Semantics of '-e ha' for psych predicates in Korean

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ABSTRACT

This study examines the Korean evidential morpheme *-e ha* in to the context of psych predicates, addressing the gap in the systematic study of its role in subordinate clauses and its broader semantic implications. This study reveals that *-e ha* is necessary when there exists a mismatch between the experiencer and the logophor of the clause. This finding highlights the syntactic transformation of psych predicates from adjectives to verbs facilitated by *-e ha*, which semantically requires endophoric evidence. Considering these findings, the semantic structures of clauses with psych predicates and logophor shifts are discussed. Furthermore, proposed are the semantic denotations of *-e ha* and a zero morpheme within the framework of epistemic modals with the assumption that the zero morpheme is requisite for psych predicates wherein experiencer aligns with the logophor. These analyses and proposals have broader implications and offer a foundation for analyzing linguistic phenomena from a logophoric perspective.

Keywords: -e ha, evidentiality, psych predicate, logophor, modal

1. Introduction

Evidentiality refers to a linguistic category indicating the source of information (Aikhenvald, 2004). In almost half of the world languages, there are affixes encoding evidentiality and in the other languages, evidentiality is grammaticalized in other linguistic means, such as auxiliaries and modals (Lee, 2012). Among the languages with evidential affixes, there is further difference in the number and type of information sources lexicalized.

The type of information sources can be largely categorized into two: direct and indirect (or first-hand and non-first hand) The direct evidence usually includes

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information obtained by direct sensing, such as visual and auditory, and the indirect evidence includes reported or inferred information (Aikhenvald, 2004; Plungian, 2001; Willett, 1988). The evidentiality has been explored widely in a variety of languages, most of which are non-European languages, such as Bulgarian (Izvorski, 1997; Smirnova, 2013), Japanese (Tenny, 2006), Kashaya (Oswalt, 1986), Quechua (Faller, 2003) and Tibetan (DeLancey, 2001; Garrett, 2001).

Korean is also a language with rich morphology for evidentiality and different types of evidential morphemes have been studied in relation to various linguistic phenomena. For example, (Chung, 2012) discussed an inferential evidential morpheme *-keyss*, a direct evidential morpheme *-te*, and its interaction with tense/aspect. Lim & Lee (2012) explored the shifts in perspective in interrogatives and declaratives, which affects the selection of evidential morphemes, such as *-te* and the reportative evidential morpheme *-ray*.

C. Lee (2013) and Kwon (2014), on the other hand, focused on the morpheme *-e ha*, which is required for psych predicates in certain contexts, and analyzed it as an evidential morpheme. There are two aspects that make these studies even more interesting: they show that 1) *-e ha* is an evidential morpheme with a restricted range of use, and 2) it is sensitive to the perspective of the clause, and thus, might play a role at the interface between semantics and pragmatics. Most of the previous studies on the morpheme *-e ha*, however, has focused on its use in the matrix clause and different perspective effects in the embedded clauses have not been studied systematically. In addition, the conditions that require *-e ha* need to be discussed with more concrete notions.

To fill the gap, this paper aims to propose the semantics of *-e ha* and suggest its interpretation in matrix and subordinate clauses. For the purpose, the use of *-e ha* for psych predicates will be illustrated and its necessity will be discussed based on the previous research. Then based on the characteristics of the morpheme *-e ha*, it will be analyzed as an evidential morpheme with epistemic modality. Finally, explaining the so-called logophoricity effect with the psych predicate and *-e ha*, the semantic structure of clauses with psych predicates and the denotation of *-e ha* will be proposed following the semantic framework on logophporicity and modals.

2. *-e ha* for Psyche Predicates

2.1. The phenomenon

In Korean, psyche predicates such as *pokosip-* 'miss', *paykopu-* 'be hungry', *simsimha-* 'be bored' require the morpheme *-e ha* in certain contexts. When psyche predicates are used in matrix clauses, *-e ha* is required only when the speaker is not the experiencer whose internal state is reported. In other words, *-e ha* is required except for the subjects in the first person, i.e., I, as in (1-2).

(1) Na-nun   ecire- (?e ha)-ta
    I-TOP   dizzy-*e ha*-Decl
    'I feel dizzy'

(2) Mary-nun   ecirep #(-*e ha*)-nta
    Mary-TOP   dizzy   -Decl
    'Mary feels dizzy[1]'

<div align="right">(Cited from C. Lee, 2013)</div>

In (1), the addition of *-e ha* is not required after the first person subject, while in (2), it is required as the experiencer of the dizziness *Mary* is not the speaker. If *-e ha* is missing in (2), the sentence sounds as though the speaker is a representative of *Mary*. This might be used in very rare cases, such as when *Mary* cannot express oneself for being so young or in an omniscient narration of a novel.

