Yenghi is talking to Mary and the speaker about Chelswu now. Mary does not understand it, so the speaker is repeating it to Mary now:

Yenghi-ka [Chelswu-nun nayil       ttena-n-ta]-ney.
Yenghi-nom Chelswu-top tomorrow leave-pres-decl-ney.decl
‘[Yenghi says] Chelswu is leaving tomorrow.’

b. Context: Yenghi is talking to Mary and the speaker about the linguistics conference scheduled for next week. Mary does not understand it, so the speaker is repeating it to Mary now:

Yenghi-ka [enehak hakhoi-ka taum cwu-ey khaymphesu-eyse
Yenghi-nom linguistics conference-nom next week-at campus-at
yeli-n-ta]-ney.
take.place-pres-decl-ney.decl
‘[Yenghi says] a linguistics conference is taking place on campus next week.’

To summarize, the generalizations about the temporal interpretation of Korean evidential utterances, discussed in section 3.1, hold for the temporal interpretation of the reportative evidential utterances. This is summarized in Table 4.1: (i) the evidentials –te and –ney locate the evidence acquisition time with respect to the utterance time, and (ii) the tenses that occur with the evidentials locate the reference time of a described eventuality with respect to the evidence acquisition time.

<table>
<thead>
<tr>
<th>EVI &lt; UTT</th>
<th>DES &lt; EVI</th>
<th>DES ⊗ EVI</th>
<th>EVI &lt; DES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVI ⊗ UTT</td>
<td>PAST-ta-te</td>
<td>PRES-ta-te</td>
<td>FUT-ta-te</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PRES-te (for scheduled eventualities)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FUT-ta-ney</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PRES-ta-ney (for scheduled eventualities)</td>
</tr>
</tbody>
</table>

Table 4.1: Temporal relations in Korean evidential sentences for reportative evidence
4.2 Evidential Interpretation

Willett (1988) defines reportative evidence as being acquired when ‘the speaker claims to know of the situation described via verbal means’. I slightly modify this definition: reportative evidence is available when the speaker was/is told about a described eventuality. I show that in Korean evidential utterances, a reportative evidential reading arises by means of the interaction between the ‘sensory observation’ meaning of evidentials and the embedded declarative marker –ta in section 4.2.1. I show that all subtypes of reportative evidential readings are available with –te and –ney in section 4.2.2.

4.2.1 Sensory Observation

The literature (Kim 2001, Chung 2005, 2007) has noted that a reportative evidential reading arises when –te and –ney occur right after a declarative marker. This reportative evidential reading is frequently translated as ‘I am told’ or ‘I was told’, as illustrated below. The clause boundaries are represented with square brackets below.

(185) Context: Chelswu told Kim about Minswu yesterday. Now, Kim says:

Chelswu-nom Minswu-nom leave-past-decl-te-decl
‘I was told from Chelswu that Minswu left.’

(186) Context: Chelswu is talking to Mary and the speaker about Minswu. Mary does not understand it, so the speaker is repeating it now:

Chelswu-nom Minswu-nom leave-past-decl-ney.decl
‘I am told from Chelswu that Minswu left.’

30 Kim (2001) does not discuss the evidential –ney, but Chung (2005) briefly mentions the reportative evidential reading from –ney (p. 196).
A closer examination of these sentences reveals that their reportative evidential meanings are associated with the speaker’s sensory observation. This is because the Korean evidentials –te and –ney can embed all kinds of mood morphemes, e.g. the declarative in (187–188a), the interrogative in (187–188b), the imperative in (187–188c) and the propositive in (187–188d). The interpretations differ in terms of which eventuality the matrix clause subject Chelswu is involved in: making a statement in (187–188a), questioning in (187–188b), commanding in (187–188c), and proposing in (187–188d). As illustrated with contextual information, the speaker made/makes an auditory observation of the eventualities in (187)–(188). I provide two different contexts for auditory observation in (187)–(188): Context 1 describes a situation where someone talked to the speaker, and Context 2 describes a situation where the speaker overhears what someone says to someone else. All the given sentences with distinct mood morphemes in (187) and (188) are felicitous in both contexts:31

31The sentences in (187) and (188) can occur with an overt indirect object, as illustrated below:

(i) Context 1: Chelswu talked to the speaker about Minswu yesterday. Now, the speaker says:

\[
\text{Chelswu-ka na-ekey [Minswu-ka ttena-ass-ta]-te-la.}
\]
\[
\text{Chelswu-NOM I-to Minswu-NOM leave-PAST-DECL-TE-DECL}
\]

‘[I had auditory evidence that] Chelswu stated to me that Minswu left.’

(ii) Context 2: Chelswu told Sumi about Minswu. The speaker overheard it. Now, the speaker answers the question about what Chelswu said to Sumi yesterday:

\[
\text{Chelswu-ka Sumi-ekey [Minswu-ka ttena-ass-ta]-te-la.}
\]
\[
\text{Chelswu-NOM Sumi-to Minswu-NOM leave-PAST-DECL-TE-DECL}
\]

‘[I had auditory evidence that] Chelswu stated to Sumi that Minswu left.’
Context 1: Chelswu talked to the speaker about Minswu yesterday. Now, the speaker says:

Context 2: Chelswu told Sumi about Minswu. The speaker overheard it. Now, the speaker answers the question about what Chelswu said to Sumi yesterday:

   Chelswu-nom Minswu-nom leave-past-decl-te-decl
   ‘[I had auditory evidence that] Chelswu stated that Minswu left.’

   Chelswu-nom Minswu-nom leave-past-q-te-decl
   ‘[I had auditory evidence that] Chelswu asked if Minswu left.’

c. Chelswu-ka [ttena-la]-te-la.
   Chelswu-nom leave-imp-te-decl
   ‘[I had auditory evidence that] Chelswu ordered me to leave.’

d. Chelswu-ka [ttena-ca]-te-la.
   Chelswu-nom leave-prop-te-decl
   ‘[I had auditory evidence that] Chelswu proposed that we leave.’

Context 1: Chelswu is talking to Mary and the speaker about Minswu. Mary does not understand it, so the speaker is repeating it now:

Context 2: Chelswu is talking to Sumi about Minswu. The speaker is overhearing it with Mary. Mary does not understand it, so the speaker is repeating it now:

   Chelswu-nom Minswu-nom leave-past-decl-ney.decl
   ‘[I have auditory evidence that] Chelswu is stating that Minswu left.’

   Chelswu-nom Minswu-nom leave-past-q-ney.decl
   ‘[I have auditory evidence that] Chelswu is asking whether Minswu left.’
c. Chelswu-ka  [ttena-la]-ney.
   Chelswu-nom leave-imp-ney.decl
   ‘[I have auditory evidence that] Chelswu is ordering me to leave.’

d. Chelswu-ka  [ttena-ca]-ney.
   Chelswu-nom leave-prop-ney.decl
   ‘[I have auditory evidence that] Chelswu is proposing that we leave.’

The sentences in (187)–(188) are felicitous when the speaker acquired/acquires other sensory evidence. (189) and (190) illustrate the speaker’s acquiring of visual evidence: the speaker saw/is seeing the matrix clause subject, Chelswu, asserting, questioning, commanding and proposing in a sign language.

(189) Context: Chelswu is deaf and mute, but knows how to speak in a sign language. Chelswu talked to the speaker in a sign language yesterday. Now, the speaker says:

      Chelswu-nom Minswu-nom the.day.before.yesterday leave-past-decl-te-decl
      ‘[I had visual evidence that] Chelswu stated that Minswu left the day before yesterday.’

      Chelswu-nom Minswu-nom the.day.before.yesterday leave-past-q-te-decl
      ‘[I had visual evidence that] Chelswu asked whether Minswu left the day before yesterday.’

   c. Chelswu-ka  [ttena-la]-te-la.
      Chelswu-nom leave-imp-te-decl
      ‘[I had visual evidence that] Chelswu ordered me to leave.’

   d. Chelswu-ka  [ttena-ca]-te-la.
      Chelswu-nom leave-prop-te-decl
      ‘[I had visual evidence that] Chelswu proposed that we leave.’
(190) Context: Chelswu is deaf and mute, but knows how to speak in a sign language.
Chelswu is talking to the speaker in a sign language. Now, the speaker says:

Chelswu-NOM Minswu-NOM the.day.before.yesterday leave-PAST-DECL-NEY.DECL
‘[I have visual evidence that] Chelswu is stating that Minswu left the day before yesterday.’

Chelswu-NOM Minswu-NOM the.day.before.yesterday leave-PAST-Q-NEY.DECL
‘[I have visual evidence that] Chelswu is asking whether Minswu left the day before yesterday.’

c. Chelswu-ka [ttena-la]-ney.
Chelswu-NOM leave-IMP-NEY.DECL
‘[I have visual evidence that] Chelswu is ordering me to leave.’

d. Chelswu-ka [ttena-ca]-ney.
Chelswu-NOM leave-PROP-NEY.DECL
‘[I have visual evidence that] Chelswu is proposing that we leave.’

(191) and (192) illustrate the speaker’s making of a tactile observation, more specifically, the speaker felt/is feeling from a Braille text what is asserted, questioned, commanded, and proposed by the matrix clause subject, Chelswu.

(191) Context: Chelswu is blind and mute, and the speaker is blind and deaf. But they know how to write and read in Braille. Chelswu was writing to the speaker in Braille yesterday. Now, the speaker says:

Chelswu-NOM Minswu-NOM the.day.before.yesterday leave-PAST-DECL-TE-DECL
‘[I had tactile evidence that] Chelswu stated that Minswu left the day before yesterday.’
   Chelswu-nom Minswu-nom the.day.before.yesterday leave-PAST-Q-TE-DECL
   ‘[I had tactile evidence that] Chelswu asked whether Minswu left the day before yesterday.’

c. Chelswu-ka [ttena-la]-te-la.
   Chelswu-nom leave-IMP-TE-DECL
   ‘[I had tactile evidence that] Chelswu ordered me to leave.’

d. Chelswu-ka [ttena-ca]-te-la.
   Chelswu-nom leave-PROP-TE-DECL
   ‘[I had tactile evidence that] Chelswu proposed that we leave.’

(192) Context: Chelswu is blind and mute, and the speaker is blind and deaf. But they know how to write and read in Braille. Chelswu is writing to the speaker in Braille now, and the speaker says:

   Chelswu-nom Minswu-nom the.day.before.yesterday leave-PAST-DECL-NEY.DECL
   ‘[I have tactile evidence that] Chelswu is stating that Minswu left the day before yesterday.’

   Chelswu-nom Minswu-nom the.day.before.yesterday leave-PAST-Q-NEY.DECL
   ‘[I have tactile evidence that] Chelswu is asking whether Minswu left the day before yesterday.’

c. Chelswu-ka [ttena-la]-ney.
   Chelswu-nom leave-IMP-NEY.DECL
   ‘[I have tactile evidence that] Chelswu is ordering me to leave.’

d. Chelswu-ka [ttena-ca]-ney.
   Chelswu-nom leave-PROP-NEY.DECL
   ‘[I have tactile evidence that] Chelswu is proposing that we leave.’
Among the aforementioned sentences, only those with an embedded declarative marker give rise to a reportative evidential reading, according to which the speaker was/is told about a proposition which is asserted to be true by the matrix clause subject Chelswu. Henceforth, I focus on evidential utterances in which –te and –ney embed a declarative marker. I argue that the embedded declarative marker –ta introduces an eventuality of someone making a statement, and the speaker makes a sensory observation of it. In section 5.4, I present a formal analysis of the reportative evidential reading arising from utterances with –te and –ney.

### 4.2.2 Subtypes of Reportative Evidence

According to Willett (1988), there are three subtypes of reportative evidence: (i) second-hand, (ii) third-hand, and (iii) folklore. The second-hand reportative evidence is acquired when the speaker is told about a described eventuality ‘from a direct witness’, and the third-hand reportative evidence is acquired when the source of reportative evidence is ‘not from a direct witness’. Reportative evidence from folklore is acquired when what the speaker was told about is ‘part of established oral history’ (Willett 1988:96). All of the three subtypes of reportative evidential readings arise from –te and –ney if they occur after a declarative morpheme (contra Chung 2005 in which –tatela as a whole is analyzed as a second-hand reportative marker).

(193) and (194) illustrate that second-hand and third-hand evidential readings are available with –te and –ney. In Context 1, the speaker was/is told from Chelswu who is a direct witness about an eventuality of Minswu leaving. In Context 2, the speaker was/is told from Chelswu, but he is not a direct witness. (193) and (194) are felicitous in both contexts.
(193) Context 1: Chelswu saw Minswu leaving, and talked to the speaker about it yesterday. Now, the speaker says:

Context 2: Chelswu did not see Minswu leaving, but heard about it from someone else. Chelswu talked to the speaker about Minswu yesterday. Now, the speaker says:

Chelswu-nom Minswu-nom leave-PAST-DECL-TE-DECL

‘[I had auditory evidence that] Chelswu is stating that Minswu left.’

(194) Context 1: Chelswu saw Minswu leaving, and is talking to Mary and the speaker about it. Mary does not understand it, so the speaker is repeating it now:

Context 2: Chelswu did not see Minswu leaving, but heard about it from someone else. Chelswu is talking to Mary and the speaker about it. Mary does not understand it, so the speaker is repeating it now:

Chelswu-nom Minswu-nom leave-PAST-DECL-NEY-DECL.

‘[I have auditory evidence that] Chelswu is stating that Minswu left.’

The case of folklore, as one subtype of reportative evidence, is illustrated in (195) and (196).

(195) Context: Even though Chelswu has not seen a tiger in his village, every villager believed that a very huge tiger had lived in the village. Chelswu talked about it to the speaker yesterday, and now the speaker says:

Chelswu-ka i maul-ey acwu khu-n holangi-ka sal-ass-ta]-te-la.
Chelswu-nom this villabe-AT very big-REL tiger-nom live-PAST-DECL-TE-DECL

‘[I had auditory evidence that] Chelswu stated that a very big tiger lived in this village.’

151
(196) Context: Even though Chelswu has not seen a tiger in his village, every villager believes that a very huge tiger lived in the village. Chelswu is talking about it to Mary and the speaker. Mary does not understand it, so the speaker is repeating it now:

Chelswu-ka [i maul-ey acwu khu-n holangi-ka sal-ass-ta]-ney.
Chelswu-nom this villabe-at very big-rel tiger-nom live-past-decl-ney.decl.

‘[I have auditory evidence that] Chelswu is stating that a very big tiger lived in this village.’

In sum, evidential utterances with –te and –ney are interpreted as compatible with all subtypes of reportative evidence; second-hand, third-hand, and folklore. This is correctly captured in terms of the interaction between the ‘sensory observation’ meaning of Korean evidentials and the asserting-eventuality introduced by an embedded declarative marker (discussed in the preceding section). This is because the truth of the embedded proposition is asserted by the individual denoted by a matrix clause subject, and he/she asserts its truth without specifying its source of information. Consequently, all the subtypes of reportative evidence are available. This will be explained in terms of a formal analysis in section 5.4.

4.3 Modal Contribution

This section motivates a modal analysis of the Korean evidentials –te and –ney that occur right after a declarative marker. I show that their modal contribution differs from that of the direct and inferential counterparts discussed in Chapter 3: the speaker is not committed to the truth of an embedded proposition, i.e. the proposition denoted by the expression in the scope of the embedded declarative marker –ta. But its truth is asserted by someone else, e.g. the individual denoted by an overt subject.
4.3.1 Anchoring Patterns

In reportative evidential utterances with –te and –ney, an embedded proposition is asserted to be true by the overt subject in a matrix clause, i.e. Chelswu in (197) and (198), or a contextually salient individual (when no overt subject is realized).

First, consider the examples in (197) and (198). Their first sentences are realized with the evidentials. The second sentences suggest that the individual denoted by the overt subject in the evidential sentences, i.e. Chelswu, does not commit himself to the truth of the embedded proposition ‘Minswu left’. Thus, the infelicity of the continuations indicates that the embedded proposition is believed to be true by the individual denoted by an overt subject in Korean evidential sentences.

(197) Context: Chelswu saw Minswu leaving, and talked to the speaker about it yesterday. Now, the speaker says:

Chelswu-ka [Minswu-ka ttena-ass-ta]-te-la. #Kulentay Chelswu-nun
Chelswu-nom Minswu-nom leave-PAST-DECL-te-DECL But Minswu-TOP
Minswu-nom leave-PAST-DECL-comp think-NEG-PAST-DECL

‘[I had auditory evidence that] Chelswu stated that Minswu left. But Chelswu did not think that Minswu left.’

(198) Context: Chelswu saw Minswu leaving, and is talking to the speaker about it now. The speaker says:

Chelswu-ka [Minswu-ka ttena-ass-ta]-ney. #Kulentay Chelswu-nun
Chelswu-nom Minswu-nom leave-PAST-DECL-NEY-decl But Minswu-TOP
Minswu-nom leave-PAST-DECL-comp think-NEG-PRES-DECL

‘[I have auditory evidence that] Chelswu is stating that Minswu left. But Chelswu does not think that Minswu left.’
In order to felicitously utter Korean reportative evidential sentences, the speaker does not need to believe that the embedded proposition is true. Consequently, they are felicitous when they are followed by the negation of their embedded propositions, as illustrated in (199) and (200). The embedded propositions of the first sentences in (199) and (200) are asserted to be true by Chelswu. In contrast, the second sentences in (199) and (200) are asserted to be true by the speaker, as indicated by the overt phrases nay-ka al-ki-lo-nun ‘to my knowledge’.

(199) Context: Chelswu saw Minswu leaving, and talked to the speaker about it yesterday. Now, the speaker says:


‘[I had auditory evidence that] Chelswu stated that Minswu left. But to my knowledge, Minswu did not leave.’

(200) Context: Chelswu saw Minswu leaving, and is talking to the speaker about it now. The speaker says:


‘[I have auditory evidence that] Chelswu is stating that Minswu left. But to my knowledge Minswu did not leave.’

The utterances in (199) and (200) are felicitous because the truth of the embedded propositions is interpreted with respect to different evaluation worlds: in the first sentence, it
is evaluated in Chelswu’s belief world, and in the second sentence, it is evaluated in the speaker’s belief world.

If a phonologically null pronoun occurs in the subject position, it is resolved as a contextually salient individual, and the embedded proposition is asserted to be true in his/her belief world, not in the speaker’s belief world. For example, in (201b) and (202b), Chelswu is a salient individual as presented in a prior discourse in (201a) and (202a). The felicitous continuations in (201b) and (202b) indicate that the speaker does not need to believe in the truth of the embedded proposition, which is the same case as (199) and (200), where overt subjects are realized.

(201)  Context: Yenghi knows that Kim has been looking for her old friend Minswu. She also knows that Kim planned to meet Chelswu to ask about Minswu yesterday.

Now, Yenghi asks to Kim:

   ‘What did Chelswu say yesterday?’

   ‘[I had auditory evidence that] it is stated that Minswu left. But to my knowledge, Minswu did not leave.’

(202)  Context: Yenghi and Kim are overhearing what Chelswu is saying now. Yenghi did not catch what was said, so she is asking Kim about it now.

   ‘What is Chelswu saying now?’
This pattern from reportative evidential utterances contrasts with their direct and inferential evidential counterparts discussed in section 3.3.1: the speaker is committed to the truth of the prejacent in direct and inferential evidential utterances, e.g. see (94). The pattern of modal subordination also differs from direct and indirect evidential counterparts, as discussed in the next section.

### 4.3.2 Modal Subordination

With the –te and –ney reportative evidential utterances, the speaker does not necessarily commit him/herself to the truth of their embedded propositions in the actual world and his/her belief worlds. The examples of modal subordination given below can be taken to support this view.

In (203) and (204), the first sentences give rise to a reportative evidential reading, and they are followed by an unmodalized sentence in (203a), and a modalized sentence in (203b). The denotation of the nominal expression etten yeca ‘some woman’ in the reportative evidential sentence cannot be taken as an antecedent by the anaphoric expression kunye ‘she’ in the second sentence, whether it is modalized or not.
(203) Context: Yenghi met Chelswu yesterday. Now, Yenghi says:


‘[I had auditory evidence that] Chelswu stated that Minswu recently got married to some woman. #She is tall.’


‘[I have auditory evidence that] Chelswu is stating that Minswu recently got married to some woman. #She is tall.’

(204) Context: Chelswu is talking to Yenghi and Mary about Minswu. Mary does not understand it well, so Yenghi is repeating it to Mary now:


‘[I have auditory evidence that] Chelswu is stating that Minswu recently got married to some woman. #She is tall.’


‘[I have auditory evidence that] Chelswu is stating that Minswu recently got married to a some woman. #She must be tall.’

(203) and (204) are infelicitous because the two consecutive utterances are evaluated with respect to different sets of possible worlds. The embedded proposition of the reportative evidential sentences is asserted to be true in the reporter’s belief world, i.e. Chelswu’s
belief world in (203) and (204). But it is not an evaluation world for the second sentences in (203) and (204): the embedded propositions of the second (unmodalized) sentences in (203a) and (204a) are asserted to be true in the speaker’s actual world, and those of the second (modalized) sentences in (203b) and (204b) are asserted to be true in the speaker’s belief world.

Consider a slightly different context in (205) and (206), where the two sets of possible worlds overlap, i.e. the reporter’s belief worlds in which the embedded proposition is true, and the speaker’s belief worlds in which the embedded proposition is true. In (205) and (206), the speaker knows what types of women Minswu wanted to marry. On the basis of this knowledge, the speaker can assert that the embedded proposition of the second modalized utterance, i.e. the woman Chelswu met is tall, is necessarily true. Thus, no problem arises with the anaphoric dependency between the two nominal expressions in (205) and (206).

(205) Context: When Yenghi met Chelswu this morning, he told her that Minswu had a secret wedding recently. Yenghi was very close to Minswu in college, and knows well about what type of woman he dreamed to marry. Now, Yenghi says to her daughter:


‘[I had auditory evidence that] Chelswu stated that Minswu recently got married to some woman. She must be tall.’
Context: Yenghi was very close to Minswu in college, and knows well about what type of woman he dreamed to marry. Now, Yenghi and Mary are overhearing what Chelswu is talking about, and repeating it to Mary who does not understand it well:


‘[I have auditory evidence that] Chelswu is stating that Minswu recently got married to some woman. She must be tall.’

