

## Evidentiality and temporality: a case study of *-te* in Korean

In this talk, I argue that the Korean post-verbal morpheme *-te* is an evidential (modal) marker (contra Chung 2007), and develop a formal analysis. Various evidential interpretations arising from the meaning of *-te* are accounted for by means of its interaction with tenses.

**Data** *-Te* conveys a meaning about the source of information; more specifically, it means that the speaker is making a sensory observation about the described eventuality (e.g. raining in (1)) as noted by Song (2002). What is of interest is that a sentence with *-te* can receive three different evidential interpretations which are reported from cross-linguistic studies (Willett 1988 among others); (i) *direct*, (ii) *indirect (reported)*, and (iii) *indirect (inferring from results or reasoning)*. In this talk, I analyze the evidential interpretations (i) and (iii) arising from the meaning of *-te*, and show how *-te* semantically interacts with tenses.

As illustrated in (1), a specific evidential interpretation depends on which tense it occurs with. A *direct* evidential interpretation is available with the present tense  $\emptyset$ ; e.g. in (1a) the speaker saw it rain. An *indirect inferential* evidential interpretation is available with the past tense *-ess* and the future tense *-kyess*; e.g. in (1b) the speaker inferred, from the wet ground (as the result-state of the raining eventuality), that it had rained, and in (1c) the speaker inferred, from the overcast sky (as the pre-state of the raining eventuality), that it would rain. These evidential readings (underlined in (1)) are not deniable (as shown by the infelicitous continuations). Also, note that, regardless of tenses, the eventuality of the speaker acquiring evidence is located prior to the speech time (as illustrated by discourse context).

- (1) a. [Context: When Cheli got home yesterday, he talked to Swumi who had been in bed for weeks]  
 Pi-ka o- $\emptyset$ -**te**-la.  
 Rain-NOM fall-**PRES-TE**-DECL  
 ‘I saw it was raining.’ (#But I didn’t see it)’  
 b. [Context: Yesterday morning, Cheli saw that the ground was wet. Now, he says: ]  
 Pi-ka o-**ess**-**te**-la.  
 Rain-NOM fall-**PAST-TE**-DECL  
 ‘I inferred it had rained’ (#But I didn’t infer it)’  
 c. [Context: Yesterday morning, Cheli saw that it was overcast. Now, he talks to his son: ]  
 Pi-ka o-**kyess**-**te**-la.  
 Rain-NOM fall-**FUT-TE**-DECL  
 ‘I conjectured it would rain.’ (#But I didn’t conjecture it)’

In addition to expressing the source of information, the sentences in (1) also give rise to inferences about the speaker’s certainty of the truth of the expressed proposition. Note that the sentences in (1) do not entail that it rained/is raining/would rain in the actual world; e.g. even in cases where the speaker knows that his/her perception can be often misleading, he/she can utter the sentences in (1) truthfully.

**Proposal** I assume that evidentiality is a kind of epistemic modality (McCready & Ogata 2007, Matthewson *et al.* 2008), and build my analysis on Kratzer’s (1977, 1981, 1991) treatment of modality and Condoravdi’s (2002) analysis of temporal references of modals. I argue that the evidential marker *-te* has an unambiguous meaning (as represented in (4)), and the different evidential interpretations of (1) are due to the interactions of *-te* and the tense it occurs with. In my analysis, tenses play a crucial role in predicting the various evidential interpretations of a sentence involving *-te*. They constrain the temporal location of the described eventuality with respect to the eventuality of the speaker acquiring relevant evidence on the basis of his/her sensory observation (contra Song 2002); e.g. in (1b), due to the past tense *-ess*, the raining eventuality is located at the past time with respect to the eventuality of the speaker acquiring evidence. The only available evidential interpretation with this backward shifted temporal reading is an *indirect (results-based) inferential* evidential reading (because the speaker can observe only the post-state of the eventuality and infer the truth of the existence of the eventuality from it).

I provide a compositional analysis of (1b). (The analyses of (1a) and (1c) will be provided in the full paper.) First, I analyze sentence radicals as denoting a function from a world to a set of time intervals, of type  $\langle s, \langle i, t \rangle \rangle$ ; e.g. in (1b), *pi-ka o* ‘rain’ denotes  $\lambda w \lambda t$  [rain’(w)(t)]. Tenses are modifiers of a sentence radical, i.e. of type  $\langle \langle s, \langle i, t \rangle \rangle, \langle s, \langle i, t \rangle \rangle \rangle$ ; they just add a temporal specification as shown below:

- (2) a.  $-ess$  ‘PAST’ :  $\lambda P\lambda w\lambda t \exists t'[t' < t \wedge P(w)(t')]$       b.  $\emptyset$  ‘PRES’:  $\lambda P\lambda w\lambda t \exists t'[t' = t \wedge P(w)(t')]$   
 c.  $-kyess$  ‘FUT’:  $\lambda P\lambda w\lambda t \exists t'[t < t' \wedge P(w)(t')]$

The tensed clause in (1b) is derived by applying (2a) to the denotation of the sentence radical.