In embedded clauses, on the other hand, *-e ha* is required even if the experiencer of the psyche predicate is the speaker, as in (3), and only when the experiencer is the same as the subject of the matrix clause, as in (4), is the psyche predicate exempted from the addition of *-e ha*.

(3) Local subject of 'be dizzy' ≠ Subject of the matrix clause   → *-e ha* suffixing
    [Nae-ka   ucirep-#(e ha)-ese]   Sam-un   yak-ul
    [I-NOM   dizzy-*e   ha*-because] Sam-TOP   medicine-ACC
    sa-cwu-ess ta
    buy-BENE-PAST-Decl
    'Because I felt dizzy, Sam bought medicine (for me).'

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1) Abbreviations: ACC: Accusative, BENE: Benefactive, COMP: Complementizer, COND: Conditional, DECL: Declarative, EVI: Evidential, NOM: Nominative,, PAST: Past tense, PRES: Present tense, PROG: progressive, TOP: topic.

(4) Local subject of 'want to' = subject of the matrix clause

[(Caki-ga)   ucirep-(#e ha)-e se]   Sam-un   yak-ul

[(Self-NOM) dizzy-because]   Sam-TOP   medicine-ACC

sa-ss ta

buy-PAST-Decl

'Because he$_i$ felt dizzy, Sam$_i$ bought medicine.'

Not only is the addition of the morpheme *-e ha* sensitive to the subject effect, it also changes the syntactic category of the psych predicate: With the *-e ha* suffixing, the psyche predicates change from adjectives to verbs. Such a syntactic change can be illustrated by the complementizer of the predicate in a relative clause: the complementizer for the adjectival predicates is *-(u)n*, while that of the verbal predicates is *-nun* (Choe, 2005; Kang, 1988). For the diagnosis, the complementizer for the psyche predicate *-ko sip* 'want to' in a relative clause is compared in (5-6).

(5) [Nae-ka   ka-ko sip-un]   kot[2)]

[I-NOM   go-want-COMP]   place

'The place that I want to go'

(6) [Mary-ka   ka-ko sip-*e ha*-nun]   kot[3)]

[Mary-NOM   go-want-*e ha*-COMP]   place

'The place that Mary wants to go'

In (5), the complementizer *-un* is added to the psyche predicate *-ko sip* to form a relative clause, which is a morpheme that changes an 'adjectival' predicate into a noun modifying form. In (6), on the other hand, for the psyche predicate with *-e ha* addition *-ko sip-e ha*, the complementizer *-nun* is added, which is a morpheme that changes a 'verbal' predicate into a noun modifying form. These examples show

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2) A review pointed out that adding *-e ha* in this context does not make the phrase ungrammatical (*Ney-ka ka-ko sip-e ha-nun kot*). Indeed, *-e ha* can be added to psych predicates whose experiencer is the first person, but it arises additional effect: making the statement sound more objective. For example, on the internet (https://hiphople.com/lyrics/261710), I found the phrase used after the clause *My father takes me everywhere*. In this context, adding *-e ha* to *-ko sip* is more desirable as the intended interpretation might be 'the place the speaker seems to desire to go from the father's perspective'

3) The complementizer *-nun* is for verbal predicates in non-past tense and *-(u)n* is used for verbal predicates in past tense. In other words, if *sip-e ha-nun* is replaced with *sip-e ha-n*, the meaning also changes to 'the place that Mary wanted to go'

that *-e ha* changes the syntactic category of the psyche predicates from adjectives to verbs.

2.2. Why *-e ha* is necessary

The requirement of *-e ha* for certain psyche predicates in Korean can be related to the requirement of participatory/endophoric evidence of psych predicates and the rigidity of the speaker's stance (Kwon, 2014; C. Lee, 2013; Song, 2018). In order to report on someone's internal state, a very specific type of evidence, participatory/endophoric evidence is required. The participatory or endophoric evidence can be obtained by one's direct involvement in a particular situation and thus be derived from within the context of the situation itself. This is distinguished from direct evidence, which can be obtained through direct sensing (e.g., visual, auditory) (Plungian, 2001, 2010).

For example, the evidence adequate enough to make an utterance 'A is hungry' can be obtained only by A - by directly involving in and perceiving one's internal state. With any evidence also available to others, however, this utterance can be falsified. Even if we observe A's starving face, hear his stomach growling, know the fact that he has not eaten for a long time and his blood sugar level is low, and even hear from A that he is hungry, it is still possible that in fact, A is not hungry.