Due to differences in evaluation worlds, the pattern of modal subordination is complicated in (203)–(206). But if a reportative evidential utterance is followed by another reportative utterance, then no such complicated pattern of anaphoric resolution is observed. They are felicitous because the embedded propositions of both sentences are asserted to be true in the reporter’s belief world, as illustrated in (207) and (208):

Context: Yenghi met Chelswu yesterday. Now, Yenghi says:


‘[I had auditory evidence that] Chelswu stated that Minswu recently got married to some woman. [I had auditory evidence that] Chelswu stated that she is tall.’
(208) Context: Chelswu is talking to Yenghi and Mary about Minswu. Mary does not understand it well, so Yenghi is repeating it to Mary now:


‘[I have auditory evidence that] Chelswu is stating that Minswu recently got married to some woman. [I have auditory evidence that] Chelswu is stating that she is tall.’

To summarize so far, there is a fundamental difference between reportative evidential utterances and their direct/inferential counterparts (discussed in Chapter 3). For the latter, the speaker should commit him/herself to the truth of the embedded proposition, but it is not required for the former. This is because the embedded proposition in reportative evidential sentences is believed to be true by someone else that is denoted by an overt subject or contextually given.

4.4 Not-at-issue and At-issue Implications

When the Korean evidentials –te and –ney occur right after a declarative marker, they give rise to at least three distinct implications. One is what I call the embedded proposition in the preceding section, i.e. the proposition denoted by the expression in the scope of the embedded declarative marker. Another implication is the prejacent implication, which is the proposition denoted by the expressions in the scope of the evidentials –te and –ney, i.e. the individual denoted by an overt subject (or contextually given) states the embedded proposition. The evidential implication also arises, i.e. the proposition that the speaker has
sensory evidence for the prejacent implication. These three implications are illustrated in (209).

(209) Context: Chelswu talked to Yenghi yesterday. Now, she says:

Chelswu-ka [pi-ka o-ass-ta]-te-la.
Chelswu-nom rain-nom fall-PAST-DECL-TE-DECL

‘[I had sensory evidence that] Chelswu stated that it rained.’

**embedded proposition**: It rained.

**prejacent implication**: Chelswu stated that it rained.

**evidential implication**: I had sensory evidence that Chelswu stated that it rained.

In this section, I show that the evidential implication is not-at-issue, and the other two implications are at-issue by means of the QUD-test and the challengibility test. I do not repeat why each test can be used to diagnose (not-)at-issueness because general accounts of each test and its application to the two implications of non-restrictive relative clauses have been presented in section 3.4.

### 4.4.1 Addressing the QUD?

The embedded proposition can address the QUD, as illustrated in (210). (210b) and (210c) are minimal pairs with the evidentials –te and –ney. In (210a), the QUD is about yesterday’s weather in Columbus. It is addressed by the embedded proposition of the reportative evidential utterances in (210b) and (210c). This suggests that the embedded proposition is at-issue.

(210) Context: Minswu mistakenly thought that Yenghi was in town yesterday.

a. Minswu: Ecey yeki Columbus nalssi-ka etteha-yess-ni?
yesterday here Columbus weather-nom how-PAST-Q

‘How was the weather here in Columbus yesterday?’
b. Yenghi: Na ece yeki ep-ess-ciman, Chelswu-ka pi-ka
I yesterday here not.exist-PAST-but Chelswu-NOM rain-NOM
o-ass-ta-te-la.
fall-PAST-DECL-TE-DECL
‘I was not here yesterday, but [I had sensory evidence that] Chelswu
stated that it rained.’

c. Yenghi: Na ece yeki ep-ess-ciman, Chelswu-ka pi-ka
I yesterday here not.exist-PAST-but Chelswu-NOM rain-NOM
o-ass-ta-ney.
fall-PAST-DECL-NEY.DECL
‘I was not here yesterday, but [I have sensory evidence that]
Chelswu states that it rained.’

The prejacent implication is at-issue content, too. In (211a), the QUD is who said that
Chelswu stole Minswu’s watch. (211b) is realized with the evidential –te and (211c) is
realized with the evidential –ney. The prejacent implications in (211b) and (211c) answer
the QUD.

(211) a. Yenghi: Nuka Chelswu-ka ne-uy siku-y-lul hwumchi-ess-ta-ko
Who Chelswu-NOM you-gen watch-ACC steal-PAST-DECL-COMP
malha-yess-ni?
say-PAST-Q
‘Who said that Chelswu stole your watch?’

b. Minswu: Sumi-ka [Chelswu-ka ku kes-ul
Sumi-NOM Chelswu-NOM that thing-ACC
hwumchi-ess-ta-te-la.
steal-PAST-DECL-TE-DECL
‘[I had sensory evidence that] Sumi stated that Chelswu stole it.’

Sumi-NOM Chelswu-NOM that thing-ACC steal-PAST-DECL-NEY.DECL
‘[I have sensory evidence that] Sumi states that Chelswu stole it.’
It is very challenging to apply this test to the evidential implication because it is closely related to the prejacent implication. Suppose that the QUD is “how did you know that Chelswu stole your watch?”. (211b) and (211c) are felicitous in this context. But it is not easy to see which implication between the prejacent implication and the evidential implication addresses the QUD. This is because both of the following ways to address the QUD are okay: (i) I know that Chelswu stole your watch because Sumi stated that Chelswu stole it, and (ii) I know that Chelswu stole your watch because I had sensory evidence that Sumi stated that Chelswu stole it. This QUD-test is not appropriate to examine the at-issue or not-at-issue status of the evidential implication, but the challengibility test discussed in the next section will show that it is not-at-issue content.

4.4.2 Challengibility Test

In this section, I apply the challengibility test (Faller 2002, Matthewson et al. 2007, Roberts et al. 2009, Murray 2010 among others) to the three implications available with the reportative evidential utterances: the embedded proposition, the prejacent implication, and the evidential implication.

The embedded proposition and the prejacent implication can be directly denied and investigated, but the evidential implication cannot be. In declarative sentences, the evidential meaning from –te and –ney is anchored to the speaker as in (212a) and (213a). This evidential implication cannot be a target of the direct denial, as shown in (212d) and (213d): the continuations that deny the evidential implication are infelicitous. In contrast, no problem arises when the embedded proposition and the prejacent implication are directly denied, as illustrated in (212b)–(213b) and (212c)–(213c), respectively.
In interrogatives, the reportative evidential implication is anchored to the addressee. As in declaratives, the evidential implication cannot be a target of direct investigation. But the
other two implications can be directly investigated. Consider the examples in (214) with the evidential –*te*. (Recall that the evidential –*ney* cannot occur in interrogatives as discussed in section 3.3.1.) As indicated by the English translation, the interrogative sentence in (214a) can take the embedded proposition and the prejacent implication as the target of interrogation, but the evidential implication cannot be interrogated. This is illustrated with the different results of felicity in (214b-d). The response *Aniyo* ‘no’ is compatible with the continuations that deny the embedded proposition and the prejacent implication as in (214b) and (214c), but not with the continuation that denies the evidential implication as in (214d). This contrast reinforces the conclusion that the evidential implication is not-at-issue whereas the other two implications are at-issue.

(214)  

<table>
<thead>
<tr>
<th>(214)</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Kim:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘[Based on what you were told from Minswu] did Yenghi cry?’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘Was it from Minswu you were told that Yenghi cried?’</td>
<td>NOT: ‘Was it you who was told from Minswu that Yenghi cried?’</td>
</tr>
<tr>
<td></td>
<td>‘No. It was said that Yenghi did not cry.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘No. It was not Minswu, but Sumi who said so.’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘No. It was not me, but my mother who heard so.’</td>
<td>tel-ess-e-yo, hear-past-decl-polite</td>
</tr>
</tbody>
</table>
The evidential implication, which is not-at-issue content, cannot be directly challenged. But it can be indirectly denied by expressions like *camsiman* ‘Hey, wait a minute!’ or *melako*? ‘What d’you mean?’. (215a) and (215b) are evidential utterances with –*te* and –*ney*, respectively. (215c) does not deny the embedded proposition or the prejacent implication, but it indirectly denies the evidential implication of (215a) and (215b), by indicating that it is impossible for the speaker of (215a) and (215b), i.e. Minswu, to make a sensory observation of the department chair stating about the embedded proposition.

(215) a. Minswu: Hakkwacang-i [naynyen-pwuthe wuli kwa-nun department.chair-nom next.year-from our department-top tayhakwensayng-eykey sanghwalpi ciwen-ul grad.student-to stipend support-acc cwungtanha-kyess-ta]-*te*-*la*.

stop-FUT-DECL-TE-DECL

‘[I had sensory evidence that] the department chair is stating that the department will stop financially supporting the grad students’ stipends.’

b. Minswu: Hakkwacang-i [naynyen-pwuthe wuli kwa-nun department.chair-nom next.year-from our department-top tayhakwensayng-eykey sanghwalpi ciwen-ul grad.student-to stipend support-acc cwungtanha-kyess-ta]-*ney*.

stop-FUT-DECL-NEY.DECL

‘[I have sensory evidence that] the department chair states that the department will stop financially supporting the grad students’ stipends.’

‘What do you mean? Wait a minute. Only the faculty members gathered and discussed it, so how do you know about it?’

In sum, the three implications available with Korean reportative evidential utterances have a different status: the embedded proposition and the prejacent implication are at-issue, but the evidential implication is not-at-issue.

4.5 Previous Analysis: Kim 2001

Kim (2001) analyzes Korean reportative evidential utterances with –te like (216). Just like the sentences that we have examined in this chapter, the sentence in (216) contains the evidential –te that occurs right after a declarative marker, and it gives rise to a reportative evidential interpretation.32

(216) [Cwungton-eyse cencayng-i ilena-ss-ta]-te-la.
    Middle.East-in war-nom break.out-past-decl-te-decl

    ‘[I had sensory evidence that] it was stated that a war broke out in the Middle East.’

    (Kim 2001:123)

Kim (2001) notes that (216) has the same meaning as (217), which is realized with the complementizer –ko and the verb of saying ha– ‘say’. In (217), the verb ha– ‘say’ occurs

32Kim (2001) does not provide glosses and translations for the example in (216), so those in (216) are mine. The clause boundaries (represented with square brackets) are also mine.
in a matrix clause, and it embeds a clause (represented within square brackets) by means of the complementizer –ko.33

(217)  [Cwungton-eyse cencayng-i ilena-ss-ta]-ko  ha-te-la.
       Middle.East-LOC war-NOM    break.out-PAST-DECL-COMP say-TE-DECL

       ‘[I had sensory evidence that] it was stated that a war broke out in the Middle East.’

       (Kim 2001:123)

The main claim in Kim (2001) concerns why the sentences like (216) and (217) have the same evidential interpretation, i.e. the reportative reading. According to Kim (2001), it is because the sentences of the form like (216) are derived from those of the form like (217), crucially, by means of a deletion process. More specifically, the complementizer –ko is first deleted, and then the verb ha– ‘say’ in the matrix clause is deleted. The sentence in (218a), which is repeated from (217), is first given before the deletion is applied. The sentence in (218b) results from deleting the complementizer –ko. Then, we can get the sentence in (218c), which is repeated from (216). It is the result of deleting the matrix clause verb ha– ‘say’ from the sentence in (218b). This successive process of deletion results in a reportative evidential sentence in which the evidential –te apparently looks like it occurs right after a mood marker.34

33I discussed evidential sentences with –te like (217) in Chapter 3. I assumed that there is a phonologically null present tense -Ø between a verb stem and –te. This assumption was independently motivated by its distribution in other sentences. For example, -Ø among various allomorphs of present tense is realized with the declarative marker -a/e, as discussed in section 2.2.1, e.g. see (43b). Under this assumption about a phonologically null present tense, reconsider the sentence in (217) below:

(i)  [Cwungton-eyse cencayng-i ilena-ss-ta]-ko  ha-Ø-te-la.
       Middle.East-LOC war-NOM    break.out-PAST-DECL-COMP say-PRES-TE-DECL

       ‘[I had sensory evidence that] it was stated that a war broke out in the Middle East.’

In my analysis, the present tense occurring with the evidentials temporally locates the reference time of a described eventuality with respect to the evidence acquisition time. This correctly captures the temporal interpretation of the sentences in question. Kim’s work does not address the temporal interpretations, so it remains unexplained how the saying eventuality in (217) is temporally located.

34Kim (2001) does not discuss the reportative evidential utterances with –ney, but his deletion analysis is applicable to them as well, as illustrated in (i). (i-a) has the verb of saying ha– ‘say’ and the complementizer
Kim (2001) puts an emphasis on the deletion order. If we follow the deletion order proposed by Kim (2001), we can capture that all the sentences resulting from the deletion process are grammatical, as shown in (218). In contrast, the reversed order, according to which only the verb ha– ‘say’ is deleted from (218a), gives rise to an ungrammatical sentence like (219).

(i) a. [Cwungton-eyse cencayng-i ilena-ss-ta]-ko ha-te-la.
   Middle.East-LOC war-NOM break.out-PAST-DECL-comp say-TE-DECL
   ‘[I have sensory evidence that] it is stated that a war broke out in the Middle East.’

g–ko. The latter is first deleted, and then the former is deleted later. This deletion process is presented in (i-b) and (i-c). The reportative evidential sentence with –ney in (i-c), where the evidential –ney occurs right after a declarative marker, can be analyzed as resulting from deleting of both a complementizer and the verb ha– ‘say’.

   b. [Cwungton-eyse cencayng-i ilena-ss-ta] ha-te-la.
      Middle.East-LOC war-NOM break.out-PAST-DECL say-TE-DECL
      ‘[I have sensory evidence that] it was stated that a war broke out in the Middle East.

c. [Cwungton-eyse cencayng-i ilena-ss-ta]-te-la.
   Middle.East-LOC war-NOM break.out-PAST-DECL-TE-DECL
   ‘[I have sensory evidence that] it was stated that a war broke out in the Middle East.’

   (Kim 2001:123)
As admitted by Kim (2001) himself, the evidential –te in (218a) has the ‘sensory observation’ meaning, i.e. the speaker made a sensory observation that someone was saying that a war broke out in the Middle East. The reportative evidential reading of (218a) can be accounted for in terms of the meaning of the verb ha– ‘say’. However, it is left unexplained how the ‘sensory observation’ meaning of –te results in the reportative evidential reading in (218c). In Kim’s analysis of (218c), there is no element that is responsible for its reportative evidential reading. He does not postulate any phonologically null forms, e.g. a zero-form of a verb of saying, a zero-form of a reportative evidential etc. In my analysis, I argue that the meanings of the embedded declarative marker –ta and the evidential –te give rise to a reportative evidential reading in sentences like (218c). The embedded declarative marker –ta introduces an eventuality of someone asserting, and the ‘sensory observation’ meaning of the evidential –te combines with it. I will present the formal analysis in section 5.4.
Part II

Formal Analysis
CHAPTER 5: Temporal and Modal Contributions of Korean Evidentials

This chapter presents a formal analysis of the empirical findings discussed in sections 1–3 in Chapters 3-4, i.e. temporal and evidential interpretations, and modal contributions of Korean evidentials. I first present theoretical assumptions and framework in section 5.1, and discuss Kratzer’s modal theory in section 5.2. The meanings of Korean direct/inferential evidential utterances, discussed in Chapter 3, are formally analyzed in section 5.3. The meanings of Korean reportative evidential utterances, discussed in Chapter 4, are formally analyzed in section 5.4.

I capture the evidential meaning of Korean evidentials in terms of the two central components in Kratzer’s modal theory, i.e. the modal base and the ordering source. I propose that the modal base SO (Sensory Observation) and the ordering source ST/DX (Stereotypical/Doxastic) determine the accessible worlds for Korean evidential utterances with –te and –ney. In the proposed analysis, –te and –ney are anlayzed as evidentials that encode the ‘sensory observation’ meaning. But the distinct evidential readings, i.e. direct vs. inferential vs. reportative, arise indirectly by means of interactions of the ‘sensory observation’ meaning of –te and –ney, (i) with the ‘relative’ tense meaning of their co-occurring tenses (for the direct/inferential evidential reading), and (ii) with the ‘asserting-eventuality’ meaning of the embedded declarative mood markers (for the reportative evidential reading).
5.1 The Framework

The formal analysis of Korean evidential utterances is couched in a Combinatoric Categorial Grammar fragment (cf. see Steedman 1996, 2000, Baldridge 2002 for introductions). Section 5.1.1 presents assumptions about syntactic categories, semantic types, and derivational rules, and section 5.1.2 presents assumptions about temporal interpretation. On the basis of the assumptions, I provide the syntactic and semantic derivations of simple Korean sentences in 5.1.3.

5.1.1 Types, Categories and Rules

The proposed analysis of Korean evidential sentences with –te and –ney follows the Montagovian tradition, i.e. natural language expressions are first translated into a formal language, and then each translation receives a model-theoretic interpretation.

Semantic types

The basic types of the formal language are $e$ (for entities), $e$ (for eventualities), $i$ (for time intervals), $s$ (for worlds), and $t$ (for truth values). I use the following variables for each type: $x, y, z$ (for entities), $e, e', e''$ (for eventualities), $t, t', t''$ (for time intervals), $w, w', w''$ (for worlds). For the type of a function from worlds to sets of eventualities, i.e. $\langle s, \langle e, t \rangle \rangle$, denoting a property of eventualities, I use the variables $P$ and $P'$. The variables $p$ and $q$ are for the type of a function from worlds to sets of time intervals, i.e. $\langle s, \langle i, t \rangle \rangle$. 
Table 5.1: Types and Variables

<table>
<thead>
<tr>
<th>types</th>
<th>denotations</th>
<th>variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>$e$</td>
<td>entities</td>
<td>$x, y, z,$...</td>
</tr>
<tr>
<td>$t$</td>
<td>truth values</td>
<td>$w, w', w''$,...</td>
</tr>
<tr>
<td>$s$</td>
<td>worlds</td>
<td>$t, t', t''$,...</td>
</tr>
<tr>
<td>$i$</td>
<td>time intervals</td>
<td>$e, e', e''$,...</td>
</tr>
<tr>
<td>$⟨s, ⟨e, i⟩⟩$</td>
<td>properties of eventualities</td>
<td>$P, Q$,...</td>
</tr>
<tr>
<td>$⟨s, ⟨i, t⟩⟩$</td>
<td>properties of time intervals</td>
<td>$p, q$,...</td>
</tr>
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</table>

**Syntactic categories**

I assume three syntactic categories: $n$ (for noun phrases), $s$ (for sentences), $s'$ (for sentence radicals). Tense is treated as a syntactic feature of sentence radicals, i.e. $s'_{[-T]}$ is an untensed sentence radical and $s'_{[+T]}$ is a tensed sentence radical.$^{35}$

Following Montague (1974), I assume a tight correspondence between the syntactic categories of natural language expressions and the logical types of the translation language, as follows:

(220)  
   a. expressions in the syntactic category $n$ have translations of type $e$ (entities),  
   b. expressions in the syntactic category $s$ have translations of type $t$ (truth values),  
   c. sentence radicals in the syntactic category $s'$ have translations of type $⟨s, ⟨i, t⟩⟩$ (properties of time intervals),  
   d. expressions in any syntactic category of the form $a/b$ or $a\setminus b$ have translations of the following type: functions from translations of category $b$ to translations of category $a$.

$^{35}$This treatment of tense as a syntactic feature differs from syntactic treatments with functional projections, by which tense occupies the head position of a Tense Phrase (TP), e.g. Cinque (1999). Along the same line, Speas (2004) proposes that evidential morphemes occupy the head position of an Evidential Phrase (EvidP).
Combinatoric rules

I assume the two combinatoric rules given in (221): forward function application (FA) and backward function application (BA). These rules are stated in terms of ordered triples of a phonological form, a syntactic category cat and a meaning m (i.e. its translation into a formal language). (For simplicity, a phonological form will be given as the written form of the expression, rather than its IPA format.)

(221) Forward function application Backward function application

\[
\frac{f_1 : A/B : \alpha \quad f_2 : B : \beta}{f_1 f_2 : A : \alpha(\beta)} \quad \text{FA} \quad \frac{f_2 : B : \beta \quad f_1 : A \setminus B : \alpha}{f_2 f_1 : A : \alpha(\beta)} \quad \text{BA}
\]

The FA rule combines an expression of form \( f_1 \), which is of category \( A/B \) and translated as \( \alpha \), with an expression to its right of form \( f_2 \), which is of category \( B \) and translated as \( \beta \). The result of the combination is given below the line: it is of the form \( f_1 f_2 \) (by means of concatenation), of category \( A \) and with the translation \( \alpha(\beta) \) (i.e. \( \alpha \) is applied to \( \beta \)). BA differs from FA only in terms of the mode of combination: the functor expression \( f_1 \) occurs to the right of its argument \( f_2 \). The different modes of combination by the two rules are represented with two different symbols, / (read ‘forward slash’) and \ (read ‘backward slash’).

5.1.2 Assumptions about Temporal Interpretation

This section presents assumptions about temporal interpretation. I analyze the meaning contributions of Korean tenses in the Reichenbachian framework, as discussed in section 2.1: tense morphemes relate the reference time to the utterance time (in a matrix clause) or to the matrix clause event time (in an embedded clause). I present the translations of
Korean tenses in which reference time is contextually given, as noted in the literature (Partee 1984, Hinrichs 1986, Dowty 1986, Kamp and Reyle 1993 among others). I discuss the AT-predicate (Condoravdi 2002), which reflects the Aktionsart effect on the temporal interpretation (e.g. Dowty 1986, Hinrichs 1986, Kamp and Rohrer 1983, Partee 1984, Klein 1994).

**Contextually-provided reference time**

The notion of the reference time is of particular importance in the Reichenbachian framework. In later work, reference time has been used to capture the fact that the temporal interpretation of natural language sentence is heavily dependent on the discourse context. Partee (1984) accounts for it by pointing out the analogues between pronouns (nominal anaphora) and past tenses (temporal anaphora). For example, the nominal anaphor *he* in (222a) does not refer to any random individual in the universe, but it refers to the individual denoted by *Sam* in the first sentence. In the same way, the past tensed verb *got drunk* in (222b) does not refer to any random past time, but it refers to the past time given in prior discourse, i.e. last Friday when Sheila had a party.