- (3) *pi-ka o-ess* ‘it rained’:  $\lambda w\lambda t \exists t'[t' < t \wedge \text{rain}'(w)(t')]$

Now, consider the denotation of *-te* in (4); the MB (modal base) in (4) is a function from world-time pairs to sets of worlds compatible with what the speaker knows based on his/her sensory observation in  $w$  at  $t$  (cf. Condoravdi 2002). When *-te* combines with the tensed clause (3), it results in (5).

- (4) *-te* :  $\lambda P\lambda w\lambda t \exists w'[w' \in \text{MB}(w,t) \wedge P(w')(t) \wedge t < \text{now}]$   
 (5) *pi-ka o-ess-te* ‘(I inferred) it had rained’:  $\lambda w\lambda t \exists w' \exists t'[w' \in \text{MB}(w,t) \wedge t' < t \wedge \text{rain}'(w')(t') \wedge t < \text{now}]$

The two variables  $w$  and  $t$  in (5) are bound in discourse. The final representations of the three sentences in (1) are given in (6). Note that their different evidential interpretations are attributed to the different temporal relations between  $t$  and  $t'$  as represented below:

- (6) a.  $\exists w \exists t \exists w' \exists t'[w' \in \text{MB}(w,t) \wedge t' = t \wedge \text{rain}'(w')(t') \wedge t < \text{now}]$  (final representation of (1a))  
 b.  $\exists w \exists t \exists w' \exists t'[w' \in \text{MB}(w,t) \wedge t' < t \wedge \text{rain}'(w')(t') \wedge t < \text{now}]$  (final representation of (1b))  
 c.  $\exists w \exists t \exists w' \exists t'[w' \in \text{MB}(w,t) \wedge t < t' \wedge \text{rain}'(w')(t') \wedge t < \text{now}]$  (final representation of (1c))

The epistemic modal base by itself does not guarantee the truth of the sentences involving *-te*. Their truth also depends on the information in the ordering source: it induces a particular ordering among the accessible worlds determined by the MB (Kratzer 1991). I propose that the ordering source for *-te* is stereotypical; i.e. the speaker bases his/her statement not just on known facts from his/her direct observation of an eventuality at  $t$ , but also on his/her expectation about its normal course prior to  $t$  or after  $t$ .

**Comparisons with previous analyses** Previous analyses of *-te* fall into two camps: a temporal marker (e.g. H.-S. Lee 1991; Chung 2007) vs. an evidential marker (Song 2002). The first view fails to capture the evidential meaning of *-te*; e.g. H.-S. Lee’s (1991) analysis of *-te* as a past imperfective marker does not account for the undeniable meaning of evidentiality (as exemplified in (1)). In Chung’s (2007) recent work, *-te* is analyzed as ‘a spatial deictic past tense that provides a vantage point for evidentials (p. 204)’. In her analysis, the evidential meaning arises from the post-verbal suffixes;  $\emptyset$  (direct evidential), *-ess* (indirect evidential from results), and *-kyess* (indirect evidential based on reasoning). Since no evidential meaning arises in absence of *-te*, Chung assumes that  $\emptyset$ , *-ess*, and *-kyess* are ambiguous; temporal markers without *-te* vs. evidential markers with *-te*. Whereas there is no independent motivation for this ambiguity analysis, my analysis correctly predicts the temporal and evidential reading of a sentence (whether it occurs with *-te* or not) without assuming ambiguity. Song’s (2002) descriptive account of the meaning of *-te*, where it is analyzed as a ‘Past Sensory Observation’ marker, is in line with my analysis. However, the availability of different evidential interpretations of sentences involving *-te* (along with the speaker’s certainty of the truth of a relevant proposition) remains unexplained in his analysis.

**Wider implication and conclusion** In the literature, evidentiality has been much discussed in its relation to epistemic modality (e.g. de Haan 1999; Aikhenvald 2003; McCready & Ogata 2007; Matthewson *et al.* 2008 among others), but its relation to temporality has not been much explored (cf. Fleck 2007). As a case study of the interaction of temporality and evidentiality, I show how various evidential readings of sentences involving *-te* arise by virtue of tenses, and how they can be accounted for in terms of Kratzer’s modal theory.

**Selected references** • Chung, K.-S. 2007. Spatial deictic tense and evidentials in Korean. *Natural Language Semantics* 15: 187-219. • Condoravdi, C. 2002. Temporal Interpretation of Modals: Modals for the Present and for the Past. In D. Beaver *et al.* (eds.), *The Construction of Meaning*. Stanford: CSLI. • Kratzer, A. 1977. What “must” and “can” must and can mean. *Linguistics & Philosophy* 1: 337-355. • Lee, H.-S. 1991. *Tense, Aspect, and Modality: A discourse-pragmatic analysis of verbal affixes in Korean from a typological perspective*. Ph.D. thesis, UCLA. • Matthewson, L., Rullmann, H., & Davis, H. 2008. *Evidentials as epistemic modals: Evidence from St’át’imcets*. In J. V. Craenebroeck *et al.* (eds.), *The Linguistic Variation Yearbook 7*. Amsterdam: John Benjamins, 201-54. • McCready, E. & N. Ogata 2007. Evidentiality, modality and probability. *Linguistics & Philosophy* 30: 147-206. • Song, J.-M. 2002. A typological analysis of the Korean evidential marker *-te*. *Eoneohag* 32: 147-164.