Accordingly, when the internal state of a person who is not the speaker is expressed with a psyche predicate, it is common in Korean to add the direct evidential morpheme *-te(ra)*, the inferential evidential morphemes *-keyt*, *-ney* or the reportative evidential morphemes *-tay*, *-ray* (Chung, 2010; Lee, 2012; Lim & Lee, 2012; Song, 2018). In such cases, what is asserted is that the speaker has the direct/inferential/reportative evidence for the internal state of another person. Likewise, the morpheme *-e ha* is also understood as an evidential morpheme whose usage is dedicated to psych predicates.

The requirement of participatory evidence for the utterance of someone else's internal state, however, seems to be exempted in English and in embedded clauses with a psych predicate in Korean, as in (4) above. The difference can be accounted for by the notions *stance* and *logophor*. Logophor refers to the entity whose point of view is reported (Minkoff, 1994)[4]. In English, the speaker can take either the

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4) The entity whose point of view anchors a proposition and affects its truth-condition has been variably referred as discourse roles (Kamp, 1984; Sells, 1987), logophors (Minkoff, 1994), point of view holders

autocentric (=the speaker's point of view) or exocerntric stance with the subject. For example, the sentence in (7) actually means 'the cat food is tasty to cats', but this can be said even if the speaker has not tasted the cat's food.

In Korean, on the other hand, the speaker's stance is fixed by default unlike English and many other languages. In matrix clauses, the speaker takes only autocentric stance by default. For example, the sentence in (8) sounds awkward unless the speaker has tasted the cat's food, and in more general contexts, the English sentence in (7) better corresponds to the sentence in (9) (C. Lee, 2013).

(7) This cat food is tasty.
    (Experiencer: the speaker - autocentric stance, or a cat - exocentric stance)

(8) I   koyangi pap-i   massis-ta.
    This   cat   food-NOM   tasty-Decl
    'This cat food is tasty' (Experiencer: the speaker - autocentric stance)

(9) Koyangi-nun   i   koyangi pap-ul   massis-e ha-nta
    Cats-TOP   this cat   food-ACC   tasty-e ha-Decl
    'Cats consider this cat food tasty' (Explicit experiencer: cats)

In embedded clauses of Korean, on the other hand, the speaker takes the exocentric stance with the subject of the matrix clause (=the matrix subject's point of view). That is, the point of view the speaker is taking, i.e., the logophor does not coincide with the experiencer's when the experiencer in the matrix clause is not the speaker and when the experiencer in the embedded clause in not the subject of the matrix clause. In such cases, the experiencer's internal state cannot be directly reported. Instead, it should be inferred based on the external evidence available to the logophor of the clause, and this is reflected by the addition of the evidential morpheme *-e ha*[5]. In other words, when *-e ha* is added, the clause only expresses

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(Speas & Tenny, 2003), etc. In this paper, I will use the term *logophor* for *consistency*.

5) Several researchers challenge the classification of *-e ha* as an evidential morpheme, as highlighted by a reviewer. This skepticism stems from the argument that the associated necessity for an evidence acquisition event when employing *-e ha* does not unequivocally render it an evidential morpheme. This is because the acquisition of evidence can occur naturally as *-e ha* fulfills its function. Kwon (2014) posits that *-e ha* functions primarily as a viewpoint-shifter rather than an evidential morpheme, arguing that it explicitly marks the speaker as an observer. This perspective is insightful as it foregrounds the broader event context of the utterance that includes *-e ha*, rather than focusing solely on the evidence itself. Conversely, however, interpreting *-e ha* as an evidential morpheme might be more intuitive in

the internal state of an experiencer as indirectly deduced based on the experiencer's external behaviors the logophor observed (Kwon, 2014).

3. The Analysis of *-e ha* as An Epistemic Modal

There have been various analyses on the semantics of evidential morphemes across languages, but two representative approaches are to analyze them as illocutionary elements and to regard them as modals. To begin with, some evidential morphemes are analyzed as adding an evidential meaning above the propositional level (Faller, 2002, 2003, 2007, 2017; Murray, 2017). For example, evidential morphemes in Quechua are illocutionary modifiers and function above the propositional level. As a result, they do not affect the truth conditions of the proposition in which it is added, cannot be embedded or negated, nor can it be used in conditional antecedent clauses.