(222) a. Sam is married. He has three children.

    b. Sheila had a party last Friday and Sam got drunk. (Partee 1984:245)

Examples like (222) have provided empirical support for dynamic semantic theories of temporal interpretation (Partee 1984, Hinrichs 1986, Dowty 1986, Kamp and Reyle 1993 among others). In the formal implementation, the dynamic semantic interpretation does not require the reference time to be existentially bound. This differs from Prior’s (1967) treatment of past and future tenses, according to which tenses introduce the existential quantifier and it requires there to exist a past or future time at which the relevant eventuality
holds. The problem with this quantificational treatment is that the existentially bound time is not guaranteed to be identical to the contextually given time.

I follow the dynamic semantic approach to temporal interpretation, and assume that reference time is contextually given. The example in (223) is constructed on the basis of Partee’s example in (222b). It shows that the same observation holds in Korean simple utterances: the reference time introduced by the past tense in the second sentence is located at the contextually given past time, i.e. yesterday when Yenghi had a party.

(223) Yenghi-ka ecey phati-lul yel-ess-ta. Chelswu-nun swul-ey
Yenghi-nom yesterday party-acc hold-PAST-DECL Chelswu-top alcohol-at
chwiha-ess-ta.
get.drunk-PAST-DECL
‘Yenghi had a party yesterday. Chelswu got drunk.’ (Lee and Tonhauser 2010:313)

Korean evidential utterances also receive the temporal interpretation in the same fashion: In (224), the evidence acquisition time introduced by the evidential –te, which is past with respect to the utterance time, is located at the contextually given past reference time, i.e. yesterday when the speaker met Chelswu.

I-top yesterday Chelswu-acc meet-PAST-DECL a.lot sick-PRES-TE-DECL
‘I met Chelswu yesterday. [I had sensory evidence that] he was very sick.’

Translations of Korean tenses

The translations of Korean tenses are given in (225). They reflect that the exact temporal location of the reference time is contextually determined: the reference time \( t' \) is not existentially bound (cf. Prior 1967), but is a free variable. In (225), tenses modify a sentence radical by adding a temporal specification to it (Stump 1985), and thus they are of type \( \langle \langle s, \langle i, t \rangle \rangle, \langle s, \langle i, t \rangle \rangle \rangle \). In (225b–c), \( \prec \) stands for a temporal precedence. In (225a), \( \preceq \) stands
for a temporal overlap (for present temporal reference) or a temporal precedence (for futurate temporal reference) of present tense, as defined in (226).  

(225)  
a. \( -\emptyset \text{'pres'} \Rightarrow \lambda p_{(x,(i,t))} \lambda w \lambda t [t \leq t' \land p(w,t')] \)  
b. \( -\text{ess 'past'} \Rightarrow \lambda p_{(x,(i,t))} \lambda w \lambda t [t' < t \land p(w,t')] \)  
c. \( -\text{kyess 'fut'} \Rightarrow \lambda p_{(x,(i,t))} \lambda w \lambda t [t < t' \land p(w,t')] \)  

(226)  
\[ t \leq t' \leftrightarrow \neg (t' < t) \]

The translations in (225) are also compatible with the ‘relative’ tense meaning of Korean tenses: they locate the reference time with respect to (i) the utterance time in a matrix clause, and (ii) the matrix clause event time in an embedded clause. In (225), the reference time \( t' \) is located with respect to a \( t \), which is bound by a \( \lambda \)-operator and thus can be the utterance time or the matrix clause event time.

**AT-predicate**

I adopt the AT-predicate from Condoravdi (2002). AT(\( t,w,P \)) in (227) means that the property of eventualities \( P \) is instantiated in \( w \) at \( t \). The interval \( t \) in (227) corresponds to the reference time of an eventuality. The event time is specified by the trace function \( \tau \) (modified from Krifka 1998): \( \tau(e,w) \) denotes the event time of an eventuality \( e \) in a given world \( w \). The temporal relation between the reference time of an eventuality and its event time in a given world is dependent on the properties of the eventuality in question (See, e.g. Dowty 1986, Hinrichs 1986, Kamp and Rohrer 1983, Partee 1984, Klein 1994): (i) with an

36Korean present and past tenses have phonologically-conditioned variants, as discussed in Chapter 2. The translations in (225a) and (225b) are applicable to all the allomorphs of the present and past tenses, respectively.
eventive eventuality, its event time is included in the reference time, and (ii) with a stative eventuality, its event time overlaps with the reference time.

\[(227)\quad AT(t,w,P_{(s,(e,t))}) = \exists e[P(w)(e) \land \tau(e,w) \subseteq t] \text{ if } P \text{ is eventive} \]
\[(227)\quad = \exists e[P(w)(e) \land \tau(e,w) \circ t] \text{ if } P \text{ is stative} \]

### 5.1.3 A Syntactic and Semantic Derivation of a Simple Sentence

Before moving on to Korean evidential utterances, this section provides a syntactic and semantic analysis of a simple sentence like (228).

(228) a. Pi-ka o-∅-a.
    rain-nom fall-pres/past/fut-decl
    ‘It is raining.’

b. Pi-ka o-ass-e.
    rain-nom fall-pres/past/fut-decl
    ‘It rained.’

c. Pi-ka o-kyess-e.
    rain-nom fall-pres/past/fut-decl
    ‘It will rain.’

The syntactic derivation

In the syntactic derivation of (228), tense is first applied to the untensed sentence pi-ka o– ‘rain-nom fall’: tense is of category \(s'_{[+T]} \setminus s'_{[-T]}\), and it combines with the untensed sentence of category \(s'_{[-T]}\) to its left, i.e. by means of Backward function application (BA). It produces a tensed sentence of category \(s'_{[+T]}\). Then, the declarative marker \(-e\) of category \(s'_{[+T]} \setminus s'_{[-T]}\) is applied to the tensed sentence. The derivational step of the past tensed sentence in (228b) is presented in Figure 5.1. Sentences with the other tenses are analyzed in the same fashion.
The semantic derivation

The semantic derivation of (228) corresponds to the above syntactic derivation. First, the translation of the sentence radical $\text{pi-ka o ‘rain-nom fall’}$ in (229) denotes a function from a world $w$ to a set of time intervals $t$ such that it rains at $t$ in $w$. The constant $\text{rain’}$ in the lexical entries is of type $\langle s, \langle \epsilon, t \rangle \rangle$, i.e. a function from a world to sets of eventualities (of raining).

(229)  $\text{pi-ka o ‘rain-nom fall’ } \Rightarrow \lambda w.\lambda t[\text{AT}(t, w, \text{rain’})]$

A tensed clause is derived by applying the denotation of tense in (225) to that of the sentence radical.

(230)  a.  $\text{pi-ka o-∅ ‘rain-nom fall-pres’ } \Rightarrow \lambda w.\lambda t[t \leq t’ \land \text{AT}(t’, w, \text{rain’})]$

b.  $\text{pi-ka o-ass ‘rain-nom fall-past’ } \Rightarrow \lambda w.\lambda t[t’ < t \land \text{AT}(t’, w, \text{rain’})]$

c.  $\text{pi-ka o-kyess ‘rain-nom fall-fut’ } \Rightarrow \lambda w.\lambda t[t < t’ \land \text{AT}(t’, w, \text{rain’})]$

In simple sentences, the tensed sentences in (230) combine with a declarative marker. The translation of the sentence-ending declarative marker $–e$ is given in (231). The other sentence-ending declarative marker $–ta$ also has the same translation as (231). In (231), $w^*$ stands for the actual world and now stands for the utterance time.

(231)  $–e \ ‘\text{DECL’ } \Rightarrow \lambda p_{\langle x, (i, j) \rangle} [p(w^*, \text{now})]$

Figure 5.1: Syntactic derivation for (228): rain-nom fall-past-decl
The sentence-ending declarative marker \(-e\) combines with an expression of type \(\langle s, (i, t)\rangle\), and produces an expression of type \(t\). The translation of a simple sentence is presented in (232).

(232)  
\[ \begin{align*}  
& a. \text{ pi-ka o-∅-a ‘it rain-pres-decl’ } \Rightarrow \text{ [now} \leq t’ \land \text{ AT}(t’, w^*, \text{rain’})] \\
& b. \text{ pi-ka o-ass-e ‘it rain-past-decl’ } \Rightarrow \text{ [t’} < \text{ now} \land \text{ AT}(t’, w^*, \text{rain’})] \\
& c. \text{ pi-ka o-kyess-e ‘it rain-fut-decl’ } \Rightarrow \text{ [now} < t’ \land \text{ AT}(t’, w^*, \text{rain’})] 
\end{align*} \]

Figure 5.2 shows the syntactic and semantic derivation of (228b) that has been discussed above.

\[ \begin{align*}  
\text{ Figure 5.2: Syntactic and semantic derivation for (228): rain-nom fall-past-decl.} 
\end{align*} \]

The free variable \(t’\) in the last line of Figure 5.2 refers to the contextually given reference time. The AT-predicate in Figure 5.2 relates the event time of the raining eventuality to its reference time, as discussed above. This results in the final truth-conditional meaning translations of the simple sentences in (228):

(233)  
\[ \begin{align*}  
& a. \text{ pi-ka o-∅-a ‘rain-nom fall-pres-decl’ } \Rightarrow \text{ } \\
& \quad \exists e[\text{now} \leq t’ \land \text{rain’}(w^*)(e) \land \tau(e, w^*) \subseteq t’] \\
& b. \text{ pi-ka o-ass-e ‘rain-nom fall-past-decl’ } \Rightarrow \text{ } \\
& \quad \exists e[t’ < \text{now} \land \text{rain’}(w^*)(e) \land \tau(e, w^*) \subseteq t’] 
\end{align*} \]
c. \( pi-ka \ o-kyess-e \) ‘rain-nom fall-fut-decl.’ \( \Rightarrow \)
\[
\exists e \left[ \text{now} < t' \land \text{rain}'(w^*)(e) \land \tau(e, w^*) \subseteq t' \right]
\]

According to (233b), the simple past tensed sentence \( pi-ka \ o-ass-e \) is true if and only if there is a raining eventuality in the actual world whose event time is located within the contextually given reference time \( t' \) that is prior to the utterance time \( \text{now} \).

**Looking ahead**

If the tensed sentences in (230) combine with the evidentials –te and –ney, then they give rise to direct or inferential evidential readings depending on which tense they combine with (as discussed in Chapter 3). If the tensed sentences combine with the embedded declarative marker –ta, then they give rise to a reportative evidential reading (as discussed in Chapter 4). Section 5.3 analyzes the meaning of the evidentials –te and –ney, and formalizes the direct and inferential evidential readings. Section 5.4 formalizes the reportative evidential readings. Before moving on to the formal analyses, the next section introduces Kratzer’s (1977, 1981, 1991) modal theory.

### 5.2 Kratzer’s Modal Theory

In traditional modal logic, modals are analyzed as quantifications over possible worlds. Necessity modal expressions, e.g. English auxiliary verb *must*, are analyzed as universal quantification over accessible worlds, and possibility modals, e.g. English auxiliary verb *may*, are analyzed as existential quantification over accessible worlds. Different modal expressions are compatible with different accessibility relations. Kratzer defines such accessible relations in terms of a *conversational background*. In Kratzer’s (1981) modal system, there are two conversational backgrounds, known as a modal base and an ordering source. These
two conversational backgrounds determine the accessible worlds for a modalized sentence, by mapping the evaluation world $w$ onto the set of possible worlds that are accessible from $w$.

**The Modal Base**

The modal base $f$, which is a function from worlds to sets of propositions, defines a binary relation $R_f$ on worlds as follows:

\[(234) \quad wR_f w' \leftrightarrow w' \in \bigcap f(w)\]

For example, if $R_f$ is the epistemic accessibility relation, $wR_f w'$ means that all the propositions known to be true in $w$ are true in $w'$. In Kratzer’s theory, for each world $w$, $f(w)$ is the set of propositions $p$ such that the speaker knows in $w$ that $p$ is true, e.g. $f(w) = \{p_1, p_2, p_3\}$.

Following the standard assumption in possible worlds semantics, a proposition is taken as a set of possible worlds in Kratzer’s theory, e.g. suppose $p_1 = \{w_1, w_2, w_3\}$, $p_2 = \{w_2, w_3\}$, $p_3 = \{w_1, w_2, w_3, w_4\}$. Then, $\bigcap f(w)$, which is the conjunction of all the propositions that the speaker knows to be true in $w$, e.g. $\bigcap f(w) = \{p_1 \cap p_2 \cap p_3\} = \{\{w_1, w_2, w_3\} \cap \{w_2, w_3\} \cap \{w_1, w_2, w_3, w_4\}\} = \{w_2, w_3\}$, is a set of worlds in which all the propositions in $f(w)$ are true. That is, the set of worlds epistemically accessible from $w$ is $\bigcap f(w)$, e.g. $\{w_2, w_3\}$.

**The Ordering Source and the limit assumption**

The other conversational background is the ordering source $g$, which is a function from worlds to sets of propositions like the modal base $f$. $\preceq_{g(w)}$ is an ordering given by the set of propositions $g(w)$. This ordering relation is defined as follows:

\[(235) \quad \text{For a set of propositions } g(w) \text{ and any worlds } w, w', \]
\[
  w \preceq_{g(w)} w' \leftrightarrow \text{For all } p \in g(w), \text{ if } w' \in p, \text{ then } w \in p \]
In (235), \( w \leq_{g(w)} w' \) means that \( w \) is closer to the ideal or better than \( w' \). Suppose \( g \) is a deontic conversational background. Then, \( g(w) \) is a set of laws in \( w \), e.g. \( g(w) = \{ p_4, p_5, p_6 \} \). The worlds in which all the laws \( p_4, p_5, p_6 \) are obeyed, e.g. \( w_1 \), are better than those in which the two laws \( p_4, p_5 \) are obeyed, i.e. \( w_2 \). (235) correctly predicts that \( w_1 \) is better ranked than \( w_2 \) because both \( p_4, p_5 \), which are true in \( w_2 \), are also true in \( w_1 \).

\( g(w) \) can be an infinite set of propositions. Then, there are no best-ranked worlds. For example, consider Portner’s (2009) example for a bouletic conversational background \( g(w) \), i.e. a set of goals in \( w \). If we suppose that the speaker wants more and more gold coins, then it is an infinite set of propositions, as shown in (236).

\[
(236) \quad g(w) = \{ p_1, p_2, p_3, \ldots, p_{1,000,000}, \ldots \}
\]

a. \( p_1 = \text{‘I have at least one gold coin in the treasure room.’} \)
b. \( p_2 = \text{‘I have at least two gold coins in the treasure room.’} \)
c. \( p_3 = \text{‘I have at least three gold coins in the treasure room.’} \)
d. \( \ldots \)
e. \( p_{1,000,000} = \text{‘I have at least one million gold coins in the treasure room.’} \)
f. \( \ldots \) \hfill (Portner 2009:65)

According to (235), \( w_{p_2} \), where both \( p_1 \) and \( p_2 \) are true, is better-ranked than \( w_{p_1} \), where \( p_1 \) is true. The orderings of all the relevant worlds can be represented as in (237). The better-ranked worlds are represented towards the left.

\[
(237) \quad \ldots \leq_{g(w)} w_{p_{1,000,000}} \leq_{g(w)} \ldots \leq_{g(w)} w_{p_2} \leq_{g(w)} w_{p_1}
\]

(slightly modified from Portner 2009:66)

In this ordering upon an infinite set of worlds, there are no best-ranked worlds. This is closely related to the controversy known as the ‘limit assumption’ (Portner 2009, see the
references cited there, e.g. Lewis 1975, Stalnaker 1987b). It addresses a theoretical question as to whether the orderings imposed by natural language always have a set of best-ranked worlds. Following Portner (1998), I assume the limit assumption in my modal analysis, i.e. there is no situation like that in (237).

**Necessity and possibility Modals in Kratzer’s modal theory**

Given the two conversational backgrounds, Kratzer’s (1981) semantic rules for necessity and possibility modals are given below:

(238) A proposition \( p \) is a human *necessity* in a world \( w \) with respect to a modal base \( f \) and an ordering source \( g \) if and only if the following condition is fulfilled:

For all \( u \in \bigcap f(w) \) there is a \( v \in \bigcap f(w) \) such that

(i) \( v \leq_{g(w)} u \) and

(ii) for all \( z \in \bigcap f(w) \): if \( z \leq_{g(w)} v \), then \( z \in p \).  

(Kratzer 1981:47-48)

(239) A proposition \( p \) is a human *possibility* in a world \( w \) with respect to a modal base \( f \) and an ordering source \( g \) if and only if its negation (that is its complement) is not a human necessity in \( w \) with respect to \( f \) and \( g \).  

(Kratzer 1981:48)

With the limit assumption, if \( \phi \) is a human *necessity*, then it is true in *all* those accessible worlds that are best-ranked. Again, with the limit assumption, if \( \phi \) is a human *possibility*, then it is true in *some* best-ranked relevant world. This can be formalized in terms of the BEST function (Portner 1998): it maps worlds to sets of worlds that are best-ranked according to the ordering source \( \leq_{g(w)} \) among the worlds determined by the modal base \( f(w) \).
BEST(f, g, w) = the set of worlds w’ in \( \cap f(w) \) such that there is no w” in \( \cap f(w) \) where w” \( \leq_{g(w)} w’ \).  

(240) (Portner 1998:771)

In Kratzer’s (1981) modal theory, there are three parameters of the interpretation function: a context c, a modal base f, and an ordering source g, i.e. \( \llbracket c, f, g \rrbracket \). The denotations of the English sentences with modals –must and –may are given in (241) and (242).

\[
\llbracket \text{must } \phi \rrbracket^{c,f,g} = \{w: \text{BEST}(f,g,w) \subseteq \llbracket \phi \rrbracket^{c,f,g}\}
\]

(241) \( \llbracket \text{may } \phi \rrbracket^{c,f,g} = \{w: \text{BEST}(f,g,w) \cap \llbracket \phi \rrbracket^{c,f,g} \neq \emptyset\} \)  

(242) (Portner 2006)

To summarize, in Kratzer’s modal theory, the two theoretical primitives, the modal base and the ordering source, determine the set of possible worlds accessible from the evaluation world. I analyze the modal contribution of Korean evidential utterances in terms of Kratzer’s modal theory in the following section.

## 5.3 Analysis of Korean Direct and Inferential Evidential Utterances

The Korean evidentials –te and –ney have both a temporal and an evidential meaning: (i) they locate an evidence acquisition time with respect to the utterance time, and (ii) the agent makes a sensory observation, and takes it as evidence for his/her inference of the existence of a described eventuality. On the basis of the empirical evidence presented in sections 3.3 and 4.3, I analyze the Korean evidentials –te and –ney as encoding a modal meaning in section 5.3.1, and present a formal analysis of Korean evidential utterances in 5.3.3.

### 5.3.1 The Meaning of the Korean Evidentials

As discussed in the preceding section, Kratzer (1977, 1981) defines accessible relations in terms of two conversational backgrounds; (i) a modal base and (ii) an ordering source.
I propose that the relevant conversational backgrounds for Korean evidential utterances with –te and –ney are the modal base SO_agent (Sensory Observation) and the ordering source ST/DX_agent (Stereotypical/Doxastic). Both SO_agent and ST/DX_agent are functions from world-time pairs to sets of propositions, and they are relativized to an agent which by default is the speaker and in certain contexts can be the addressee or the agent of an attitude, as discussed in Chapters 3 and 4. For simplicity, I henceforth eliminate the subscript agent from the two conversational backgrounds SO_agent and ST/DX_agent.

The Modal Base SO (Sensory Observation) for Korean evidentials

For each world \( w \) and time \( t \), \( SO(w,t) \) is the set of propositions \( p \) such that the agent has sensory evidence for \( p \) at \( t \) in \( w \), e.g. \( SO(w,t) = \{p_1, p_2\} \). Assuming that a proposition is a set of possible worlds, suppose \( p_1 = \{w_1, w_2, w_3\} \), \( p_2 = \{w_1, w_2, w_3, w_4\} \). Then, \( \bigcap SO(w,t) \), which is the conjunction of all the propositions for which the agent has sensory evidence at \( t \) in \( w \), is a set of worlds in which all the propositions in \( SO(w,t) \) are true, e.g. \( \bigcap SO(w,t) = \{p_1 \cap p_2\} = \{(w_1, w_2, w_3) \cap (w_1, w_2, w_3, w_4)\} = \{w_1, w_2, w_3\} \).

However, the modal base SO by itself does not restrict the accessible worlds sufficiently. For example, suppose the context described in (243), where the agent acquired visual and auditory evidence.

(243) Context: Yenghi woke up from the sound of water dripping early in the morning. She was still in bed, but saw through the small window that water was falling to the ground. Now, she says:

\begin{verbatim}
Pi-ka  o-0-te-la.
rain-nom fall-PRES-TE-DECL
\end{verbatim}

‘[I made a sensory observation that] it was raining.’

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(244) illustrates how the modal base SO determines the set of accessible worlds in the context given for (243).

(244) a. Modal base \( SO(w, t) = \{p_1, p_2\} \)

- \( p_1 = \) Water is falling to the ground in \( w \).
- \( p_2 = \) There’s the sound of water dripping in \( w \).

b. \( \bigcap SO(w, t) = \{p_1 \cap p_2\} = \{\{w_1, w_2, w_3\} \cap \{w_1, w_2, w_3, w_4\}\} = \{w_1, w_2, w_3\} \)

- \( w_1 \) in which it was raining outside.
- \( w_2 \) in which someone upstairs was pouring water out the window.
- \( w_3 \) in which the water pipe in the apartment was leaking.
- \( w_4 \) in which Yenghi’s roommate was washing dishes.

In this context, all the worlds \( w_1, w_2 \) and \( w_3 \) are included in the accessible worlds determined by the modal base SO, i.e. they are in \( \bigcap SO(w, t) \). This is because the worlds \( w_1, w_2 \) and \( w_3 \) are where all the propositions \( p_1 \) and \( p_2 \) in the modal base \( SO(w, t) \) are true. In contrast, \( w_4 \) is not included in the accessible worlds because \( p_1 \) is false at \( w_4 \).

However, crucially, the prejacent of the evidential utterance in (243) is not asserted to be true in all of the worlds \( w_1, w_2, w_3 \). It is asserted to be true in \( w_1 \) in which it was raining outside. Given this, we need another conversational background that can restrict the accessible worlds sufficiently.

**The ST/DX (Stereotypical/Doxastic) Ordering Source for Korean evidentials**

I propose that the Stereotypical/Doxastic (ST/DX) ordering source is required for the analysis of the meaning of Korean evidential utterances. The ordering source is contextually determined. Any contextual information that the agent takes as relevant to his/her expectation about the development of the worlds determined by the modal base SO, can impose an
ordering on the set of accessible worlds. Consider \( \text{ST/DX}(w, t) \), which is a set of propositions, for the context given in (243).

(245) Ordering source \( \text{ST/DX}(w, t) \) for (243) = \{\( p_3 \), \( p_4 \), \( p_5 \), ...\}

- \( p_3 \) = It’s the rainy season in \( w \).
- \( p_4 \) = The guy who lives upstairs is on vacation in \( w \).
- \( p_5 \) = The water pipe of the speaker’s apartment was recently repaired in \( w \).
- ....

\( \text{ST/DX}(w, t) \) induces an ordering on the worlds \( w_1, w_2, w_3 \), which are included in \( \bigcap \text{SO}(w, t) \), in the way that \( w_1 \) is better-ranked than \( w_2 \) and \( w_3 \).

In other words, in (243), based on the sensory evidence (specified in the modal base), the speaker would make a hypothesis about what is happening at the evidence acquisition time. It would give the speaker various possible scenarios, e.g. \( w_1, w_2, w_3 \) in (244b). The speaker would rank them according to her expectations and beliefs about how the world develops at the evidence acquisition time under various contextual considerations. Considering all the possible scenarios, she would conclude that the most plausible scenario among \( w_1, w_2, w_3 \) is that it was raining at the evidence acquisition time \( t \).

**Translations of the Korean evidentials –te and –ney**

Given that the SO and the ST/DX are functions from world-time pairs to sets of propositions, I redefine Portner’s BEST-function as follows:

(246) \( \text{BEST}(f, g, w, t) = \text{the set of worlds } w' \text{ in } \bigcap f(w, t) \text{ such that there is no } w'' \text{ in } \bigcap f(w, t) \text{ where } w'' \leq_{g(w, t)} w' \).
The BEST-function in (246) is incorporated into the translation of –te in (247). It maps world-time pairs to sets of worlds which are the most highly ranked according to ST/DX among the worlds determined by SO. The temporal contribution of –te is a temporal precedence relation between the two times \( t'' \) and \( t \) in (247).

\[
\text{–te} \Rightarrow \lambda p_{<s,<i,t>}\lambda w:\lambda t[t'' < t \land \forall w'[w' \in \text{BEST}(SO, ST/DX, w, t'') \rightarrow p(w')(t'')]]
\]

According to (247), among the worlds in which all of the facts given by the modal base SO hold, the worlds most highly ranked by the ordering source ST/DX are the ones in which \( p \) is true. The speaker does not assert that \( p \) is realized in the actual world, but in the most highly ranked relevant worlds. It remains open whether the actual world is one of the most highly ranked worlds.

The evidential –ney has temporal and evidential meanings (just like the evidential –te does), but it is also a sentence-ending declarative marker. I analyze its temporal and evidential meanings in a parallel way to those of the evidential –te, but it is of the same type as the sentence-ending declarative markers in (231), i.e. \( \langle\langle s, \langle i, t\rangle\rangle, t\rangle \). The translation of the evidential –ney is given in (248).

\[
\text{–ney} \Rightarrow \lambda p_{(s,\langle i, t\rangle)}[t'' \circ \text{now} \land \forall w'[w' \in \text{BEST}(SO, ST/DX, w^*, t'') \rightarrow p(t'')(w')]]
\]

Just like the translation of –te in (247), the translation of –ney in (248) says that \( p \) is not true in the actual world, but it is true in the worlds that are determined by the two conversational backgrounds, i.e. the modal base SO and the ordering source ST/DX. The temporal contribution of the evidential –ney is a temporal overlap between the evidence acquisition time \( t'' \) and the utterance time now in (248).
5.3.2 A Syntactic and Semantic Derivation

As discussed in Chapter 3, the evidentials –te and –ney occurring right after tense give rise to direct or inferential evidential readings, depending on which tense –te and –ney occur with. The relevant examples are repeated below:

(249) a. Context: Yesterday Yenghi was looking out a window. Now, she says:

    Pi-ka o-ass/0/kyess-te-la.
    rain-NOM fall-PAST/PRES/FUT-te-DECL.
    ‘[I made a sensory observation that] it was raining.’ (with present tense)
    ‘[I inferred that] it had rained.’ (with past tense)
    ‘[I inferred that] it would rain.’ (with future tense)

b. Context: Now Yenghi is looking out a window, and says:

    Pi-ka o-ass/0/kyess-ney.
    rain-NOM fall-PAST/PRES/FUT-ney-DECL.
    ‘[I make a sensory observation that] it is raining.’ (with present tense)
    ‘[I infer that] it rained.’ (with past tense)
    ‘[I infer that] it will rain.’ (with future tense)

The syntactic derivation

In the syntactic derivation of (249a), tense is first applied to the untensed sentence pi-ka o ‘rain-NOM fall’, which produces a tensed sentence of category $s'_{+[T]}$. Then, the evidential –te is applied to the tensed sentence: the evidential –te is of category of $s'_{+[T]} \setminus s'_{+[T]}$, and it combines with the tensed sentence of category $s'_{+[T]}$ to its left, i.e. by means of Backward function application (BA). The declarative marker –la, of category $s \setminus s'_{+[T]}$, is finally applied to the evidential sentence, e.g. pi-ka o-ass-te ‘rain-NOM fall-PAST-te’, by means of the Backward function application (BA), too.
The derivational step of the past tensed evidential sentence in (249a) is presented in Figure 5.3. Sentences with other tenses undergo the same syntactic derivations as those with past tense.

The syntactic derivation of the past tensed evidential sentence with –ney is given in Figure 5.4. The syntactic category of the evidential –ney differs from that of the evidential –te, just like their semantic types are different, as discussed in (247) and (248): the evidential -ney is of category $s \setminus s[+T]_1$, which is the same as the sentence-ending declarative marker. It combines with the tensed sentence of category $s[+T]_1$ by means of BA, which results in a sentence of category $s$.

Figure 5.3: Syntactic derivation for (249a): rain-nom fall-past-te-decl

Figure 5.4: Syntactic derivation for (249b): rain-nom fall-past-ney.decl
The semantic derivation

The semantic derivations of the sentences in (249) correspond to the above syntactic derivations in Figures (5.3) and (5.4).

First, the translation of the evidential –te in (247) combines with that of a tensed clause in (230), which gives rise to the following translations.

\[(250)\]

a. \(\text{pi-ka o-∅-te} \) ‘(I made a sensory observation that) it was raining’ \(\Rightarrow\)
\[\lambda w.\lambda t [t'' < t \wedge \forall w'[w' \in \text{BEST}(\text{SO/ST/DX}, w, t'') \rightarrow (t'' \leq t' \wedge \text{AT}(t', w', \text{rain}'))]]\]

b. \(\text{pi-ka o-ass-te} \) ‘(I inferred) it had rained’ \(\Rightarrow\)
\[\lambda w.\lambda t [t'' < t \wedge \forall w'[w' \in \text{BEST}(\text{SO/ST/DX}, w, t'') \rightarrow (t' < t'' \wedge \text{AT}(t', w', \text{rain}'))]]\]

c. \(\text{pi-ka o-kyess-te} \) ‘(I inferred) it would rain’ \(\Rightarrow\)
\[\lambda w.\lambda t [t'' < t \wedge \forall w'[w' \in \text{BEST}(\text{SO/ST/DX}, w, t'') \rightarrow (t'' < t' \wedge \text{AT}(t', w', \text{rain}'))]]\]

In (250), it’s noteworthy that there is an interaction between the evidential –te and tenses. The translation of –te takes the translation of the tensed sentence as its argument, and thus the evaluation world and time of the tensed sentences are provided by the meaning of –te that encodes a temporal and modal meaning itself. Due to the interactions, the two variables \(w\) and \(t\) in the translations of the tensed sentences in (230) are not finally interpreted as the actual world and the utterance time, but as the best ranked worlds and the evidence acquisition time, respectively.

Finally, the translation of the declarative marker –la in (231) is applied to (250), and it yields the final representations in (251) (due to the meaning of the AT-predicate in (227)). The translations in (251) are the same except for the temporal relation between the evidence acquisition time \(t''\) and the reference time of the raining event \(t'\), which is constrained by
tense. The temporal relation, which also affects the evidential interpretation of the sentence, is underlined in (251).

(251)  

\begin{align*}
\text{a. } & \text{pi-ka o-∅-te-la ‘(I made a sensory observation that) it was raining’ } \Rightarrow \\
& [t'' \prec \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t'' \leq t' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}

\begin{align*}
\text{b. } & \text{pi-ka o-ass-te-la ‘(I inferred) it had rained’ } \Rightarrow \\
& [t'' \prec \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t' < t'' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}

\begin{align*}
\text{c. } & \text{pi-ka o-kyess-te-la ‘(I inferred) it would rain’ } \Rightarrow \\
& [t'' \prec \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t'' < t' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}

The evidential utterances with –ney are semantically derived in the same fashion. The evidential –ney combines with the tensed sentences in (230), which results in the final representations in (252).

(252)  

\begin{align*}
\text{a. } & \text{pi-ka o-∅-ney ‘(I make a sensory observation that) it is raining’ } \Rightarrow \\
& [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t'' \leq t' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}

\begin{align*}
\text{b. } & \text{pi-ka o-ass-ney ‘(I infer) it rained’ } \Rightarrow \\
& [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t' < t'' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}

\begin{align*}
\text{c. } & \text{pi-ka o-kyess-ney ‘(I infer) it will rain’ } \Rightarrow \\
& [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST} (\text{SO}, \text{ST}/\text{DX}, w'', t'') \Rightarrow (t'' < t' \land \exists e [\text{rain}'(w')(e) \land \\
& \tau (e, w') \subseteq t'])]]
\end{align*}
The two variables in (251) and (252), \( t'' \) (for the evidence acquisition time) and \( t' \) (for the reference time of the raining eventuality), are not existentially bound. The exact temporal locations of the two time intervals are contextually given, as discussed in section 5.1.2.

In (251) and (252), the temporal contributions of the evidentials –te and –ney are represented in the first conjunct: –te locates the evidence acquisition time prior to the utterance time \( (t'' \prec \text{now} \text{ in (251)}) \), and –ney locates the evidence acquisition time at the utterance time \( (t'' \bowtie \text{now} \text{ in (252)}) \). The modal contributions of the evidentials are captured by the universally-quantified conversational backgrounds: the modal base SO, and the ordering source ST/DX.

According to the final translation above, among the worlds in which all of the facts given by the modal base SO hold, the worlds most highly ranked by the ordering source ST/DX are the ones in which the event of raining is instantiated. In other words, by uttering the evidential sentences with –te and –ney, the speaker does not assert that the raining event is realized in the actual world. He/she asserts that the raining event is realized in the most highly ranked relevant worlds. It might turn out that the actual world is one of the most highly ranked worlds, but it is not asserted by the evidential utterances with –te and –ney.

(251) and (252) correctly represent the temporal relation between relevant time intervals, too. For example, consider the past tensed –te utterance in (251b). The evidence acquisition time \( t'' \) is prior to the utterance time now, and the event time of the raining event \( \tau(e, w') \) is included in the reference time \( t' \) which is prior to the evidence acquisition time \( t'' \). In other words, the raining event is instantiated in some past time before the speaker acquired sensory evidence prior to the utterance time.
The three evidential sentences with –te in (251) are the same, except for the temporal relations between the evidence acquisition time \( t'' \) and the reference time of the described eventuality \( t' \). This is true of the evidential sentences with –ney in (252). The evidentials –te and –ney encode the ‘sensory observation’ meaning in their semantics. But the direct vs. inferential evidential meanings, i.e. whether the acquired sensory evidence is direct or inferential for a described eventuality, follow from the temporal relation between the two relevant time intervals. If the evidence acquisition time and the reference time of a described eventuality overlap, then the speaker could make a sensory observation of the ongoing state of a described eventuality. By contrast, if the evidence acquisition time precedes or follows the reference time of a described eventuality, then it is impossible for the speaker to acquire direct evidence for a described eventuality. Instead, she makes inferences on the existence of a described eventuality with evidence available at the evidence acquisition time. This results in an inferential evidential reading.

5.3.3 Interactions between Evidentials and Tense

My analysis presented in the preceding section appeals to our world knowledge about which kind of evidence is available or unavailable in a particular temporal relation between relevant eventualities – for example, we cannot make a sensory observation of an eventuality that has not yet occurred. Similar observations have been made for evidentials in Sherpa, as shown by Woodbury’s (1986) ‘testable cross-linguistic predictions’ in the following quote:

(253) When the time reference of an evidential category is different from that of the proposition with which it occurs, the resulting evidential value will be nonexperiential. (Woodbury 1986:196)
From a perspective of a formal representation, Faller (2004) has also made a similar proposal about the meaning of the Quechua ‘non-experienced past’ -sqa. The indirect evidential reading with -sqa is analyzed as arising from its meaning of ‘the absence of perceptual accessibility to the eventuality e described (Faller 2004:62)’, more specifically, non-overlap of the speaker’s spatio-temporal location with that of a described eventuality.

Chung’s (2005, 2007) analysis of Korean evidential sentences with –te and –ney builds on Faller (2004). Their direct and inferential evidential readings are formally captured by means of the three trace functions, discussed in section 3.5. The P-trace function represents the time and the location of the speaker’s perception. The e-trace function represents the time and the location of a described eventuality, and the v-trace function represents those of the evidence of a described eventuality. (In Chung 2005, 2007, the first two trace functions are adopted from Faller 2004.)

(254) a.  \( e\)-trace\( (e) = \{\langle t, l \rangle \mid t \subseteq \tau(e) \land \text{at}(e, t, l)\} \)

\( \text{at}(v, t, l) \) is true iff the eventuality \( e \) takes place at location \( l \) at time \( t \).

b.  \( P\)-trace\( (s_c) = \{\langle t, l \rangle \mid t \subseteq \tau(s_c) \land \text{perceive}(s_c, t, l)\} \)

\( \text{perceive}(s_c, t, l) \) is true iff the speaker \( s_c \) perceives location \( l \) at time \( t \).

c.  \( v\)-trace\( (e) = \{\langle t, l \rangle \mid \exists v[\text{evidence-for}(v, e) \land \text{at}(v, t, l)]\} \)

\( \text{at}(v, t, l) \) is true iff the evidence \( v \) for the occurrence of the eventuality \( e \) appears at a location \( l \) at time \( t \). (Chung 2007:196, 203)

Chung (2005, 2007) accounts for the direct and inferential evidential readings in terms of the above trace functions. Recall that what have been analyzed as tenses in the literature and my analysis, i.e. –∅, -ess and -kyess, are analyzed as evidentials in Chung’s analysis. The inferential evidentials -ess and -kyess encode that the speaker’s spatio-temporal location does not overlap with that of a described eventuality, but overlaps with that of the
evidence of a described eventuality, as shown in (255b–c). In contrast, the direct evidential
–∅ encodes that the speaker’s spatio-temporal location overlaps with that of a described
eventuality, but does not overlap with that of the evidence of a described eventuality, as
shown in (255a).

(255) a. \([-∅]^c\)
   \(= \lambda P\lambda L\exists e[P(e) \land \tau(L) \subseteq \tau(e) \land L \subseteq v\text{-}trace(e) \land e\text{-}trace(e) \cap P\text{-}trace(s_c) \neq \emptyset]\)
   (simplified as \([-∅]^c = \lambda P\lambda L\exists e[P(e) \land L \subseteq e\text{-}trace(e)]\)

b. \([-\text{ess}]^c\)
   \(= \lambda P\lambda L\exists e[P(e) \land \tau(e) < \tau(L) \land L \subseteq v\text{-}trace(e) \land e\text{-}trace(e) \cap P\text{-}trace(s_c) = \emptyset]\)

c. \([-\text{kyess}]^c\)
   \(= \lambda P\lambda L\exists e[P(e) \land \tau(L) < \tau(e) \land L \subseteq v\text{-}trace(e) \land e\text{-}trace(e) \cap P\text{-}trace(s_c) = \emptyset]\)
   (Chung 2007:207)

My account for the direct and inferential evidential readings is conceptually similar
to Chung’s account because the temporal (non-)overlap of the speaker and a described
eventuality is taken central to both analyses. But unlike Chung’s analysis, I do not argue
that a particular element encodes the temporal relation between two relevant eventualities.
In the proposed analysis, the temporal relation between the evidence acquisition time and
the reference time of a described eventuality is compositionally derived from the temporal
meanings of the evidentials and their co-occurring tenses. Tenses that occur with –te and –
ney do not encode any evidential meaning, and thus they are not ambiguous (contra Chung
2005, 2007). They constrain the temporal relation between an evidence acquisition time
and the reference time of a described eventuality, in the same way as Korean tenses are

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interpreted in an embedded context. The direct and inferential evidential readings indirectly arise from the temporal relation determined by the interaction of the evidentials and tense.

5.4 Analysis of Korean Reportative Evidential Utterances

A reportative evidential reading arises from the Korean evidential utterances when the evidentials –te and –ney occur right after the declarative marker –ta, as discussed in Chapter 4. I extend the modal analysis proposed in the preceding section to the reportative evidential interpretations with –te and –ney.

5.4.1 The Meaning of the Korean Embedded Declarative Marker

In this section, I argue that in Korean evidential utterances, a reportative evidential reading, frequently translated as ‘I was told’ or ‘I am told’, arises from the interaction between the evidentials and the embedded declarative marker –ta.

Eventualities introduced by embedded mood morphemes

If the evidentials –te and –ney embed the declarative marker –ta, it introduces an eventuality of someone making a statement, and the speaker makes a sensory observation of the asserting-eventuality. The relevant examples are reproduced below. As suggested by the contextual information, (256) is felicitous when the speaker made/makes a sensory observation of the matrix clause subject Chelswu making a statement. The clause boundaries are represented with square brackets below.
a. Context: Chelswu told Sumi about the weather. The speaker overheard it. Now, the speaker answers the question about what Chelswu said to Sumi yesterday.

Chelswu-ka [pi-ka o-ass/n/kyess-\textbf{ta}]-te-la.
Chelswu-nom rain-nom fall-past/pres/fut-decl-te-decl

‘[I made a sensory observation that] Chelswu stated that it rained.’ (with past tense)

‘[I made a sensory observation that] Chelswu stated that it is raining.’ (with present tense)

‘[I made a sensory observation that] Chelswu stated that it will rain.’ (with future tense)

b. Context: Chelswu is talking to Minswu about the weather. The speaker is overhearing it with Yenghi, who does not understand it. So the speaker is repeating it to Yenghi now:

Chelswu-ka [pi-ka o-ass/n/kyess-\textbf{ta}]-ney.
Chelswu-nom rain-nom fall-past/pres/fut-decl-ney-decl

‘[I make a sensory observation that] Chelswu is stating that it rained.’ (with past tense)

‘[I make a sensory observation that] Chelswu is stating that it is raining.’ (with present tense)

‘[I make a sensory observation that] Chelswu is stating that it will rain.’ (with future tense)

The interpretation of (256) with the embedded declarative marker patterns with comparable sentences with other embedded mood markers. Consider (257) and (258), which illustrate that the Korean evidentials –\textit{te} and –\textit{ney} can embed all the mood markers. Their interpretations differ in terms of which eventuality the matrix clause subject Chelswu is
involved in: (i) making a statement in the declarative –ta-marked sentences like (257a) and (258a), (ii) questioning in the interrogative –nya-marked sentences like (257b) and (258b), (iii) commanding in the imperative –ala/ela-marked sentences like (257c) and (258c), and (iv) proposing in the propositive –ca-marked sentences like (257d) and (258d). The embedded mood markers are in boldface in (257) and (258).

(257) Context: Chelswu said something to Sumi yesterday. The speaker overheard it.

Now, the speaker answers the question about what Chelswu said to Sumi yesterday.

      Chelswu-nom Minswu-nom leave-past-decl-te-decl
      ‘[I had auditory evidence that] Chelswu stated that Minswu left.’

      Chelswu-nom Minswu-nom leave-past-q-te-decl
      ‘[I had auditory evidence that] Chelswu asked whether Minswu left.’

   c. Chelswu-ka [ttena-la]-te-la.
      Chelswu-nom leave-imp-te-decl
      ‘[I had auditory evidence that] Chelswu ordered (Sumi) to leave.’

   d. Chelswu-ka [ttena-ca]-te-la.
      Chelswu-nom leave-prop-te-decl
      ‘[I had auditory evidence that] Chelswu proposed (to Sumi) that they leave.’

(258) Context: Chelswu is saying something to Sumi. The speaker is overhearing it with Yenghi, who does not understand it. Now the speaker answers Yenghi’s question about what Chelswu is saying:

      Chelswu-nom Minswu-nom leave-past-decl-ney.decl
      ‘[I have auditory evidence that] Chelswu stated that Minswu left.’

      Chelswu-nom Minswu-nom leave-past-q-ney.decl
      ‘[I have auditory evidence that] Chelswu asked whether Minswu left.’
c. Chelswu-ka [ttena-la]-ney.
   Chelswu-nom leave-IMP-NEY.DECL
   ‘[I have auditory evidence that] Chelswu ordered (Sumi) to leave.’

d. Chelswu-ka [ttena-ca]-ney.
   Chelswu-nom leave-PROP-NEY.DECL
   ‘[I have auditory evidence that] Chelswu proposed (to Sumi) that they leave.’

In the given context, the speaker was/is not directly told anything by Chelswu, who is the matrix clause subject. But the speaker overhears/overheard what was/is asserted, questioned, ordered, or proposed by Chelswu. In other words, the speaker actually made/makes an auditory observation of the eventuality introduced by an embedded mood marker, i.e. Chelswu’s asserting in (257a) and (258a), Chelswu’s questioning in (257b) and (258b), Chelswu’s commanding in (257c) and (258c), and Chelswu’s proposing in (257d) and (258d). Crucially, the sentences in (257) and (258) are also felicitous when the speaker made other sensory observations of the eventuality introduced by an embedded mood marker, as discussed in section 4.2.1. See (189) and (190) for the cases where the speaker made a visual or tactile observation, respectively.

Among the above sentences in (257)–(258), only those with an embedded declarative marker can give rise to a reportative evidential reading, according to which the speaker was/is told about a proposition which is asserted to be true by the matrix clause subject Chelswu. This is because (257a) and (258a), but not the other ones, are felicitous in contexts in which the matrix clause subject performs the speech act of asserting towards the speaker, as illustrated below.
This dissertation presents a compositional analysis of sentences with the embedded declarative marker –ta like (259), but this line of formal analysis can be extended to sentences with other embedded mood markers if appropriate semantic analyses of questions, imperatives, propositives are assumed (See, e.g. Hamblin 1973, Groenendijk and Stokhof 1984 for questions, Han 1998 for imperatives).