On the other hand, there are other evidential morphemes analyzed better as modals, especially epistemic modals (Cornillie, 2009; Garrett, 2001; Izvorski, 1997; McCready & Ogata, 2007; Sauerland & Schenner, 2007; Smirnova, 2013). For example, evidential morphemes in Bulgarian can be used in embedded clauses or negated, and can also be used in conditional antecedents. More crucially, these evidential morphemes are comparable to epistemic modals in that they require an evidence obtaining event.

Based on the previous analyses, it is worth delving into the semantic properties of the Korean evidential morpheme *-e ha*. As discussed in the Section 2.1, syntactically, the morpheme attaches to adjectives and changes them into verbs. (This is not a diachronic change.) For the same reason, in the examples above, *massi-ta* 'delicious' in (8) is an adjective, and *massis-e ha*-nta in (9) is a verb[6].

Semantically, *-e ha* is derived from the light verb *ha(ta)* 'do'. The literal meaning of the predicates with *-e ha*, thus, is that an experiencer is acting as though s/he is in a certain internal state. (From the logophor's point of view, the experiencer is showing a sign that s/he is in a certain internal state.) Concerning this, please

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contexts where it scopes under negation. In such cases, it is cognitively simpler to perceive it as signifying the absence of evidence at the time of evaluation, rather than indicating a reversal of the viewpoint shift.

6) In Korean, adjectival predicates end in *-ta* while verbal predicates end in *-(nu)nta* in plain style (Choe, 2005; Kang, 1988).

note that the time of the action should synchronize with the time of the internal state (or the evidence must be regarding the event).

Concerning the type of the predicates where it can attach to, there are some constraints: they should be psych or subjective experiencer predicates which are adjectival. For example, among synonymous predicates all of which mean 'to want, to wish' - *ko sip-*, *wenha-*, and *para-*, only *-ko sip(ta)* is an adjective, and thus *-e ha* is necessary in certain contexts, while the other predicates do not need it. Also, *-e ha* cannot attach to propositional attitude verbs (e.g. *sayngkakha-* 'to think', *sangsangha-* 'to imagine', *kkumku-* 'to dream', etc), as well, since they are not adjectives, either[7]).

As pointed out by a reviewer, *-e ha* might look more analogous to root modals in that it induces an agent subject. The evidential *-e ha*, however, requires assessment of evidence, similar to epistemic modals, and the relative timing of this evaluation event also aligns with that of epistemic modals rather than root modals. Circumstances and evidence are not fixed and change over time, and the relevant timing for their assessment differs between root and epistemic modals. For root modals, the evaluation of circumstances and goals aligns with the tense of the clause. In contrast, for epistemic modals, evidence is assessed at the time of speech in matrix contexts, or in embedded contexts, at the 'internal now' of the embedding verbs (Condoravdi, 2002; Stowell, 2004). Hacquard (2010) accounts for the difference with the position of modals: root modals are placed right above VP, while epistemic modals are located right above tense.

For example, in English, *have to* can be used as either a root or an epistemic modal, and depending on this type, its evaluation time changes. When *have to* is interpreted as a root modal, as in (10), the evaluation time of the circumstances is the tense of the VP, i.e., *given the circumstances then*. When it is interpreted as an epistemic modal, as in (11), on the other hand, the circumstances are evaluated at the speech time, i.e., *given the circumstances now*.

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7) A reviewer commented that *-e ha* can also be added to individual-level descriptive adjectives, changing them into stage-level adjectives, as the examples below show. The changed interpretation also involves an evaluation from a certain perspective, and thus, this phenomenon suggests an expansion in the use of *-e ha* as an evidential with epistemic meaning.

a.	Pang-i	cop-ta	b.	Mina-nun	pang-ul	cop-e	ha-nta
	Room-NOM	narrow-DECL		Mina-TOP	room-ACC	narrow-e	ha-DECL
	'The room is narrow'			'Mina act as though the room is narrow (to her)'			

(10) Mary had to take the subway yesterday.
    *mod_{root}>past: given the circumstances now
    ∨past>mod_{root}: given the circumstances then

(11) Mary had to be home (at the time of the crime)
    ∨3mod_{epis}>past: given what is known now
    *past>mod_{epis}: given what was known then

<div align="right">(adapted from Hacquard, 2010)</div>

The timing of the evaluation event required for *-e ha* aligns with that of epistemic modals. The proposition in (12) cannot be uttered in a scenario where the speaker thought until yesterday that Mary missed Tom but found out this morning that in fact it was Tom's cat, not Tom, that Mary missed. In other words, the evaluation takes place at the speech time and thus, the timing parallels with that of epistemic rather than root modals.

(12) Ecey   Mary-nun   Tom-ul   po-ko sip-*e ha*-sse.
     Yesterady Mary-TOP   Tom-ACC   see-want-*e ha*-PAST
     'Yesterday, Mary wanted to see Tom (=Mary missed Tom)'.
     ∨$EVL_{e\ ha}$>past: *given what is known now*
     *past>$EVL_{e\ ha}$: *given what was known then*

In addition to the semantic similarity, there are also other characteristics of *-e ha* supporting its analysis as an evidential morpheme with epistemic modality, rather than an illocutionary modifier. First, *-e ha* can be used in conditional antecedent clauses, as in (13).

(13) Taro-ga   paygop-e ha-myen   malha-e cwu-o.
     Taro-NOM   hungry-e ha-COND   tell-BENE-Decl.
     'If Taro is hungry, tell me' (No presupposition that there is evidence that Taro is hungry)

Second, the sentences with *-e ha* can (not must) scope under negation. In (14a-b), short-negation is used with the predicate massis-*e ha* 'act as though something is tasty' with a minor difference in the position where *-e ha* is added. The interpretation in (14a) indicates that there is evidence to the speaker inferring that Taro doesn't

enjoy the bread, allowing *-e ha* to scope over negation. The interpretation in (14b), on the other hand, indicates that there is no evidence to the speaker inferring that Taro enjoys the bread, resulting in wider scoping of negation over *-e ha*. The interpretation with long-negation in (15) is similar to (14b).

(14) Short-Negation

    a. Taro-nun   ku bbang-ul   [an masiss]-*e ha*-yo.
       Taro-TOP   that bread-ACC   [not tasty]-*e ha*-Decl.
       'Taro does not enjoy the bread'
       (-e ha > Neg: Taro is showing a sign that he does not like bread)
    b. Taro-nun   ku bbang-ul   [masiss-e an ha]-yo.
       Taro-TOP   that bread-ACC   [tasty-e not ha]-Decl.
       'It is not that Taro enjoys the bread'
       (Neg > *-e ha*: Taro is not showing a sign that he enjoys the bread)

(15) Long-Negation

    Taro-nun   ku bbang-ul   masiss-*e ha*-ci ahn-ayo.
    Taro-TOP   that bread-ACC   tasty-*e ha*-not-Decl
    'It is not that Taro enjoys the bread'
    (Neg > *-e ha*: Taro is not showing a sign that he enjoys the bread)

In cases where the negation takes wide scope over *-e ha* in the above sentences, it can be followed by the sentences like 'but he does not dislike it, either' or 'he enjoys this dish'.

Lastly, the clauses with *-e ha* can also be added to psych predicates in embedded clauses, such as subordinate clauses under attitude predicates, or in complement clauses. In (16a), *-e ha* is used in the *because*-subordinate clause and interestingly, the logophor of this clause is not only *Mary*, the subject of the matrix clause, but also the speaker. The utterance is asserted from *Mary*'s point of view and this should coincide with that of the speaker. As the speaker shares Mary's point of view, it is awkward to add a sentence as in (16b), expressing a contrasting inference toward Sam's internal state.

(16) a. Sam-i   oilop-e ha-ese,   Mary-ka   kekjengha-nta.
       Sam-NOM   lonely-e ha-because, Mary-NOM worry-Decl
       'Because Sam is lonely (in Mary and speaker's point of view), Mary worries.'

b. Haciman,   sasil   na-nun   [Sam-i   oilop]-tako
    But   in fact,   I-TOP   [Sam-NOM lonely]-COMP
    sayngkakha-ci ahn-nunta.
    think-not-Decl
    'But in fact, I don't think Sam is lonely'

It should be noted, however, that the analysis of *-e ha* as an epistemic modal encounter several challenges, as highlighted by some reviewers. Indeed, it has been argued, for instance by De Haan (2001) that evidential morphemes and epistemic modals serve distinct functions: the former assert the presence of evidence, whereas the latter are more concerned with the evaluation that determines the speaker's level of confidence in their utterance without directly specifying the source of information. Similarly, analyzing *-e ha* as an epistemic modal raises questions, particularly regarding its impact on argument structure change, as in (17).

(17) a. Na-nun   Mina-ka   po-ko sip-ta
       I-TOP   Mina-NOM   see-want-DECL
       'I miss Mina'
    b. Ku-nun   Mina-lul   po-ko sip-e ha-nta
       He-TOP   Mina-ACC   see-want-e ha-DECL
       '(He is acting as if) he misses Mina'

In addition, the clauses with *-e ha* do not pattern like epistemic modals, such as *-(n)un keti tulimepta* 'must' in terms of modal subordination. As in (18), when the modal *-(n)un keti tulimepta* 'must' is used in the first sentence, the following sentence also requires a modal, as both are subordinated by the same modality. After the sentence with *-e ha*, on the other hand, it is not necessary to use a modal in the following sentence, as in (19).