**Translation of the embedded declarative marker –ta**

I propose that the embedded declarative marker –ta introduces an eventuality of the individual \( x \) asserting a sentence radical \( p \), and it is instantiated at \( t \) in \( w \). This is captured by the predicate \( \text{assert}' \) in (260), which is a function from a world to sets of eventualities (of \( x \)'s asserting \( p \)).

(260) \(-\text{ta} \text{ '(embedded) decl'} \Rightarrow \lambda p_{\ll},i,t,s> . \lambda x . \lambda w . \lambda t . [\text{AT}(t, w, \text{assert}' (x, p))]\)

According to (260), the individual \( x \) is bound by a \( \lambda \)-operator. So (260) can account for the sentences where an overt subject is realized and it is interpreted as the person who asserts \( p \), e.g. *Chelswu* in (259). But as discussed in Chapter 4, it is possible for such
an overt subject to not occur in a sentence, but the meaning about who asserted \( p \) can be contextually given, e.g. see (201) and (202). The focus of this dissertation is not the issue of how many arguments the eventuality of asserting requires, e.g. whether it requires an individual variable for an assert-er, and another individual variable for an assert-ee. Rather, in this dissertation, I develop a compositional analysis of sentences like (259) in which an overt subject (for an assert-er) is realized, but an indirect object (for an assert-ee) is not realized. However, in a fuller analysis that deals with all variants of the sentences under discussion, the analysis proposed in this dissertation can be easily extended to them. For example, the sentences without an overt subject can be analyzed as the variable \( x \) in (260) being existentially bound. I assume the translation of the embedded declarative marker \( –ta \) in (260), without further discussion.

### 5.4.2 A Syntactic and Semantic Derivation

In this section, I provide a syntactic and semantic derivation of the Korean utterances in which the evidentials \( –te \) and \( –ney \) embed the declarative marker \( –ta \), and can give rise to a reportative evidential reading depending on contextual information. I present a compositional analysis of the sentences in (261). The past tensed declarative sentence is embedded by the evidential \( –te \) in (261a), and by the evidential \( –ney \) in (261b). The evidential sentences with other tenses receive a formal analysis in a parallel way.

(261) a. Context: Yesterday Chelswu talked to Yenghi about the weather. Now, Yenghi says:

\[
\text{Chelswu-ka [pi-ka o-ass-ta]-te-la.} \\
\text{Chelswu-nom rain-nom fall-past-decl-te-decl} \\
\text{‘[I made a sensory observation that] Chelswu stated that it had rained.’}
\]
b. Context: Now Chelswu is talking to Yenghi and Mary about the weather. Mary
does not understand Korean well, so Yenghi is interpreting it to Mary now:

Chelswu-ka  [pi-ka  o-ass-ta]-ney.
Chelswu-nom rain-nom fall-PAST-DECL-NEY.DECL

‘[I make a sensory observation that] Chelswu is stating that it rained.’

The syntactic derivation

First, the tensed sentence is produced from the untensed sentence (of category \( s'_{\text{-T}} \)) and
tense (of category \( s'_{\text{+T}} \backslash s'_{\text{-T}} \)), as discussed with simple sentences (Figure 5.1) and
direct/inferential evidential sentences (Figure 5.3). Then, the tensed sentence combines with
the embedded declarative marker –ta. The syntactic category of the embedded declarative
marker corresponds to its semantic type: \( (s'_{\text{+T}} \backslash n) \backslash s'_{\text{+T}} \). Then, the embedded declarative
sentence, of category \( s'_{\text{+T}} \backslash n \), is applied to the matrix clause subject, of category n,
by means of Backward function application (BA). Next, the evidential –te is applied to it,
and results in a tensed sentence of category \( s'_{\text{+T}} \). Finally, the sentence-ending declarative
marker –la is applied to it. These derivational steps are presented in Figure 5.5.

\[
\begin{align*}
\text{pi-ka o-} & : s'_{\text{-T}} \quad \text{-ass} : s'_{\text{+T}} \backslash s'_{\text{-T}} \quad \text{BA} \\
\text{pi-ka o-ass-} & : s'_{\text{+T}} \quad \text{-ta} : (s'_{\text{+T}} \backslash n) \backslash s'_{\text{+T}} \quad \text{BA} \\
\text{Chelswu-ka} : n & \quad \text{pi-ka o-ass-ta} : s'_{\text{+T}} \backslash n \quad \text{BA} \\
\text{Chelswu-ka pi-ka o-ass-ta} : s'_{\text{+T}} & \quad \text{-te} : s'_{\text{+T}} \backslash s'_{\text{+T}} \quad \text{BA} \\
\text{Chelswu-ka pi-ka o-ass-ta-te} : s'_{\text{+T}} & \quad \text{-la} : s'_{\text{+T}} \backslash s'_{\text{+T}} \quad \text{BA} \\
\text{Chelswu-ka pi-ka o-ass-te-la} & : s
\end{align*}
\]

Figure 5.5: Syntactic derivation for (261a): rain-nom fall-PAST-DECL-TE-DECL

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The sentence in (261b) is syntactically derived in the same fashion, as presented in Figure 5.6.

Figure 5.6: Syntactic derivation for (261b): rain-nom fall-past-decl-ney.decl.

The semantic derivation

The semantic derivation corresponds to the syntactic derivation in Figures 5.5 and 5.6. First, the embedded declarative marker –ta in (260) combines with the tensed sentences in (230), and it results in (262). The underlined part in (262) comes from (230) after varying the variables w, t in (230) with w₁, t₁ below, respectively.

(262) \[ pi-ka \ o-ass-ta \ ‘rain-nom \ fall-past-decl’ \Rightarrow \lambda x \lambda w. \lambda t. [AT(t, w, assert'(x, \lambda w_1. \lambda t_1 [t' < t_1 \land AT(t', w_1, \text{rain'}))]]) \]

The translation of the overt subject Chelswu, i.e. c, is applied to (262), which results in (263).

(263) \[ Chelswu-ka pi-ka o-ass-ta ‘Chelswu-nom \ rain-nom \ fall-past-decl’ \Rightarrow \lambda w. \lambda t. [AT(t, w, assert'(c, \lambda w_1. \lambda t_1 [t' < t_1 \land AT(t', w_1, \text{rain'}))]]) \]
Now, (263) is applied to the translation of the evidential –te in (247). After a λ-conversion in the underlined part in (264), we have the translation in (265).

\[
(264) \quad \text{Chelswu-ka pi-ka o-ass-ta-te 'Chelswu-nom rain-nom fall-past-decl-te'} \Rightarrow \\
\lambda w \lambda t \lambda w'[t'' < t \land \forall w'[w' \in \text{BEST}(\text{SO}, \text{ST}/\text{DX}, w, t'')] \Rightarrow \\
\lambda w \lambda t[\text{AT}(t, w, \text{assert}'(c, \lambda w_1, \lambda t_1[t' < t_1 \land \text{AT}(t', w_1, \text{rain}')))](w')(t'')] \\
\]

(265) \quad \text{Chelswu-ka pi-ka o-ass-ta-te 'Chelswu-nom rain-nom fall-past-decl-te'} \Rightarrow \\
\lambda w \lambda t \lambda w'[t'' < t \land \forall w'[w' \in \text{BEST}(\text{SO}, \text{ST}/\text{DX}, w, t'')] \Rightarrow \\
[\text{AT}(t'', w', \text{assert}'(c, \lambda w_1, \lambda t_1[t' < t_1 \land \text{AT}(t', w_1, \text{rain}')))))] \\
\]

Finally, the translation of the sentence-ending declarative marker –la in (231) is applied to (265). The declarative marker –la binds the two variables w and t in (265) as the actual world \(w^*\) and the utterance time now, respectively.

\[
(266) \quad \text{Chelswu-ka pi-ka o-ass-ta-la 'Chelswu-nom rain-nom fall-past-decl-te-decl'} \Rightarrow \\
[t'' < \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO}, \text{ST}/\text{DX}, w^*, t'')] \Rightarrow \\
[\text{AT}(t'', w', \text{assert}'(c, \lambda w_1, \lambda t_1[t' < t_1 \land \text{AT}(t', w_1, \text{rain}')))))] \\
\]

The evidential –ney also combines with (263), and results in (267).

\[
(267) \quad \text{Chelswu-ka pi-ka o-ass-ta-ney 'Chelswu-nom rain-nom fall-past-decl-ney.decl'} \Rightarrow \\
[t'' \circ \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO}, \text{ST}/\text{DX}, w^*, t'')] \Rightarrow \\
[\text{AT}(t'', w', \text{assert}'(c, \lambda w_1, \lambda t_1[t' < t_1 \land \text{AT}(t', w_1, \text{rain}')))))] \\
\]

The local evaluation world-time of the embedded tensed sentence, i.e. \(w_1\) and \(t_1\), are identified with the attitude holder’s world-time, i.e. the world \(w^*\) and the time \(t''\) where the eventuality of Chelswu’s asserting is instantiated. This has been noted as ‘believer’s now’ or ‘attitude holder’s now’ in the semantics of propositional attitude verbs like the verbs of
saying (von Stechow 1995, Abusch 1997, Gennari 2003 among others). After identifying the variables due to the ‘attitude holder’s now’, we have the near-final representations of the sentences under discussion as follows:

(268)  
\[ \text{Chelswu-ka pi-ka o-ass-ta-te-la ‘Chelswu-nom rain-nom fall-past-decl-te-decl’ } \Rightarrow \]
\[ [t'' < \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, } w^*, t'') \rightarrow \]
\[ \text{[AT}(t'', w', \text{assert}'(c, \lambda w' \lambda t''[t' < t'' \land \text{AT}(t', w', \text{rain}')))])]] \]

(269)  
\[ \text{Chelswu-ka pi-ka o-ass-ta-ney ‘Chelswu-nom rain-nom fall-past-decl-ney.decl’ } \Rightarrow \]
\[ [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, } w^*, t'') \rightarrow \]
\[ \text{[AT}(t'', w', \text{assert}'(c, \lambda w' \lambda t''[t' < t'' \land \text{AT}(t', w', \text{rain}')))])]) \]

The above representations are the same as the following ones due to the meaning of the AT-predicate.

(270)  
\[ \text{Chelswu-ka pi-ka o-ass-ta-te-la ‘Chelswu-nom rain-nom fall-past-decl-te-decl’ } \Rightarrow \]
\[ [t'' < \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, } w^*, t'') \rightarrow \]
\[ \exists e_1[\text{assert}'(c)(\lambda w' \lambda t''[t' < t'' \land \exists e_2[\text{rain}'(w')(e_2) \land \tau(e_2, w') \subseteq t')]](w')(e_1) \]
\[ \land \tau(e_1, w') \subseteq t'')] \]

(271)  
\[ \text{Chelswu-ka pi-ka o-ass-ta-ney ‘Chelswu-nom rain-nom fall-past-decl-ney.decl’ } \Rightarrow \]
\[ [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, } w^*, t'') \rightarrow \]
\[ \exists e_1[\text{assert}'(c)(\lambda w' \lambda t''[t' < t'' \land \exists e_2[\text{rain}'(w')(e_2) \land \tau(e_2, w') \subseteq t')]](w')(e_1) \]
\[ \land \tau(e_1, w') \subseteq t'')] \]

There are two free variables in (270) and (271), \( t'' \) (for the evidence acquisition time) and \( t' \) (for the reference time of the raining eventuality). They are not existentially bound in the formal representations. The exact temporal locations of the two time intervals are contextually determined, as discussed in section 5.1.2.
According to (270) and (271), the sentences under discussion have the same temporal and modal meaning as those discussed in the preceding section: (i) –te and –ney locate the evidence acquisition time with respect to the utterance time (as represented in the first conjunct above), and (ii) the speaker asserts that a certain eventuality is instantiated in his/her best ranked worlds determined by the modal base SO and the ordering source ST/DX (as represented in the second conjunct above). But the crucial difference from the direct/inferential evidential utterances is that (270) and (271) involve an eventuality of Chelswu’s asserting. Thus, the raining event is instantiated in Chelswu’s belief world, not in the speaker’s belief world. This accounts for why the empirical pattern discussed in section 4.3, e.g. the reportative evidential utterances are felicitous when they are followed by the negation of their embedded propositions, see (199) and (200). This is because the embedded proposition is asserted to be true by the matrix clause subject, not by the speaker. What is asserted by the speaker is that in his/her belief world, there is a Chelswu-asserting eventuality, but the speaker does not commit himself/herself to the truth value of the embedded proposition, e.g. it rained.

(270) and (271) correctly capture the temporal interpretations of the given sentences, too. In (270), the time interval \( t'' \) is the evidence acquisition time and also the reference time of a Chelswu-asserting eventuality \( (e_1) \). It is located prior to the utterance time \( \text{now} \), as represented in the first conjunct, i.e. \( t'' < \text{now} \). The event time of a Chelswu-asserting eventuality is included within its reference time, as represented in the last conjunct, i.e. \( \tau(e_1, w') \subseteq t'' \). The time interval \( t' \), which precedes the evidence acquisition time \( t'' \), is the reference time of a raining eventuality \( (e_2) \). The event time of a raining eventuality is included within this reference time, i.e. \( \tau(e_2, w') \subseteq t' \). In other words, the raining eventuality
is instantiated in some past time before the speaker acquired sensory evidence prior to the utterance time.

My analysis also correctly captures that the sentences under discussion are felicitous in contexts for all subtypes of reportative evidence, as discussed in section 4.2.2: second-hand, third-hand, and folklore. In the proposed analysis, the speaker acquires a sensory observation of someone making a statement, e.g. Chelswu’s asserting in (270) and (271). But it is unspecified whether the assert-er, e.g. Chelswu in (270) and (271), is a direct witness of the eventuality denoted by the embedded proposition, e.g. a raining event in (270) and (271). This is because he/she asserts the embedded proposition without specifying its source of information. What is asserted by the –te and –ney sentences is that the speaker has sensory evidence for someone’s asserting, but the source of information about the embedded proposition is not specified.

To summarize, in this section, I extended a modal analysis to the Korean evidential utterances that can give rise to a reportative evidential reading. On the basis of independently motivated empirical evidence, I argued that the embedded declarative marker –ta in Korean introduces an eventuality of someone making a statement, and the sensory observation meaning of the evidentials –ta and –ney is applied to it. Consequently, the embedded proposition is not asserted to be true by the speaker. But it is believed to be true by the agent of the asserting eventuality.
CHAPTER 6: Not-at-issue and At-issue Implications of Korean Evidential Utterances

In this chapter, I discuss the empirical findings discussed in section 4 in Chapters 3–4. In Korean evidential utterances with –te and –ney, there are two different types of utterances, i.e. at-issue and not-at-issue implications. The evidential implication is not-at-issue. In contrast, the other available implications, which arise from the expressions occurring in the scope of the evidentials, are at-issue. This chapter considers how the two different types of implications in Korean evidential utterances interact in the course of interpretation.

In section 6.1, I argue that the interaction is bi-directional: (i) to obtain the not-at-issue content, we need at-issue meaning contributions by the expressions that occur in the scope of the evidentials, and (ii) to obtain the at-issue content, we need not-at-issue meaning contributions by the evidentials. In section 6.2, I show that the bi-directional interaction observed in Korean evidential utterances cannot be accounted for in the formal systems proposed in Faller (2002) and Potts (2005). They do not allow for a bi-directional interaction, according to which Quechua evidentials and CI expressions cannot be analyzed as affecting what Faller calls the propositional content and what Potts calls the at-issue content. Section 6.3 provides a sketch of a dynamic semantic analysis of the bi-directional interaction observed in Korean evidential utterances. I extend Murray’s (2010) formal system to Korean evidential utterances. In the proposed analysis, the interaction is captured by means of context updates with discourse referents.
6.1 Interactions between Not-at-issue and At-issue Implications

Korean evidential utterances with –te and –ney give rise to at-issue and not-at-issue implications. First, when –te and –ney occur right after tense, at least two implications arise, as illustrated in (141), repeated below:

(272) Context: Chelswu saw it raining. Now, he says:

\[
\text{Pi-ka } \text{o-Ø-te-la.} \\
\text{rain-NOM fall-PRES-TE-DECL}
\]

‘[I had sensory evidence that] it was raining.’

**prejacent implication**: It was raining.

**evidential implication**: I had sensory evidence that it was raining.

The prejacent implication is at-issue, but the evidential implication is not-at-issue, as discussed in section 3.4. In the evidential utterances like (272), a sentence radical and tense make an at-issue meaning contribution, but the evidentials –te and –ney make a not-at-issue meaning contribution.

When –te and –ney occur right after a declarative marker, at least three implications arise, as illustrated in (209), reproduced below:

(273) Context: Chelswu talked to Yenghi yesterday. Now, she says:

\[
\text{Chelswu-ka } [\text{pi-ka } \text{o-ass-ta}-\text{te-la.} \\
\text{Chelswu-NOM rain-NOM fall-PAST-DECL-TE-DECL}}
\]

‘[I had sensory evidence that] Chelswu stated that it rained.’

**embedded proposition**: It rained.

**prejacent implication**: Chelswu stated that it rained.

**evidential implication**: I had sensory evidence that Chelswu stated that it rained.
The embedded proposition and the prejacent implication are at-issue, but the evidential implication is not-at-issue, as discussed in section 4.4. In the evidential utterances like (273), a sentence radical, tense, and an embedded declarative marker make an at-issue meaning contribution, but the evidentials –te and –ney make a not-at-issue meaning contribution.

The important empirical finding discussed in this chapter is that the evidentials that contribute to not-at-issue content interact with the other elements that contribute to at-issue content, i.e. a sentence radical, tense, an embedded declarative marker. First, in the temporal interpretation of the direct/inferential evidential utterances, the evidentials –te and –ney interact with tense. Tense in the at-issue implication is interpreted with respect to the evidence acquisition time denoted by the evidentials in the not-at-issue implication. In the formal representation in (251b) and (252b), repeated below, the at-issue implication from a sentence radical and tense is represented as such. The first conjunct in the underlined part is the meaning contribution of tense. As represented in a box in (274) and (275), the time interval introduced by tense, i.e. $t'$, is evaluated with respect to the time interval introduced by the evidentials, i.e. $t''$.

\[(274) \quad \text{pi-ka o-ass-te-la} \quad \text{‘(I inferred) it had rained’} \Rightarrow \]
\[\quad [t'' \prec \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, \{w'', t''\})} \to \]
\[\quad (t' < \overline{t''} \land \exists e[\text{rain}'(w')(e) \land \tau(e, w') \subseteq t'])]]\]

\[(275) \quad \text{pi-ka o-ass-ney} \quad \text{‘(I infer) it rained’} \Rightarrow \]
\[\quad [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST(SO, ST/DX, \{w'', t''\})} \to \]
\[\quad (t' < \overline{t''} \land \exists e[\text{rain}'(w')(e) \land \tau(e, w') \subseteq t'])]]\]
This interaction in the temporal interpretation affects the evidential interpretation of whether the speaker’s sensory evidence is direct or (indirect) inferential for a described eventuality. As discussed in Chapter 5, when the two time intervals are sequentially ordered, a direct evidential reading is not available, but an inferential evidential reading arises. When they overlap, a direct evidential reading arises. This direct vs. inferential evidential reading arises due to the temporal relation between the reference time of a described eventuality (located by tense in at-issue content) and the evidence acquisition time (located by evidentials in not-at-issue content). 

In my formal analysis presented in Chapter 5, I showed that the modal contribution of Korean evidentials can be captured in terms of the modal base SO and the ordering source ST/DX in Kratzer’s modal theory. According to this modal analysis, the Korean evidentials –te and –ney provide a set of best-ranked worlds in which a described eventuality (denoted by a sentence radical) is instantiated. Reconsider the final representation of the sentences in (276) and (277). Again, the at-issue implication is represented as such. The second conjunct in the underlined part is the meaning contribution of a sentence radical. As represented in the boxes, the evaluation world of the sentence radical is the best ranked worlds, i.e. \( w' \), which is introduced by the evidentials in the not-at-issue content.

(276)  \( pi-ka \ o-ass-te-la \) ‘(I inferred) it had rained’ ⇒

\[
[t'' < \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO, ST/DX, } w^*, t'') \rightarrow (t' < t'' \land \exists e[\text{rain}'[w'](e) \land \tau(e, w') \subseteq t'])]]
\]

(277)  \( pi-ka \ o-ass-ney \) ‘(I infer) it rained’ ⇒

\[
[t'' \circ \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO, ST/DX, } w^*, t'') \rightarrow (t' < t'' \land \exists e[\text{rain}'[w'](e) \land \tau(e, w') \subseteq t'])]]
\]
This kind of intra-sentential interaction is observed in Korean evidential utterances that
give rise to a reportative evidential reading, too. The evidentials make a meaning contri-
bution to the evidential implication, which is a not-at-issue implication: (i) it locates the
evidence acquisition time with respect to the utterance time, and (ii) it determines the sets
of accessible worlds determined by the modal base SO and the ordering source ST/DX.
The expressions that occur in the scope of the evidential, i.e. a sentence radical, tense and
the declarative marker –ta, make a meaning contribution to the embedded proposition and
the prejacent implication, which are at-issue implications. These two different types of
implications interact in interpreting a whole sentence, as illustrated in the formal representa-
tions of the relevant sentences, repeated from (270a) and (271a), below. The underlined
part is at-issue content, and crucially, the evidence acquisition time \( t'' \) and the best-ranked
world \( w' \) in the at-issue content (represented in a box) are provided by the evidentials in the
not-at-issue content.