(18) Ku-nun   nukunka-ka   po-ko sip-un keti tulimepta.
     He-TOP   someone-NOM   see-want-must
     Ku saram-un   [?Mina-ta /√ Mina-i-l keta].
     The person-TOP   [Mina-be/Mina-be-would]
     'He must miss someone. The person [?is / √would be] Mina.'

(19) Ku-nun   nukunka-lul   po-ko sip-*e ha*-nta.

He-TOP   someone-NOM   see-want-*e ha*-DECL

Ku saram-un   Mina-ta.

The person-TOP   Mina-be

'(He is acting as if) he misses someone. The person is Mina.'

At least when this modal subordination test is considered, *-e ha* is analogous to epistemic adverbs, such as *certainly*, rather than the epistemic modal *must* (read J. Lee, 2013; Roberts, 1989; Traugott, 2014 for details). Such distinctions between *-e ha* and other epistemic modals raise a question about the analysis of *-e ha* as epistemic modals. It would be premature to completely discard the analysis of *-e ha* as an epistemic modal, however, as the similarity between *-e ha* and epistemic modals -specifically, the involvement of an evaluation event-is also undeniable, forming a core part in their interpretation. Epistemic modals are often distinguished from non-modalized sentences in that the former signals "the presence of an indirect inference of deduction" (Von Fintel & Gillies, 2007, p. 32) and "are relative to a time of evaluation: the speech time (in matrix contexts) or the internal now of the attitude (in embedded contexts)" (Hacquard, 2010, p. 92). The same properties also play a significant role in the interpretation of *-e ha*. In this sense, despite a few distinctions between *-e ha* and epistemic modals, introducing epistemic modality in the interpretation of *-e ha* seems to be still valid and promising, while more explanations are needed regarding the distinctions between *-e ha* and other epistemic modals in the future research.

4. Logophoric Operator in Subordinate Clauses

So far, the necessity of *-e ha* and its characteristics in support of the epistemic view have been explained. This discussion ultimately suggests that there are logophoric aspects in psych predicates and they are highly related to the use of *-e ha*. In other words, in order to interpret the meaning of *-e ha* and the whole sentence containing it, it is necessary to implement the notion of logophoricity in the semantic structure of the sentences containing psych predicates. Indeed, in previous studies, there have been constant attempts to account for such logophoric elements with different semantic mechanisms.

For example, based on the fundamental work by Kamp (1984), Sells (1987)

accounted for the phenomena related to points of view with discourse roles. Stephenson (2010) relied on the notion *centered world* and tried to separate the logophor or attitude holder's perspective.

In this paper, on the other hand, my primary framework aligns with the claim by Cinque (1999) and Speas & Tenny (2003), which proposed a projection of sentience in the left periphery, incorporating the semantic notion into syntactic structure. This approach introduces covert syntactic operators to account for the logophoric aspect, suggesting a syntax-driven analysis of logophoricity. While acknowledging that this perspective is not the sole avenue for discussing such concepts, it necessitates that my analyses and referenced claims be explicitly defined. Despite its limitations, I favor this syntax-oriented approach because it allows a consistent and systematic explanation on the shifts of logophors in both matrix and embedded clauses. Thus, following Speas and Tenny, the projection of a logophoric aspect will be assumed in this paper and the semantic denotation of the evidential morpheme *-e ha* and the interpretation of sentences containing them will be proposed.

The logophor of the matrix clause in Korean is the speaker, as discussed in the section 3.2. The logophor of the embedded clause, on the other hand, is more complicated as there should be further consideration on additional points of view: 1) whether the speaker is also included as the logophor of the embedded clause, and 2) the points of view from which the relationship between the matrix and embedded clauses is evaluated (Koopman & Sportiche, 1989; Kratzer, 2006).

Following Speas & Tenny (2003), Charnavel (2019) proposed that there is a syntactically represented logophoric operator at the left periphery of the subordinate clause that is bound by the judge *j*. The judge is necessary as the casual relationship between the clauses in 'A because B' needs to be evaluated. At the same time, the causal clause also qualifies as "attitude context", considering that it can license evaluative expressions and anaphors, such as *embarrasing* and *herself* in (20). Interestingly, the sentence is no longer allowed in contexts where the speaker believes that not the circulation of the picture but something else is the actual reason of Liz's leaving. Related to this, the causal clause can also license anaphors that refer to both the speaker and the subject of the matrix clause, as in (21). In contrast, the anaphor that refers to either the speaker or the subject of the matrix clause, i.e., the subordinate clause takes a mixed/split perspective, cannot be licensed, as in (22).