(278)  \textit{Chelswu-ka pi-ka o-ass-ta-te-la} ‘Chelswu-nom it rain-past-decl-te-decl’ \( \Rightarrow \)
\[ [t'' < \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO, ST/DX, } w^*, t'') \rightarrow]
\exists e_1[\text{assert}'(c)(\lambda w'\lambda t''[t' < t'' [\land \exists e_2[\text{rain}'(w')](e_2) \land \tau(e_2, w') \subseteq t')]]]
\] \( (w')(e_1) \land \tau(e_1, w') \subseteq t'' \]]

(279)  \textit{Chelswu-ka pi-ka o-ass-ta-ney} ‘Chelswu-nom it rain-past-decl-ney.decl’ \( \Rightarrow \)
\[ [t'' \circ \text{now} \land \forall w'[w' \in \text{BEST}(\text{SO, ST/DX, } w^*, t'') \rightarrow]
\exists e_1[\text{assert}'(c)(\lambda w'\lambda t''[t' < t'' [\land \exists e_2[\text{rain}'(w')(e_2) \land \tau(e_2, w') \subseteq t')]]]
\] \( (w')(e_1) \land \tau(e_1, w') \subseteq t'' \]]

The interactions between at-issue and not-at-issue content in Korean evidential utter-
ances are ‘bi-directional’: (i) to obtain not-at-issue content, i.e. the evidential implication,
we need at-issue meaning contributions by a sentence radical and tense, and (ii) to obtain at-issue content, i.e. the prejacent implication in direct/inferential evidential sentences, and the embedded proposition and the prejacent implication in reportative evidential sentences, we need the not-at-issue meaning contribution by the evidentials. More specifically, first, recall how we obtain the evidential implication, which is not-at-issue. In (274) –(279), the evidential implication is represented by the whole formula. The evidentials take at-issue content as an argument, and they result in not-at-issue content. Second, the embedded proposition in direct/inferential evidential sentences and the prejacent implication in reportative evidential sentences, which are at-issue, are obtained by getting temporal and modal referents from the not-at-issue meaning contribution from evidentials. That is, the evidentials cannot make an independent meaning contribution alone, and also, the elements occurring in the scope of the evidential cannot give rise to the prejacent implication or the embedded proposition without the meaning contribution from the evidentials.

6.2 Previous Analyses

In this section, I review previous proposals by Faller (2002), Potts (2005), and Murray (2010), and discuss the applicability of their analyses to Korean evidential utterances with –te and –ney. I show that Faller’s and Potts’s formal systems cannot be extended to the bi-directional interaction observed in Korean evidential utterances: they do not allow Quechua evidentials (in Faller’s analysis) and CI expressions (in Potts’s theory) to affect the propositional content and the at-issue content, respectively. In contrast, Murray’s system can be applied to the interaction observed in Korean evidential utterances in terms of the interaction of discourse reference and evidentials.
6.2.1 Faller’s 2002 Theory

Faller (2002) analyzes three evidentials in Cuzco Quechua, the direct evidential –mi, and the reportative evidential –si, and the conjectural evidential –chá. As represented in the translations in (280b–d), Faller argues that Quechua evidential utterances give rise to two different implications, i.e. (i) propositional content \( p \), and (ii) evidential content \( \text{ev} \). Propositional content is denoted by the expressions that occur in the scope of the evidentials. (I refer to expressions that occur in the scope of the evidentials, as the prejacent.) Thus, the propositional content of the evidential sentences in (280b–d) is the same as that of the non-evidential sentence in (280a). The Quechua evidentials are in boldface in (280).

(280)  
\begin{align*}
\text{a. Para-sha-n.} & \\
\text{rain-PROG-3} & \\
\text{\( p \)= ‘It’s raining.’} & \\
\text{\( \text{EV} \)= ‘speaker sees that \( p \).’} & \\
\text{b. Para-sha-n-\textbf{mi}.} & \\
\text{rain-PROG-3-BPG} & \\
\text{\( p \)= ‘It’s raining.’} & \\
\text{\( \text{EV} \)= ‘speaker sees that \( p \).’} & \\
\text{c. Para-sha-n-\textbf{si}.} & \\
\text{rain-PROG-3-REP} & \\
\text{\( p \)= ‘It’s raining.’} & \\
\text{\( \text{EV} \)= ‘speaker was told that \( p \).’} & \\
\text{d. Para-sha-n-\textbf{chá}.} & \\
\text{rain-PROG-3-CONJ} & \\
\text{\( p \)= ‘It’s raining.’} & \\
\text{\( \text{EV} \)= ‘speaker conjectures that \( p \).’} & \quad (\text{Faller 2002:3})
\end{align*}

In what follows, I discuss Faller’s analysis of (i) the Quechua direct and reportative evidentials, and (ii) the Quechua conjectural evidential, separately.
Analysis of Quechua Direct and Reportative Evidentials

The key idea in Faller’s analysis of Quechua direct and reportative evidentials is that they do not affect the propositional content \( p \), i.e. they have nothing to do with the truth conditions of a sentence in question. Faller captures the meaning contribution of Quechua direct and reportative evidentials within speech act theory (Searle and Vanderveken 1985, Vanderveken 1990, Vanderveken 1991). Quechua direct and reportative evidentials affect (i) the illocutionary force of assertion, (ii) the sincerity condition about the speaker’s (s) belief in the propositional content \( p \), and (iii) the degree of strength of an assertion. These are represented as \( \text{ILL}, \text{SINC}, \text{and}\ \text{STRENGTH} \) in (281), respectively.

(281)  

a. Para-sha-n-\textbf{mi}.  
\text{rain-PROG-3-BPG}  
\( p = \text{‘It’s raining.’} \)  
\( \text{ILL} = \text{ASSERT}_s(p) \)  
\( \text{SINC} = \{\text{Bel}(s, p), \text{See}(s, e_p)\} \)  
\( \text{STRENGTH} = +1 \)  
(Faller 2002:25)

b. Para-sha-n-\textbf{si}.  
\text{rain-PROG-3-REP}  
\( p = \text{‘It’s raining.’} \)  
\( \text{ILL} = \text{PRESENT}(p) \)  
\( \text{SINC} = \{\exists s_2 [\text{Assert}(s_2, p) \land s_2 \notin \{h, s\}]\} \)  
(Faller 2002:27)

Both evidential sentences in (281) express the same propositional content \( p \). With the direct evidential –mi, the speaker’s (s) belief in \( p \) is justified by his seeing the event \( e \) denoted by \( p \). This justification condition leads to increasing the strength of assertion from the conventional level 0 to +1. In contrast, with the reportative evidential –si, the speaker does not perform the speech act assertion, i.e. the speaker does not believe \( p \) to be true. For
the reportative evidential –sì, Faller proposes a new speech act presentation; the speaker brings another person’s assertion into the conversation. The sincerity condition in (281b) specifies that (i) there is some speaker s₂ that is neither the speaker (s) nor the hearer (h), and (ii) the speaker s₂ asserts the propositional content p.

In Quechua direct and reportative evidential utterances, the meaning contribution of the prejacent is required in order to obtain the evidential implication (ev in (280b-d)). This is because the Quechua direct and reportative evidentials (that contribute only to illocutionary meanings) take the prejacent (that contributes only to the propositional meaning) as an argument, and this interaction results in the evidential implication. (See that p occurs as an argument in the sincerity conditions in (281).) In contrast, the propositional content (p in Faller’s translations) is determined solely by the meaning contribution of the prejacent, and thus, the meaning contribution of the evidentials is not required in order to obtain the propositional content. This is a uni-directional interaction between two different types of implications. Faller’s illocutionary modifier analysis can capture this uni-directional interaction because illocutionary operators can take propositional meanings as arguments. But it cannot capture a bi-directional interaction between two different types of meanings, such as those observed in Korean evidential utterances, because illocutionary operators cannot serve as an argument of propositional content. This uni-directional analysis poses a problem with the meaning of the Quechua conjectural evidential chá, as discussed below.

Analysis of Quechua Conjectural Evidentials

Faller (2002) analyzes chá as both an evidential (in that the speaker bases a statement on the evidence from his/her reasoning) and an epistemic modal (in that the speaker regards propositional content as a possibility). Faller mentions that ‘an epistemic modal analysis of chá is certainly viable (Faller 2002:183)’, but she adopts an illocutionary analysis of chá to
pursue a uniform analysis of all Quechua evidentials that occur in the same morphological slot, and have the same results from various diagnostic tests, e.g. challengibility test.

However, her analysis of cha differs from that of the other two evidentials in a very important way: the latter only contribute to illocutionary meanings, but the former makes two different meaning contributions. The Quechua conjectural evidential cha, which is an illocutionary operator, adds its evidential meaning to the sincerity condition and its modal meaning to the propositional content, as shown in (282). The asserted proposition in (282) is \( \diamond q \), not \( q \). The sincerity condition specifies that (i) the speaker (s) believes (Bel) \( \diamond q \) and (ii) he/she bases the belief on his/her reasoning (Rea). The modal meaning of cha results in a weaker statement as indicated by strength.

(282) Para-sha-n-cha.
\[ \text{rain-prog-3-conj} \]
\[ q = \text{‘It’s raining.’} \]
\[ p = \diamond q \]
\[ \text{ILL} = \text{assert}_{s}(\diamond q) \]
\[ \text{sinc} = \{ \text{Bel}(s,\diamond q), \text{Rea}(s,(\text{Bel}(s,\diamond q))) \} \]
\[ \text{strength} = -1 \]  
(Faller 2002:26)

In (282), the evidential meaning of cha, i.e. the speaker bases a statement on the evidence from his/her reasoning, is specified as Rea in the sincerity conditions of the speech act. This is the same as her treatment of the evidential meanings of the other Quechua evidentials (as shown in (281)). But the epistemic modal meaning of cha, i.e. the modal force as a possibility operator, is added to the propositional content.

Faller herself recognizes a problem with this illocutionary analysis of cha. How an evidential, which is an illocutionary operator, can affect the propositional content remains
unanswered in her analysis (Faller 2002:188). This problem arises from the uni-directional interaction between Quechua evidentials and propositional content, i.e. illocutionary operators are prohibited from contributing to the propositional content (whereas the propositional content is allowed to serve as an argument of the illocutionary operators.) The uni-directionality will give rise to the same problem when we apply Faller’s analysis to Korean evidential utterances. The following interaction cannot be accounted for: the pre-jacent implications in Korean evidential utterances are not simply denoted by the elements occurring in the scope of the evidentials, but result from getting temporal and modal referents from the evidentials.

6.2.2 Potts’s 2005 Theory

The question of how to formally capture that some implications of an utterance are at-issue and others are not-at-issue, as well as interactions between these implications, is not limited to evidential utterances. The same question also arises with utterances containing other types of expressions that give rise to not-at-issue implications, such as presuppositions and conventional implicatures (CIs). This section reviews Potts’s theory of CIs, and addresses the question of whether his formal analysis is applicable to Korean evidential utterances.

Types and Composition Rules

In Potts’s (2005) theory, the different status of implications is captured by making a type-theoretical distinction between CI-types vs. at-issue types. The clauses in (283a) and (283b) define basic types for a logic for CIs (L_CI). (The superscripts \( a \) and \( c \) in (283a) and (283b) indicate at-issue and CI types, respectively.) The functional types are defined in (283c) and (283d). Given two at-issue types \( \sigma \) and \( \tau \), \( \langle \sigma, \tau \rangle \) is a functional at-issue type. Given an
at-issue type $\sigma$ and a CI type $\tau$, $\langle \sigma, \tau \rangle$ is a functional CI type. But $\langle \sigma, \tau \rangle$ is not a functional type in $L_{CI}$ if $\sigma$ is a CI type and $\tau$ is an at-issue type.

(283)  
\begin{enumerate}
\item $e^a$, $t^a$, and $s^a$ are basic at-issue types for $L_{CI}$.
\item $e^c$, $t^c$, and $s^c$ are basic CI types for $L_{CI}$.
\item If $\sigma$ and $\tau$ are at-issue types for $L_{CI}$, then $\langle \sigma, \tau \rangle$ is an at-issue type for $L_{CI}$.
\item If $\sigma$ is an at-issue type for $L_{CI}$ and $\tau$ is a CI type for $L_{CI}$, then $\langle \sigma, \tau \rangle$ is a CI type for $L_{CI}$.
\end{enumerate}  
(Potts 2005:55)

The two types of meanings are represented in different dimensions, each with their own composition rules. The key idea in Potts’s theory is that CI content is a ‘peripheral, non-intrusive commentary’ upon at-issue content (Potts 2005:58). This view of CI content is captured in the composition rule stated over semantic parsetrees in (284). The CI application rule in (284) specifies that CI content applies to at-issue content, and it produces CI content via function application. $\bullet$ is a metalogical device to graphically separate different lambda terms at the same node. The dotted lines indicate that the material inside them is optional.

(284)  
\textbf{CI application} (Potts 2005:64)

\begin{center}
\begin{tikzpicture}
  \node (alpha) {$\alpha$} ;
  \node (beta) [below right of=alpha] {$\beta$} ;
  \node (gamma) [below left of=alpha] {$\gamma$} ;
  \node (delta) [below right of=beta] {$\delta$} ;

  \node (alpha-sigma) [below of=alpha, xshift=-1cm] {$\alpha : \langle \sigma^a, \tau^c \rangle$} ;
  \node (alpha-beta) [below of=alpha, xshift=0cm] {$\alpha(\beta) : \tau^c$} ;
  \node (beta-sigma) [below of=beta, xshift=-1cm] {$\beta : \sigma^a$} ;
  \node (gamma-rho) [below of=gamma, xshift=-1cm] {$\gamma : \rho^c$} ;
  \node (delta-uc) [below of=delta, xshift=0cm] {$\delta : \psi^c$} ;

  \draw [->] (alpha) -- (alpha-sigma) ;
  \draw [->] (alpha) -- (alpha-beta) ;
  \draw [->] (beta) -- (beta-sigma) ;
  \draw [->] (gamma) -- (gamma-rho) ;
  \draw [->] (delta) -- (delta-uc) ;
  \draw [->] (beta) -- (alpha-beta) ;
  \draw [->] (alpha-beta) -- (beta-beta) ;
  \draw [->] (alpha-beta) -- (beta-beta) ;
  \draw [->] (alpha-beta) -- (beta-beta) ;
\end{tikzpicture}
\end{center}

In (284), the left-hand daughter $\alpha$, of type $\langle \sigma^a, \tau^c \rangle$, is a CI type. The right-hand daughter $\beta$, of type $\sigma^a$, is an at-issue type. When the two terms of different types are combined,
the resulting mother node has two different types of content. First, it has at-issue content, which the at-issue term in the daughter nodes passes on to. (This is represented above • in the mother node.) Second, it has not-at-issue content, which results from applying the CI term to the at-issue term in the daughter nodes. (This is represented below • in the mother node.) The guiding idea behind (284) is that CI terms do not contribute to at-issue content, i.e. ‘the at-issue dimension is always insensitive to the presence of adjoined CI operators’ (Potts 2005:65).

**Interactions between CI types and At-issue types**

Potts’s view about CIs, as ‘comments upon an asserted core’ (Potts 2005:57), is very similar to Faller’s view about the meaning contribution of Quechua evidentials. Just as Quechua evidentials, as illocutionary operators, do not contribute to what she calls propositional content, CIs in Potts’s theory do not contribute to what he calls at-issue content. If we use Potts’s system for the meaning of Korean evidential utterances, it would not allow us to capture how the two different types of meanings interact bi-directionally in the course of interpreting a single utterance.

Amaral et al. (2007) discuss an empirical problem for Potts’s system with (285) and (286). Given that the content of the non-restrictive relative clauses (NRRCs) is not-at-issue, and that of the matrix clause is at-issue, (285) and (286) show that discourse anaphoric relations between at-issue and not-at-issue content are possible under the scope of a higher operator. (285) and (286) can receive an interpretation according to which there are different degrees for (the wives of) different professional men in (285), and different students in different classes in (286). In other words, the not-at-issue content in the NRRCs can be interpreted as taking narrow scope under the quantificational at-issue content introduced by every professional man and each class.
Every professional man I polled said that while his wife, who had earned a bachelor’s degree, nevertheless had no work experience, he thought she could use it to get a good job if she needed one.

In each class, several students failed the midterm exam, which they had to retake later. (Amaral et al. 2007:740)

Korean evidential utterances raise the same fundamental problem with the central assumption of Potts’s system, according to which CI content cannot contribute to at-issue content. Under Potts’s system, the Korean evidentials would be analyzed as CI terms, and the prejacent terms as at-issue terms. When these two terms of different types are combined, the evidential implication would be represented in the CI dimension. But the prejacent implication cannot be represented in the at-issue dimension. This is because, in Korean evidential utterances, the prejacent implication in the mother node, which is at-issue, is not simply passed on from the at-issue terms in the daughter node. The at-issue content in the mother node can be computed only if the temporal and modal referents for the prejacent are provided by the evidential. Potts’s system does not allow for this type of interaction, as we have seen from the composition rule in (284).

6.2.3 Murray’s 2010 Theory

Murray’s (2010) formal analysis of Cheyenne evidentials is couched within Update with Centering (UC) (Bittner 2010, 2011), which is a kind of update semantics. In update semantics, meaning is viewed as a dynamic notion. That is, meaning is not represented merely in terms of truth conditions, but in terms of its effect on information states. The essential feature of UC is that it models discourse reference. This section discusses how Murray’s
dynamic semantic analysis captures the distinction of at-issue vs. not-at-issue content and their interaction.

**Context Update with At-issue and Not-at-issue Content**

Murray (2010) argues that Cheyenne evidential utterances make two contributions: (i) a ‘propositional’ contribution, which is directly challengeable, deniable, negotiable, and (ii) an ‘evidential’ contribution, which is not directly challengeable, deniable, negotiable. These two contributions of evidentials correspond to two components of assertion, which is the main claim of her analysis of Cheyenne evidential utterances: (i) the ‘propositional’ contribution is at-issue assertion, and (ii) then ‘evidential’ contribution is not-at-issue.

Murray’s formal system does not assume entirely independent calculations of not-at-issue content and at-issue content. In her formal analysis, both the at-issue and the not-at-issue content are represented in the same logic, e.g. different types of content are not computed by different composition rules (cf. Potts’s composition rule for CI-type expressions). Both types of content have effects on the common ground, i.e. the set of propositions whose truth values are taken for granted by conversation participants (Stalnaker 1974, 1987a) in some ways.

However, the way the two different types of content update context is different in her formal system. Adding not-at-issue content to the common ground results in the reduction of the context set, which is a set of worlds in which all the propositions in the common ground hold. In contrast, adding at-issue content to the common ground does not necessarily give rise to this effect on the common ground. Different types of evidentials are analyzed as different types of proposals: (i) with the Cheyenne direct evidential, the at-issue content
is proposed to be added to the common ground, and then it is subject to be accepted or rejected by conversation participants. (ii) with the Cheyenne reportative evidential, no such proposal is made.

These different ways of context update in Murray’s system build on two different views of assertion in the literature. Stalnaker (1987a) and Karttunen (1974) take an assertion to update the common ground directly. Under this view, when assertion is made, the context is updated to a set of worlds in which all the propositions in the input common ground and the newly asserted proposition hold. Figure 6.1 illustrates this view of assertion. The first picture depicts the initial information state, and the second one depicts the updated information state after a new assertion \( q \) is made. The context set in each picture is shaded in gray. In the initial context set \( p_0 \), there are three worlds, \( w_0, w_1, w_2 \). When the proposition \( q \) is asserted, the initial context set \( p_0 \) is immediately updated to its subset where \( q \) holds, i.e. \( w_0, w_2 \), as shown in the second picture in Figure 6.1.\(^{37}\)

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\(^{37}\)Figures 6.1 and 6.2 are slightly modified from Murray’s (2010: 90–91) Figures 4.1 and 4.2. I exemplify worlds for the initial context set and a new assertion.
The other view about assertion is that it is a proposal to update the common ground (See references in Murray 2010, e.g. Ginzburg 1992, Roberts 1996, Gunlogson 2001, Groenendijk and Roelofsen 2009). Under this view, a newly asserted proposition does not immediately reduce the context set. The common ground, and thus the context set, remains unchanged until the proposed proposition is accepted by the conversational participants. Figure 6.2 illustrates this view. The first picture in Figure 6.2 is the same as that in Figure 6.1. The dotted line in the second picture represents that the proposition $q$ is a proposal. Until $q$ is accepted, the initial context set is not reduced, e.g. $w_1$ still appears in the gray section of the second picture. When the proposed proposition $q$ is accepted, the context set is finally reduced to the worlds where both $p_0$ and $q$ hold, i.e. $w_0$ and $w_2$ in a darker shade of gray.  

\[38\]

Figure 6.2: Assertion as a proposal to update the common ground

\[38\] Murray uses the common ground and a context set interchangeably, e.g. ‘... the common ground is treated as the intersection of a set of propositions - a set of worlds - by some terminologies the ‘context set’ (Murray 2010:89)’. What she means by the common ground actually refers to a context set (p.c. Murray). Recall that the common ground is a set of propositions, and a context set is a set of worlds in which all the propositions in the common ground hold.
Murray merges these two views of assertion, and captures the distinction between at-issue content and not-at-issue content in terms of the different ways of updating context. She argues that asserting not-at-issue content directly updates the common ground, as shown in Figure 6.1, and asserting at-issue content proposes to update the common ground, as shown in Figure 6.2. In what follows, I present her analysis of a Cheyenne sentence with a direct evidential.

**Analysis of Cheyenne sentences with a direct evidential**

In UC, each context update is a function from an information state \(c_n\) to an information state \(c_{n+1}\). An information state is a set of sequences of discourse referents. Each sequence is a pair of a top \((\top)\) (sub-)sequence and a bottom \((\bot)\) (sub-)sequence, i.e. \(\langle \top, \bot \rangle\). Murray utilizes the top sequence to represent the current context set. Thus, the worlds in the top sequence represent candidates for the actual worlds. The bottom sequence is utilized to represent at-issue content, i.e. ‘what we are talking about (Murray 2010:168)’. Since not-at-issue content (as a propositional discourse referent) is directly added to the common ground, its effect can be seen in the top sequences of an information state. In contrast, at-issue content is *not* directly added to the common ground. It is first added to the bottom sequence as a proposal. If and only if the proposal is accepted, the at-issue content (as a propositional discourse referent) can be added to the top sequence that represents the current context set.

Murray’s analysis of the direct evidential sentence in (287) is provided in (288). The sentence in (287) contains the direct evidential \(\neg\emptyset\). It makes two meaning contributions, i.e. the evidential contribution, which is translated as ‘I’m sure’, and the propositional contribution, which is translated as ‘Andy sang’.
É-néméne-∅ Andy.
3-sing-dir Andy
‘Andy sang, I’m sure.’ (Murray 2010:168)

(288) represents each update in the course of interpreting (287). Each update in (288) is separated by a semicolon (;). If an update has a preposed $\top$ superscript, e.g. in the first update, it means that a discourse referent is introduced to the top sequence. Without a preposed $\top$ superscript, e.g. in the third update, the discourse referent is introduced into the bottom sequence. After the introduction of a discourse referent into a sequence, it can be referred to in subsequent updates.

(288) (Murray 2010:170)

The first three updates present the at-issue proposition, i.e. Andy sang.

- the first update $^\top[x|x = \text{andy}]$ introduces an individual discourse referent for Andy into the top ($^\top$) sequence.

- the second update $[w|\text{sang}_w(\top\delta)]$ introduces the worlds where the topical individual in the top sequence ($\top\delta$) sang, into the bottom sequence.

- the third update $[p|p = \bot\omega||]$ introduces a propositional discourse referent for the at-issue proposition, i.e. Andy sang, into the bottom sequence. $\bot\omega||$ stands for the set of worlds where Andy sang.
The next update, \([\text{CRT}_{\tau}(i, \bot\Omega)]\), represents updating the information state with the evidential implication: in each topic world \((\tau\omega)\), the speaker \((i)\) is certain \((\text{CRT})\) of the at-issue proposition \((\bot\Omega)\), based on personal experience. The not-at-issue content directly updates the common ground, reducing the context set. In contrast, the at-issue proposition, i.e. Andy sang, is not directly added to the common ground, but it is \textit{proposed} to update the common ground. \([\bot\omega \in \tau\omega\|]\) in (288) represents the proposal to update the common ground with the at-issue proposition, and \([\tau\omega \in \bot\omega\|]\) in (288) represents the acceptance of the proposal. The last update, \(\tau[p|p = \tau\omega\|]\), introduces a propositional discourse referent for the new context set, which will serve as the input context set for the next utterance.

Murray assumes the model in Figure 6.3 for (287), and illustrates its context updates with the example information states in Table 6.1. In this model, the initial context set \(p_0\) contains \(w_0, w_1, w_2\). The prejacent implication \(q\) holds at \(w_0, w_2, w_3\), and the evidential implication \(\text{CRT}(i, q)\) holds at \(w_1, w_2\).

![Figure 6.3: Model for (288) (modified from Murray 2010:169)](image)

The information state \(c_n\) in Table 6.1 is the result of Update \(n\) in (288). Each information state is a set of sequences of discourse referents. Each sequence, which is a pair of a top
sequence and a bottom sequence, i.e. ⟨⟨ ⟩⟩, occurs in a different row. Whenever a new discourse referent is introduced, it occurs in the leftmost position of the top or bottom sequence, and it can be referred back later in the course of interpretation. In each sequence, the most prominent discourse referent occurs in the leftmost position. Context update is modeled as eliminating rows in an information state.

Table 6.1: Example Information States for (288) (Murray 2010:172)

<table>
<thead>
<tr>
<th>$c_0$</th>
<th>$c_1$</th>
<th>$c_2$</th>
<th>$c_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>⟨⟨ $w_0, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_0, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_0, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_0, p_0$⟩⟩</td>
</tr>
<tr>
<td>⟨⟨ $w_0, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_1, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_1, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_1, p_0$⟩⟩</td>
</tr>
<tr>
<td>⟨⟨ $w_2, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_2, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_2, p_0$⟩⟩</td>
<td>⟨⟨ $a, w_2, p_0$⟩⟩</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$c_4$</th>
<th>$c_5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>⟨⟨ $a, w_1, p_0$⟩⟩</td>
<td>⟨⟨ $q, w_0$⟩⟩</td>
</tr>
<tr>
<td>⟨⟨ $a, w_1, p_0$⟩⟩</td>
<td>⟨⟨ $q, w_2$⟩⟩</td>
</tr>
<tr>
<td>⟨⟨ $a, w_2, p_0$⟩⟩</td>
<td>⟨⟨ $q, w_3$⟩⟩</td>
</tr>
<tr>
<td>⟨⟨ $a, w_2, p_0$⟩⟩</td>
<td>⟨⟨ $q, w_3$⟩⟩</td>
</tr>
</tbody>
</table>

There are three sequences in the initial information state $c_0$. Each sequence in $c_0$ contains (i) a world discourse referent for one of the worlds in the initial context set, i.e. $w_0$, $w_1$, $w_2$, and (ii) a propositional discourse referent for the initial context set $p_0$.

Following the standard assumption in possible worlds semantics, a proposition is assumed to be a set of worlds in which the proposition holds. In line with this assumption, the context set, which is a set of worlds, is represented as a propositional discourse referent.
The information state $c_1$ results from the first update in (288), which introduces the individual discourse referent $a$ into each top sequence. The effect of the second update in (288), which introduces the worlds where Andy sang into the bottom sequence, can be seen in the state $c_2$. In this model, there are three worlds where Andy sang: $w_0, w_2, w_3$. For each sequence in $c_1$, each world among $w_0, w_2, w_3$ can be introduced into the bottom sequence, which results in nine sequences in the information state $c_2$. The information state $c_3$ corresponds to the output of the third update, which introduces a propositional discourse referent $q$ into the bottom sequence. The propositional discourse referent $q$ represents the prejacent implication, i.e. Andy sang.

The fourth update in (288), i.e. $\text{CRT}_{T\omega}(i, \bot\Omega)$, gives rise to the change from the context set in $c_3$ to the context set in $c_4$. In this model, the speaker does not have direct evidence for the at-issue proposition in $w_0$. Thus, all sequences that include $w_0$ in the top sequence have been eliminated in $c_4$. This illustrates the not-at-issue restriction, i.e. the evidential implication, which is not-at-issue content, directly updates the common ground. Adding the evidential implication to the common ground results in reducing the context set.

In contrast, the fifth update in (288), i.e. $\bot\omega \in \top\omega ||$ does not result in reducing the context set. This represents the proposal to update the common ground to the worlds where the at-issue proposition $q$ is true. In this model, $q$ is true in $w_2$. In $c_5$, the bottom sequences, which are used to keep track of the at-issue proposition $q$, should contain only $w_2$. This is why some sequences have been eliminated from $c_4$ to $c_5$. But, crucially, the context set remains the same, as shown by the same top sequence in $c_4$ and $c_5$.

The proposal can be accepted or rejected. If the proposed proposition is accepted, then it also affects the context set (and thus the common ground), as reflected in the information state $c_6$: the context set is reduced to the worlds where $q$ is true, i.e. $w_2$. In the information
state $c_7$, a propositional discourse referent $p_1$ is introduced into the top sequence. This serves as an input context set for the next utterance.

**Interactions between Not-at-issue and At-issue Content**

Like Faller’s (2002) illocutionary analysis and Potts’s (2005) CI analysis, Murray’s (2010) system allows us to represent the different types of implications. But Murray’s system differs from Faller’s and Potts’s analyses in an important way. As discussed in the preceding sections, the Quechua conjectural evidential does affect the meaning from its complement, i.e. what she calls the ‘propositional’ content. But her analysis cannot capture it because Quechua evidentials as illocutionary modifiers are not allowed to affect the propositional content. In Potts’s system as well, it is impossible for not-at-issue content to affect at-issue content. But as pointed out by Amaral *et al.* (2007), there is empirical evidence for the interactions between the two different types of implications. Unlike the previous two analyses, in Murray’s system there is a possible way to capture the interaction between the two different types of implications observed in Korean evidential utterances: it is by means of capturing the interaction of discourse reference and evidentials, as Murray explicitly says that it is ‘key to understanding the semantics of sentences with evidentials (Murray 2010:157)’.

*Murray* (2010) presents the example in (289) to argue that her analysis can capture an interaction between the not-at-issue and the at-issue content. In (289), discourse referents introduced in the at-issue content of the preceding utterance are accessible to the not-at-issue content of the following utterance. More specifically, the reportative evidential *sëstse* in the not-at-issue content is anaphoric to *Dale* in the at-issue content of the preceding utterance.
The discourse anaphoric relation in (289) is analogous to that in (286), in that not-at-issue content depends on the at-issue content. This anaphoric relation at the inter-sentential level does not present a problem for Murray’s system because Dale in the preceding utterance in (289) can be analyzed as available in the input common ground of the subsequent utterance. However, Murray does not address how her system can be extended to the data that exhibit an intra-sentential interaction between at-issue and not-at-issue content.

The bi-directionality of interactions between at-issue and not-at-issue content has not been discussed in Murray (2010) as well. But the interactions between discourse referents and evidentials in her formal system can be applied to the bi-directional interaction between the two different types of implications observed in Korean evidential utterances.

The second and third updates in (288) illustrate such interactions with discourse reference. An individual discourse referent in not-at-issue content, which is introduced into the top sequence by the second update, can be anaphorically retrieved for at-issue content in the bottom sequence. The third update illustrates that at-issue content in the bottom sequence can serve as an argument of not-at-issue content in the top sequence. Given these updates, both directional interactions are possible in Murray’s system: at-issue content can apply to not-at-issue content, and vice versa.
6.3 Formal Analysis: Interactions between at-issue and not-at-issue content

I adopt Murray’s dynamic semantic system, and present a sketch of a formalization of the interaction between at-issue and not-at-issue content observed in Korean evidential utterances. The primary motivation for adopting her system is that it models discourse reference. As will be shown below, the heart of the proposed analysis lies in the use of discourse referents for worlds and times: they are first introduced into the top or bottom sequence, and can be referred to in subsequent updates.

All the assumptions in Murray’s system carry over into the analysis of Korean evidential utterances below. I make one additional assumption: in addition to discourse referents for an individual, a world, and a proposition, I assume one more type of discourse referent, i.e. a temporal discourse referent. (See Bittner 2011 for the use of temporal discourse referents in UC.) I first present an analysis of a simple past tense sentence in section 6.3.1, and then move on to a Korean evidential sentence in section 6.3.2.

6.3.1 A Simple Past Tense Sentence

I analyze the simple past tense sentence in (290) in this section. I extend Murray’s (2011: 11) analysis of a simple English sentence to a simple past tense sentence in Korean. The meaning of a simple sentence is analyzed as a proposal to update the context set, as in the analysis of the at-issue content in a Cheyenne direct evidential sentence in (287). I make use of a temporal discourse referent to capture the temporal contribution of tense.

(290) Pi-ka o-ass-ta.
      rain-nom fall-PAST-DECL
   ‘It rained.’
Context Updates

The proposed analysis of (290) is given in (291). I present each update in a separate line in (291). In (291), $\perp_\omega$ refers to the most prominent world referent on the bottom sequence. $\top_\omega$ and $\top_\tau$ refer to the the most prominent (i.e. topical) world and time referents on the top sequence, respectively. Which discourse referent of a particular type is most prominent, i.e topical, depends on whether a new discourse referent of the type has been introduced by prior updates.

(291) $\top[t|t = \text{now}]$; [Update 1] 
$\top[t|t < \top_\tau]$; [Update 2] 
$[\text{rain}_\omega(\top_\tau)]$; [Update 3] 
$[p|p= \perp_\omega|]$; [Update 4] 
$[\perp_\omega \in \top_\omega]|$; [Update 5] 
$[\top_\omega \in \perp_\omega]|$; [Update 6] 
$\top[p|p= \top_\omega]|$ [Update 7]

Update 1 introduces a temporal discourse referent for the utterance time (now), into the top ($\top$) sequence.$^{40}$ This update is compositionally contributed by the sentence-ending declarative marker, i.e. see its compositional meaning in (231).

Update 2 introduces another temporal discourse referent which precedes the topical time ($\top_\tau$). This discourse referent introduced by Update 2 serves as denoting the reference time of the utterance, and it can be referred to as the topical time by the next updates. Past tense, whose meaning is provided in (225b), compositionally triggers Update 2.

$^{40}$This Update is analogous to introducing an individual discourse referent for Andy, in (288).
Update 3 introduces the worlds into the bottom sequence at which it rains at the topical time (⊤τ), i.e. the time preceding the utterance time (now).

Update 4 introduces a propositional discourse referent for the set of worlds in the bottom sequence, i.e. the worlds where it rains prior to the utterance time. This introduction of a propositional discourse referent into the bottom sequence models the second view of assertion as a proposal to update the context set, see Figure 6.2. Under this view, a newly asserted proposition does not directly update the context set, but it makes a proposal to be added to the common ground.

Updates 5 and 6 represent proposing the at-issue proposition and accepting it, respectively. In Update 7, a propositional discourse referent is introduced into the top sequence, for the set of worlds on the top sequence (⊤ω||). This propositional discourse referent serves as a new context set for the next utterance.

Updates 3-7 described above do not correspond to the compositional meaning of any specific element occurring in a sentence. Rather, they reflect how the compositional meaning of a whole sentence is calculated (Update 3), introduced as a discourse referent (Update 4), proposed by the speaker (Update 5), and accepted by conversational participants (Update 6), and finally gives rise to a new common ground (Update 7).

**Information States**

I assume the model given in Figure 6.4 for (290). The initial context set is represented as p₀, which includes w₀, w₁, w₂. q represents a proposition that is proposed to be added to the common ground, i.e. the past tensed sentence in (290). The dotted line for q represents that it is a proposal, as in Figure 6.2.
A sample of information states for (290) is given below. The information state $c_n$ below corresponds to the output of Update $n$ in (291). A new discourse referent introduced by each update is in boldface.

- **Initial information state $c_0$ resulting from the initial context set**

Recall that the top sequence is used to keep track of the current context set, and thus the discourse referents from the initial context set are introduced into the top sequence. In this model, the initial context set $p_0$ includes three worlds, i.e. $w_0$, $w_1$, $w_2$. So the initial information state $c_0$ contains three sequences. Each sequence in $c_0$ contains (i) one of the worlds in the initial context set, and (ii) a propositional discourse referent for the initial context set $p_0$.

\[
\begin{align*}
\langle\langle w_0, p_0 \rangle\rangle \\
\langle\langle w_1, p_0 \rangle\rangle \\
\langle\langle w_2, p_0 \rangle\rangle
\end{align*}
\]
• **Information state c₁ resulting from Update 1**

\( c₁ \) is the result of updating the initial context set with Update 1. A discourse referent \( t₀ \) for the utterance time is introduced into the top sequence.

\[
\begin{align*}
\langle\langle t₀, w₀, p₀\rangle\rangle \\
\langle\langle t₀, w₁, p₀\rangle\rangle \\
\langle\langle t₀, w₂, p₀\rangle\rangle
\end{align*}
\]

• **Information state c₂ resulting from Update 2**

Update 2 introduces into the top sequence another temporal discourse referent that precedes the topical time. For simplicity, I exemplify three times that precede the topical time. Each of \( t₁, t₂ \) and \( t₃ \) precedes the utterance time in this utterance context.

\[
\begin{align*}
\langle\langle t₁, t₀, w₀, p₀\rangle\rangle \\
\langle\langle t₂, t₀, w₁, p₀\rangle\rangle \\
\langle\langle t₃, t₀, w₂, p₀\rangle\rangle
\end{align*}
\]

• **Information state c₃ resulting from Update 3**

The effect of Update 3 can be seen in the information state \( c₃ \). In this model, there are three worlds in which it rains prior to the utterance time, i.e. \( w₀, w₂, w₃ \). Each of these worlds is introduced into the bottom sequence of each row. Thus, the information state \( c₃ \) has nine sequences.

\[
\begin{align*}
\langle\langle t₁, t₀, w₀, p₀\rangle\rangle \langle w₀\rangle \\
\langle\langle t₁, t₀, w₀, p₀\rangle\rangle \langle w₂\rangle
\end{align*}
\]
\[\langle\langle t_1, t_0, w_0, p_0\rangle\langle w_3\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle w_0\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle w_2\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle w_3\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle w_0\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle w_2\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle w_3\rangle\rangle \]

- **Information state** \(c_4\) **resulting from Update 4**

In \(c_4\), the propositional discourse referent \(q\) (for the set of worlds where it rains prior to the utterance time) has been introduced into the bottom sequence.

\[c_4\]
\[\langle\langle t_1, t_0, w_0, p_0\rangle\langle q, w_0\rangle\rangle \]
\[\langle\langle t_1, t_0, w_0, p_0\rangle\langle q, w_2\rangle\rangle \]
\[\langle\langle t_1, t_0, w_0, p_0\rangle\langle q, w_3\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_0\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_2\rangle\rangle \]
\[\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_3\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle q, w_0\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle q, w_2\rangle\rangle \]
\[\langle\langle t_3, t_0, w_2, p_0\rangle\langle q, w_3\rangle\rangle \]
• Information state $c_5$ resulting from Update 5

In this model, among the worlds $w_0, w_2, w_3$ at which the proposed proposition holds, $w_3$ is not included in the initial context set. (See the intersection in Figure 6.4.) Uttering the simple past tense sentence in (290) makes a proposal to update the context set to the set of worlds $w_0, w_2$ where the newly asserted proposition holds as well. Until this proposal is accepted by the next update, the context set represented in the top sequence remains the same. As shown below, the context set in $c_5$ still has the three worlds $w_0, w_1, w_2$. But if a row contains $w_3$ in the bottom sequence, then it is eliminated.

$c_5$

\[
\langle\langle t_1, t_0, w_0, p_0\rangle\langle q, w_0\rangle\rangle \\
\langle\langle t_1, t_0, w_0, p_0\rangle\langle q, w_2\rangle\rangle \\
\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_0\rangle\rangle \\
\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_2\rangle\rangle \\
\langle\langle t_3, t_0, w_2, p_0\rangle\langle q, w_0\rangle\rangle \\
\langle\langle t_3, t_0, w_2, p_0\rangle\langle q, w_2\rangle\rangle 
\]

• Information state $c_6$ resulting from Update 6

If the proposal is accepted by Update 6, then it results in the reduction of the context set. In this model, the proposed proposition does not hold at $w_1$. Thus, any rows that contain $w_1$ in the top sequence have been eliminated in $c_6$. Now, the context set has been updated to the set of the two worlds, i.e. $w_0, w_2$. The new common ground includes the information that it rains prior to the topical time at the topical world.
Information state $c_7$ resulting from Update 7

Update 7 introduces the propositional discourse referent $p_1$ into the top sequence, which represents a new context set for the next utterance, i.e. $\top_{\omega'} = \{w_0, w_2\}$.

So far I have analyzed the meaning contribution of the simple past tense sentence in (290) in terms of proposal and acceptance updates. It does not directly update the common ground, but it first makes a proposal to update the common ground and then updates the common ground after being accepted by the conversational participants. In the next section, I present a Murray-style analysis of Korean evidential utterances.
6.3.2 A Korean Evidential Sentence

Korean evidential utterances give rise to two implications, as discussed in section 3.4: the prejacent implication is at-issue, and the evidential implication is not-at-issue.

(292) Pi-ka o-ass-te-la.
    rain-nom fall-PAST-te-DECL
    ‘[I inferred that] it rained.’

**prejacent implication**: It rained.

**evidential implication**: I had sensory evidence that it had rained.

The two different implications exhibit a bi-directional interaction in the course of interpretation, as discussed in section 6.1. This section presents an analysis of the interactions of the at-issue and not-at-issue content within Murray’s formal system.

**Context Updates**

The proposed analysis of (292) in Murray’s system is given in (293).

(293) $\top[t|t = \text{now}]$; [Update 1]

$\top[t'|t' < \top\tau]$; [Update 2]

$[w'|w' \in \text{BEST}(SO, ST/DX, \top\omega, \top\tau)]$; [Update 3]

$[t''|t'' < \top\tau]$; [Update 4]

$[\text{rain}_{\bot\omega}(\bot\tau)]$; [Update 5]

$[p|p= \bot\omega||]$; [Update 6]

$[\text{CRT}_{\top\omega}(i, \bot\Omega, \top\tau)]$; [Update 7]

$[\bot\omega \in \top\omega||]$; [Update 8]

$[\top\omega \in \bot\omega||]$; [Update 9]

$\top[p|p= \top\omega||]$ [Update 10]

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Update 1 introduces a temporal discourse referent for the utterance time (now), into the top (T) sequence. This update is compositionally triggered by the meaning of the sentence-ending declarative marker, as in simple sentences.

By Update 2, a temporal discourse referent, which precedes (≺) the topical time (Tτ), is introduced into the top (T) sequence. This temporal discourse referent serves as an evidence acquisition time, which is referred to by the following updates. This update is compositionally contributed by the temporal meaning of the evidential –te, as its compositional meaning is given in (247).

Update 3, which is compositionally triggered by the modal meaning contribution of the evidential –te, introduces a world discourse referent into the bottom sequence: the world discourse referent is included in the set of worlds, which are (i) compatible with the speaker’s sensory observation (SO) at the topical world (Tω) and the topical time (Tτ), and (ii) best-ranked by the speaker’s expectation/belief (ST/DX) about the development of the topical world (Tω) at the topical time (Tτ). Crucially, Tτ in Update 3 refers back to the time discourse referent which was introduced by Update 2. In contrast, new discourse referents for worlds have not been introduced in prior updates, so Tω refers to the topical world that has been given in the initial context set.

Update 4 introduces another temporal discourse referent into the bottom sequence. It precedes the topical time, i.e. the temporal discourse referent which was introduced by Update 2. This update is compositionally triggered by past tense. The temporal discourse referent introduced by Update 4 serves as denoting the reference time of a raining eventuality. It can be referred to as the most prominent time on the bottom sequence (⊥τ), by the next updates.
Update 5 introduces the worlds into the bottom sequence, at which it rains at the most prominent time ($\perp \tau$), in the most prominent world on the bottom sequence ($\perp \omega$). $\perp \omega$ refers to the world discourse referent which was introduced by Update 3. $\perp \tau$ refers to the time discourse referent which was introduced by Update 4. By means of the introduction of discourse referents for worlds and times, we can temporally and modally constrain the prejacent implication: it rains prior to the evidence acquisition time in the best-ranked worlds.

Update 6 introduces a propositional discourse referent for the prejacent implication into the bottom sequence. $\perp \omega$ stands for the set of the worlds in which it rains prior to the evidence acquisition time in the best-ranked worlds. In the compositional analysis presented in Chapter 5.3, there is no element corresponding to this Update. As discussed in 6.1, the prejacent implication cannot be compositionally computed by the embedded tensed sentence because a time discourse referent (for the evidence acquisition time) and a world discourse referent (for the best-ranked worlds), which are provided by the meaning of the evidential, are necessary.

By Update 7, the evidential implication directly updates the common ground: in each topical world ($\top \omega$), the speaker ($i$) is certain (CRT) of the at-issue proposition ($\perp \Omega$) at the topical time ($\top \tau$), based on sensory evidence. Update 7 is compositionally triggered by the whole sentence with the evidential –te: its meaning has been presented in (251b).