(20) Liz$_i$ left the party because there was an **embarrassing** picture of **herself**$_i$ going around.

(21) Liz$_i$ left the party because there was an **embarrassing** picture of **ourselves**$_{i+speaker}$ going around.

(22) ?Liz left the party because there was an **embarrassing** picture of **myself** going around.

Starting from the analysis of such cases, Charnavel (2019) proposed a judge *j*, which is an anaphoric logophor located between the matrix clause and the causal clause and bound by the speaker (and the event participant of the matrix clause P if P is high enough). In addition, the logophoric aspect of the matrix and causal clauses is accounted for by logophoric operators. The operator in the matrix clause locally and exhaustively binds the judge *j* while the operator in the causal clause binds the logophoric elements. As they are bound locally but not necessarily exhaustively, however, the operator on the causal clause can be bound only by the participant of the matrix clause or both the speaker and the participants (Read Charnavel (2019) for details).

In this framework, the logophors and the judge of a complex sentence in Korean can be represented as follows.

S [[$_A$ OP$_P$ Log$_P$] J$_{S+P}$ *-ese*] [$_B$ P OP$_{S+P}$][8)

<div align="right">(adapted from Charnavel's (2019) model)</div>

The judge is postulated as such because there is a casual relationship in both the speaker's and the participant of the matrix clause's points of view. In addition, the logophor operators in A is partially bound by the judge, and thus, the logophoric element is bound only by the participant of the matrix clause.

Hence, the utterance in (23) sounds awkward if 1) Susan is not glad in Sam's perspective, or 2) either the speaker or Sam does not believe that Susan's being glad resulted in Sam's satisfaction. The logophor that evaluates Susan's feeling, however, does not include the speaker. Thus, while the utterance in (24) shows that the speaker does not think Susan was happy, it does not contrast with (23).

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8) S: Speaker, OP: Operator, Log: Logophor, J: Judge, P: Participant (of the matrix clause)

(23) Susan-i   kippu-*e ha*-ese   Sam-to   mancokha-ss-ta.
      Susan-NOM   glad-EVI-because   Sam-also   be satisfied-PAST-DECL
      'Because Susan was glad, Same was also satisfied.'

(24) Haciman   sasil   Susan-un   sokuro   ul-go is-ess-ta.
      But   in fact   Susan-TOP   inside   cry-PROG-PAST-DECL
      'But in fact, Susan was crying inside'

In complex sentences for which the judge is not postulated, the operator of the embedded can only be bound by the lowest attitude holder, as shown below.

S [[$_A$ OP$_P$ ⋯.   Log$_P$]   *-ko*] [$_B$ P   *(mal) hata*]

For example, in (25), the logophor of the proposition in the embedded clause is only the matrix subject, which is independent from the speaker's perspective. Thus, the utterance can be said as long as the speaker believes that he was tired in Sam's point of view i.e., there was evidence to Sam about the speaker's feeling tired, even if the speaker in fact did not feel tired himself.

(25) Sam-un   [nay-ka   himtul-e ha-]ntako   Susan-ekey
      Sam-TOP   [I-NOM   be tired-EVI-PRES]-COMP   Susan-to
      mal   hassta.
      said
      'Sam said to Susan that I was tired.'

Such assumption nicely captures the distribution of *-e ha* in matrix and embedded clauses. As the matrix clause strictly reflects the speaker's perspective and the embedded clause reflects the subject of the matrix clause due to the binding of the logophoric operator, *-e ha* is necessary when the experiencer of the psyche predicates is different from these logophors.

5. The Semantics and Syntax of *-e ha*

5.1. Semantics of *-e ha* as an epistemic element

This paper assumes that *-e ha* is an evidential morpheme that involves epistemic

modality, so its semantics should also follow that of other epistemic elements. In the research on modals, there has been an attempt to make a unified account on morphemes with modality (both epistemics and deontics/roots), and the notion of *event relativity* was proposed to explain different patterns of interaction between these morphemes and tense/aspect. Such morphemes are relative to an event of evaluation that comes with the running time and participants. For examples, a modal has an event variable in its restriction that needs to be bound locally. The local event binder of the modal relativizes it to the event (the time and the participant) it quantifies over. As discussed in Section 3, epistemic modals are located above tense and aspect so the evaluation time is the speech time. Root modals, on the other hand, are below tense and aspect, so the evaluation time is the running time of the VP event (Anand & Hacquard, 2014; Hacquard, 2006, 2009).