The at-issue proposition is proposed in Update 8, and it is accepted in Update 9. Update 10 introduces a propositional discourse referent for the new context set.

As discussed above, Updates 5–6 and Updates 8–10 reflect the context updates by the prejacent implication, and thus they do not correspond to the compositional meaning of any specific element in a sentence. They reflect that the prejacent implication is compositionally
calculated (Update 5), introduced as a discourse referent (Update 6), proposed (Update 8),
accepted (Update 9), and finally gives rise to a new common ground (Update 10).

**Information States**

I assume the same model given in Figure 6.3, repeated as Figure 6.5 below. The initial
context set is represented as $p_0$, which includes three worlds, i.e. $w_0, w_1, w_2$. The evidential
implication is represented as CRT($i, p$), and the prejacent implication is represented as $q$ in
Figure 6.5.

![Figure 6.5: Model for (292)](image)

A sample of information states for (292) is given below. A new discourse referent
introduced at each update is boldfaced.

- **Initial information state $c_0$ resulting from the initial context set**

  The initial information state $c_0$ contains three sequences for the three worlds in the
  initial context set, i.e. $w_0, w_1, w_2$. Each sequence in $c_0$ contains (i) one of the worlds
  $w_0, w_1, w_2$, and (ii) a propositional discourse referent for the initial context set $p_0$. 

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\( c_0 \)
\[
\langle \langle w_0, p_0 \rangle \rangle
\]
\[
\langle \langle w_1, p_0 \rangle \rangle
\]
\[
\langle \langle w_2, p_0 \rangle \rangle
\]

- **Information state \( c_1 \) resulting from Update 1**

  A discourse referent \( t_0 \) for the utterance time is introduced into the top sequence.

\( c_1 \)
\[
\langle \langle t_0, w_0, p_0 \rangle \rangle
\]
\[
\langle \langle t_0, w_1, p_0 \rangle \rangle
\]
\[
\langle \langle t_0, w_2, p_0 \rangle \rangle
\]

- **Information state \( c_2 \) resulting from Update 2**

  A discourse referent that precedes the topical time (for the evidence acquisition time) is introduced into the top sequence. I exemplify two times which precede the topical time, i.e. \( t_1, t_2 \). One of them is added to the leftmost position of the top sequence of each row.

\( c_2 \)
\[
\langle \langle t_1, t_0, w_0, p_0 \rangle \rangle
\]
\[
\langle \langle t_2, t_0, w_0, p_0 \rangle \rangle
\]
\[
\langle \langle t_1, t_0, w_1, p_0 \rangle \rangle
\]
\[
\langle \langle t_2, t_0, w_1, p_0 \rangle \rangle
\]
\[
\langle \langle t_1, t_0, w_2, p_0 \rangle \rangle
\]
\[
\langle \langle t_2, t_0, w_2, p_0 \rangle \rangle
\]
• Information state $c_3$ resulting from Update 3

A new world discourse referent (for the worlds in which the prejacent implication holds, i.e. the best-ranked worlds) is introduced into the bottom sequence. I have already discussed how to determine the set of best-ranked worlds in terms of Kratzer’s modal theory in Chapter 5. I assume that in this model, there is one best-ranked world, i.e. $w_5$.

\[ c_3 \]
\[ \langle\langle t_1, t_0, w_0, p_0\rangle \langle w_5 \rangle\rangle \]
\[ \langle\langle t_2, t_0, w_0, p_0\rangle \langle w_5 \rangle\rangle \]
\[ \langle\langle t_1, t_0, w_1, p_0\rangle \langle w_5 \rangle\rangle \]
\[ \langle\langle t_2, t_0, w_1, p_0\rangle \langle w_5 \rangle\rangle \]
\[ \langle\langle t_1, t_0, w_2, p_0\rangle \langle w_5 \rangle\rangle \]
\[ \langle\langle t_2, t_0, w_2, p_0\rangle \langle w_5 \rangle\rangle \]

• Information state $c_4$ resulting from Update 4

Another temporal discourse referent is introduced into the bottom sequence. It precedes the topical time, i.e. the evidence acquisition time introduced at Update 2. I assume that in this model, the temporal orderings among $t_0$–$t_3$ are as follows: $t_3 < t_2 < t_1 < t_0$.

\[ c_4 \]
\[ \langle\langle t_1, t_0, w_0, p_0\rangle \langle t_2, w_5 \rangle\rangle \]
\[ \langle\langle t_1, t_0, w_0, p_0\rangle \langle t_3, w_5 \rangle\rangle \]
\[ \langle\langle t_2, t_0, w_0, p_0\rangle \langle t_3, w_5 \rangle\rangle \]
\[ \langle\langle t_2, t_0, w_0, p_0\rangle \langle t_3, w_5 \rangle\rangle \]
\[ \langle\langle t_1, t_0, w_1, p_0\rangle \langle t_2, w_5 \rangle\rangle \]
\[ \langle\langle t_1, t_0, w_1, p_0\rangle \langle t_3, w_5 \rangle\rangle \]
\[\langle t_2, t_0, w_1, p_0 \rangle \langle t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_2, p_0 \rangle \langle t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_2, p_0 \rangle \langle t_3, w_5 \rangle\]
\[\langle t_2, t_0, w_2, p_0 \rangle \langle t_3, w_5 \rangle\]

- **Information state** $c_5$ **resulting from Update 5**

The effect of Update 5 can be seen in the information state $c_5$: worlds in which it rains prior to the evidence acquisition time in the best-ranked worlds, are introduced into the bottom sequence. In this model, such worlds are $w_0, w_2, w_3$. 

$c_5$
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_0, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_2, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_3, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_0, t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_2, t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_0, p_0 \rangle \langle w_3, t_3, w_5 \rangle\]
\[\langle t_2, t_0, w_0, p_0 \rangle \langle w_0, t_3, w_5 \rangle\]
\[\langle t_2, t_0, w_0, p_0 \rangle \langle w_2, t_3, w_5 \rangle\]
\[\langle t_2, t_0, w_0, p_0 \rangle \langle w_3, t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_0, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_2, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_3, t_2, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_0, t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_2, t_3, w_5 \rangle\]
\[\langle t_1, t_0, w_1, p_0 \rangle \langle w_3, t_3, w_5 \rangle\]
\[\langle\langle t_2, t_0, w_1, p_0 \rangle\langle w_0, t_3, w_5 \rangle\]\n\[\langle\langle t_2, t_0, w_1, p_0 \rangle\langle w_2, t_3, w_5 \rangle\]\n\[\langle\langle t_2, t_0, w_1, p_0 \rangle\langle w_3, t_3, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_2, p_0 \rangle\langle w_0, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_2, p_0 \rangle\langle w_2, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_2, p_0 \rangle\langle w_3, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_2, p_0 \rangle\langle w_3, t_3, w_5 \rangle\]\n\[\langle\langle t_2, t_0, w_2, p_0 \rangle\langle w_3, t_3, w_5 \rangle\]\n\[\langle\langle t_2, t_0, w_2, p_0 \rangle\langle w_3, t_3, w_5 \rangle\]\n
- **Information state** \(c_6\) **resulting from Update 6**

A propositional discourse referent \(q\) for the prejacent implication, i.e. it rains at the most prominent world \((\perp \omega)\) and time \((\perp \tau)\) on the bottom sequence, is introduced into the bottom sequence.

\[c_6\]
\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_0, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_2, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_3, t_2, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_0, t_3, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_2, t_3, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_3, t_3, w_5 \rangle\]\n\[\langle\langle t_1, t_0, w_0, p_0 \rangle\langle q, w_0, t_3, w_5 \rangle\]\n\[\langle\langle t_2, t_0, w_0, p_0 \rangle\langle q, w_0, t_3, w_5 \rangle\]\n
250
Information state c₇ resulting from Update 7

Update 7 for the evidential implication directly restricts the common ground. It checks whether the speaker (i) is certain of the prejacent implication (⊥Ω), which is at-issue, at the topical time (⊤τ) in the topical world (⊤ω). In this model, w₀ is
where the speaker is not certain of the prejacent implication. All sequences with \( w_0 \) in the top sequence have been eliminated, which results in the reduction of the context set.

\[
\begin{align*}
c_7 &\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_0, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_2, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_3, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_0, t_3, w_5\rangle \\
&\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_2, t_3, w_5\rangle \\
&\langle\langle t_1, t_0, w_1, p_0\rangle\langle q, w_3, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_0, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_2, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_1, p_0\rangle\langle q, w_3, t_3, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_0, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_2, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_3, t_2, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_0, t_3, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_2, t_3, w_5\rangle \\
&\langle\langle t_1, t_0, w_2, p_0\rangle\langle q, w_3, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_2, p_0\rangle\langle q, w_0, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_2, p_0\rangle\langle q, w_2, t_3, w_5\rangle \\
&\langle\langle t_2, t_0, w_2, p_0\rangle\langle q, w_3, t_3, w_5\rangle \\
\end{align*}
\]
• **Information state \( c_8 \) resulting from Update 8**

The prejacent implication \( q \) is proposed to update the context, which is subject to acceptance or rejection by the conversational participants at the next update. In this model, among the worlds where the evidential implication holds, \( w_2 \) is where the prejacent implication also holds. Any sequences that do *not* contain \( w_2 \) in their bottom sequences are eliminated. Note that at this update, the proposal does not change the context set, and thus the top sequences in \( c_7 \) and \( c_8 \) contain the same discourse referents.

\[
c_8
\]

\[
\langle \langle t_1, t_0, w_1, p_0 \rangle \langle q, w_2, t_2, w_5 \rangle \rangle
\]

\[
\langle \langle t_1, t_0, w_1, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

\[
\langle \langle t_2, t_0, w_1, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

\[
\langle \langle t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_2, w_5 \rangle \rangle
\]

\[
\langle \langle t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

\[
\langle \langle t_2, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

• **Information state \( c_9 \) resulting from Update 9**

Accepting the proposed proposition \( q \) results in the reduction of the context set: if a top sequence does not contain \( w_2 \), then it is eliminated.

\[
c_9
\]

\[
\langle \langle t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_2, w_5 \rangle \rangle
\]

\[
\langle \langle t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

\[
\langle \langle t_2, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]
• Information state \(c_{10}\) resulting from Update 10

A new propositional discourse reference \(p_1\) is introduced into the top sequence for the new context set.

\[
\langle \langle p_1, t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_2, w_5 \rangle \rangle
\]

\[
\langle \langle p_1, t_1, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

\[
\langle \langle p_1, t_2, t_0, w_2, p_0 \rangle \langle q, w_2, t_3, w_5 \rangle \rangle
\]

So far, I have exemplified how the context set has been reduced in the course of interpreting the evidential sentence in (292). As shown in information state \(c_0\), there were three worlds in the initial context set, i.e. \(w_0, w_1, w_2\). After uttering the evidential sentence, the context set contains only one world, i.e. \(w_2\), as shown in information state \(c_{10}\).

Interactions between at-issue and not-at-issue content

Building on Murray (2010), I have captured the different status of the prejacent implication and the evidential implication. The prejacent implication, which is at-issue, is \textit{proposed} to be added to the common ground. The evidential implication, which is not-at-issue, is directly added to the common ground. The former is modeled as introducing a propositional discourse referent into the bottom sequence (in \(c_6\)), making a proposal (in \(c_8\)), and reducing the context set only after conversational participants accept it (in \(c_9\)). The latter is modeled as directly reducing the context set without acceptance updates (in \(c_7\)).

The bi-directional interaction between at-issue and not-at-issue content is captured, too. In the proposed analysis, the prejacent implication is required for directly adding the evidential implication to the common ground, as we have seen in Update 7. In Update 7, the context set is reduced to the set of worlds in which the speaker (\(i\)) is certain of the at-issue
proposition \((\bot \Omega)\) at the topical time \((\top \tau)\), based on sensory evidence. Until a propositional discourse referent for the prejacent implication is introduced into the bottom sequence, we cannot directly restrict the common ground with the evidential implication. This is because the evidential implication, i.e. \([\text{CRT}_{\tau \omega}(i, \bot \Omega, \top \tau)]\) in Update 7, depends on the prejacent implication \((\bot \Omega)\). This interaction does not raise a problem in Faller’s and Potts’s formal analyses, either. In Faller’s analysis, illocutionary operators can have a propositional-level meaning as arguments, and in Pott’s analysis, not-at-issue content can have at-issue content as arguments.

However, Faller’s and Potts’s systems do not allow for the other directional interaction between at-issue and not-at-issue content observed in Korean evidential utterances. In order to obtain the prejacent implication, which is at-issue, we need time and world referents which are provided by evidentials, i.e. the evidence acquisition time and the best-ranked worlds. In Faller’s system, Quechua evidentials, as illocutionary operators, do not contribute to what she calls propositional content, and in Pott’s theory, CIs do not contribute to what he calls at-issue content. In contrast, Murray’s system models discourse reference, and it allows us to introduce time and world discourse referents in order to obtain the prejacent implication. I have shown how we can temporally and modally constrain the prejacent implication with time and world discourse referents.

Updates 2 and 4 in (293) introduce temporal discourse referents for the evidence acquisition time and the reference time of a raining eventuality, respectively. In section 3.4.3, I have shown that overt time adverbials can modify the reference time of a described eventuality, but not the evidence acquisition time. I took the adverbial modification pattern as supporting evidence for the view that the evidentials make a not-at-issue meaning contribution, but their co-occurring tenses make an at-issue meaning contribution. I reflect their
different status in the analysis given in (293). The discourse referent for the evidence acquisition time, which is compositionally triggered by the temporal meaning of the evidential –te, is introduced to the top sequence for its not-at-issue meaning contribution. But the discourse referent for the reference time of a described eventuality, which is compositionally triggered by the meaning of tense, is introduced to the bottom sequence for its at-issue meaning contribution. Crucially, when the discourse referent for the reference time of a described eventuality is introduced by Update 4, it refers back to the discourse referent for the evidence acquisition time. By allowing the discourse referent in not-at-issue content to be anaphorically retrieved for at-issue content, the proposed analysis can capture the other directional interaction that has been problematic with applying Faller’s and Potts’s analyses to the Korean data.
CHAPTER 7: Conclusion

The central claim of this dissertation is that evidentiality as a linguistic category is closely connected to temporality and modality. Drawing on data from Korean evidential utterances, I explore the meaning of evidentials in terms of (i) their interactions with tense and mood, (ii) their modal meaning contribution, and (iii) their not-at-issue meaning contribution and interactions with at-issue content. To conclude, I summarize the empirical findings discussed in the preceding chapters. Then I discuss the main insights they provide into the cross-linguistic studies of the meaning of evidentiality, and some implications of the present work for theories of meaning.

Korean evidentials –te and –ney give rise to three distinct evidential readings, i.e. direct vs. inferential vs. reportative. I argue that Korean evidentials –te and –ney are not ambiguous, but the distinct evidential readings arise by means of interacting with tense and mood. In the proposed analysis, Korean evidentials encode (i) a temporal meaning, such that they locate the evidence acquisition time with respect to the utterance time, and (ii) an evidential meaning, such that sensory evidence is acquired by the speaker (in unembedded declaratives) or the addressee (in interrogatives).

When they interact with tense, two distinct evidential readings arise due to the temporal relation constrained by tense. I account for the temporal relation in terms of two eventualities, i.e. a described eventuality and an evidence acquisition eventuality. In the proposed analysis, tenses in Korean evidential utterances are responsible for the reference time of a described eventuality with respect to the evidence acquisition time. This temporal meaning
is compatible with their ‘relative tense’ meanings in an embedded context: when Korean
tenses are embedded, they are interpreted with respect to the time introduced by tense oc-
curring in a structurally higher position. In the proposed analysis, past and future tenses
give rise to a temporally sequential ordering between an evidence acquisition eventuality
and a described eventuality, and it results in an inferential evidential reading. By contrast,
if the two eventualities overlap due to present tense, a direct evidential reading is available.

A reportative evidential reading arises when Korean evidentials –te and –ney interact
with the embedded declarative mood marker –ta. I argue that the embedded declarative
marker introduces an eventuality of someone (the matrix clause subject or the contextually
salient individual) asserting the prejacent, in parallel to other embedded mood markers
in Korean. In the proposed analysis, –te and –ney give rise to a reportative evidential
reading when they take the asserting eventuality as an argument of their ‘sensory evidence’
meaning.

I show that there are compelling pieces of evidence for analyzing Korean evidentials
as encoding a modal meaning. I discuss the projection behaviors of Korean evidentials, in
comparison to English modals and two different types of evidentials from other languages.
For example, when the Korean evidential is embedded under verbs of saying, its evidential
implication is anchored to the matrix clause subject. This is parallel to English epistemic
modals and modal-like evidentials from other languages, providing support for the modal
analysis of Korean evidentials. The so-called ‘non-equi subject constraint’, according to
which the subject of Korean evidential utterances cannot be the speaker, also lends support
for the modal analysis. I consider a wide range of constructions for this constraint, and
account for it in terms of the weakened assertive strength of Korean evidential utterances,
in parallel to English modal utterances. In addition, I show that modal subordination phenomena arise from Korean evidential utterances, arguing for the modal meaning of Korean evidentials.

Given the empirical evidence, I analyze Korean evidentials as encoding a universal quantificational force over accessible worlds as a necessity modal. I capture the evidential meaning of Korean evidentials in terms of the two central components in Kratzer’s modal theory, i.e. the modal base and the ordering source. I propose that the modal base SO (Sensory Observation) and the ordering source ST/DX (Stereotypical/Doxastic) determine the accessible worlds for Korean evidential utterances with –te and –ney: among the worlds in which all of the facts given by the modal base SO hold, the worlds most highly ranked by the ordering source ST/DX are the ones in which the prejacent is true.

This proposed analysis correctly captures whether the speaker has committed him/herself to the truth of the prejacent or not. In direct and inferential evidential utterances, it is the speaker who is committed to the truth of the prejacent, and this is captured by quantifying over the accessible worlds which are anchored to the speaker. By contrast, in reportative evidential utterances, there is no commitment to the truth of the embedded proposition on the speaker’s part: it is the matrix clause subject who is committed to its truth. In the proposed modal analysis of reportative evidential utterances, the quantificational force scopes over the accessible worlds that are anchored to the matrix clause subject in declaratives.

I also capture the distinct evidential readings arising from –te and –ney. The distinct evidential readings, i.e. direct vs. inferential vs. reportative, arise indirectly by means of interactions of the ‘sensory observation’ meaning of –te and –ney, (i) with the ‘relative’ tense meaning of their co-occurring tenses (for the direct/inferential evidential reading),
and (ii) with the ‘asserting-eventuality’ meaning of the embedded declarative markers (for the reportative evidential reading).

I show that Korean evidential utterances give rise to implications which have a different status in discourse. The evidential implication is not-at-issue, which cannot address the QUD and cannot pass the challengibility tests. This contrasts with the other available implications arising from the expressions occurring in the scope of the evidentials, i.e. the prejacent implication in the direct/inferential evidential utterances, and the embedded proposition and the prejacent implication in the reportative evidential utterances. I show that they are at-issue content that can address the QUD and can be directly challenged. The important empirical finding is that the two different types of implications interact in the course of interpreting a single Korean evidential sentence. I argue that the interaction is bi-directional: (i) to obtain not-at-issue content, we need at-issue meaning contributions by the expressions that occur in the scope of the evidentials, and (ii) to obtain at-issue content, we need not-at-issue meaning contributions by the evidentials.

I argue that the bi-directional interaction observed in Korean evidential utterances cannot be accounted for in the formal systems proposed in Faller (2002) and Potts (2005). They allow for uni-directional interaction, according to which Quechua evidentials and CI expressions cannot be analyzed as affecting what Faller calls the propositional content and what Potts calls the at-issue content. I provide a sketch of a dynamic semantic analysis of the bi-directional interaction between two different types of content observed in Korean evidential utterances in Murray’s (2010) formal system, which models discourse referents. While Murray does not address how her system is applicable to the data that exhibit a bi-directional interaction between at-issue and not-at-issue content in the course of interpreting a single sentence, I extend her system to Korean evidential utterances. In the
proposed analysis, the interaction is captured by means of context updates with discourse referents.

Through a detailed study of the Korean evidentials –te and –ney, this dissertation shows that the meaning of evidentiality can be expressed by means of its interaction with other semantic categories. While most of the previous studies from a formal semantic/pragmatic perspective (Faller 2002, Matthewson et al. 2007, Murray 2010 among others) has been centrally concerned with a distinct evidential meaning arising from an independent expression (cf. Faller 2004), this dissertation studies the meaning of the Korean evidentials that give rise to three distinct evidential readings by interacting with tense and mood.

According to Willett’s (1988) cross-linguistic taxonomy of evidential types, the primary distinction is made between direct and indirect evidence. The latter is divided into two subtypes: reported vs. inferring. It is worthwhile to note that the three major evidence types in Willett’s taxonomy are expressed via the interactions of a single item with tense and mood in Korean. It remains to be further investigated whether such evidential readings that indirectly arise from interactions with tense and mood are cross-linguistically attested. Nonetheless, I consider it a reasonable hypothesis that inferential evidence can be indirectly expressed by a temporal relation between relevant eventualities, which I call an evidence acquisition eventuality and a described eventuality. This is because the hypothesis appeals to our world knowledge such that the availability of certain evidence types is constrained in a temporal dimension. One can also hypothesize that reportative evidence is indirectly expressible with mood morphemes that introduce an eventuality of someone’s performing a speech act into the meaning of a whole sentence.

The formal analyses developed in this dissertation might prove to be applicable to evidentials from other languages, in particular, languages in which there are no evidential
markers for some evidence types. If evidentials under investigation are temporally con-
strained and also have modal meanings, then Kratzer’s modal analysis can be extended to
them as in the proposed analysis in which the two relevant conversational backgrounds are
assumed to be functions from world-time pairs to sets of propositions.

This dissertation presents empirical evidence for *bi-directional* interactions of at-issue
and not-at-issue content, in the course of interpreting Korean evidential utterances. The
empirical finding suggests that at-issue content and not-at-issue content, in general, need to
be allowed to interact, whether they occur across sentences or within a sentence (Amaral
et al. 2007). I show that it is possible to formally represent such bi-directional interac-
tions, by sketching an analysis in Murray’s (2010) dynamic semantic system. I hope that
the empirical finding and the sketched formal analysis make a contribution to the further
development of existing semantics and pragmatics theories.


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