Bearing the notion of event relativity of modality, let's suppose a preposition *p*, which contains a psych predicate whose experiencer is the logophor. In this case, the logophor must perceive *p*. In the case where the experiencer is not the logophor of the clause, on the other hand, *p* must be evaluated by the logophor based on any evidence. I suggest that in Korean, this evaluation event is overtly marked by a particular evidential morpheme *-e ha*, while the perception event is covertly encoded by a zero morpheme.

-E ha can be treated as an epistemic element that comes with an individual/time pair of the evaluation event. The individual and time of the evaluation are determined by the binding of the modal event, which is above the T/ASP of the psych predicate. Thus, in the matrix clause, the individual and time of the evaluation are the speaker and the speech time, respectively. In the embedded clause under an attitude verb, the individual and the time of the evaluation are the attitude holder and the attitude time, respectively. (The individual and time of the perception, on the other hand, are bound by the T/ASP of the psych predicate VP, which will be discussed shortly.) Syntactically, *-e ha* seems to combine directly with the psych predicate, as it changes its argument structure and predicate type. In addition, it can be inflected for tense, indicating that it is syntactically located below T. At LF, however, *-e ha* may be raised above the psych predicate clause, as the evaluation time and the evaluating individual have to be bound by the lowest event above it. The existence of the evidence is not presupposed, as it can be challenged, and thus, it must be a part of the denotation of *-e ha*.

5.2. Semantic denotation of *-e ha*

From the discussion in the previous section and following the semantic analyses of epistemic modals in the literature (Hacquard, 2010; Kratzer, 1977, 1991, 2006; Von Fintel & Gillies, 2007), the two versions for the semantic denotation of *-e ha* can be proposed as follows. Please note that *-e ha* is relative to an individual-time pair, which is signaled as ε, following the analysis of epistemic modals by Hacquard (2010).

Version 1. *-e ha* combines with the predicate, and its modal base and ordering source are above ASP/T.

$[[\textit{-e ha}]] = \lambda f \, \lambda x_{\neq Ag(e)} \, \lambda g_{<\varepsilon,stt>} \, \lambda h_{<\varepsilon,stt>} \, \lambda q_{<st>} \lambda e.$ [Ag(e) has evidence supporting f(x)(t)=1 at time(e) in w] & [$\forall w' \in_{\max \, h(e)} (\cap g(e))$: q(w')=1]]

$\cap f(e) = \{w':$ w' is compatible with the evidence in e (by Ag(e) at time (e))\}

Ordering source g(e) = \{q | Ag(e) at time (e) believes q=1 with respect to the evidence in w\}

Version 2. *-e ha* and its modal base and ordering source are above ASP/T

$[[\textit{-e ha}]] = \lambda f_{<\varepsilon,stt>} \, \lambda g_{<\varepsilon,stt>} \, \lambda q_{<st>} \, \lambda e.$ [Ag(e) has evidence for q=1 at time(e) in w] & [$\forall w' \in \max_{g(e)} (\cap f(e))$: q($w'$)=1]

$\cap f(e) = \{w':$ w' is compatible with the evidence in e (by Ag(e) at time (e))\}

Ordering source g(e) = \{q | Ag(e) at time (e) believes q with respect to the evidence in w\}

Between the two versions, I claim that the version 2 works better in the framework of the previous studies on epistemic modals (and evidentials treated as epistemic elements). The restriction that the experiencer x cannot be the individual of the evaluation, i.e., $\lambda x_{\neq Ag(e)}$, is neither necessary nor desirable, given that the psych predicates with the 1st person experiencer in the matrix clause also allows *-e ha* for pragmatic effects. In (26), the speaker at the speech time evaluates one's own state in the past as though s/he were observing oneself in the past moment. In (27), on the other hand, the speaker describes one's condition as if it was observed by others, including the speaker himself. Compare this sentence with (28), with which the speaker asserts what s/he perceives about oneself.

(26) Na-nun   kuttay   sulpu-e ha-ss-ten ket katta.
    I-TOP   at that time   be sad-e ha-PAST-seem like
    '(Looking back) It seems like I felt sad at that time'

(27) Na-nun   potong   honca iss-umyen   acwu   oilop-e ha-e.
    I-TOP   usually   alone be-if   very   lonely-EVI-Decl
    'I usually feel very lonely when I'm by myself'

(28) Na-nun   potong   honca   iss-umyen   acwu   oilop-e.
    I-TOP   usually   alone   be-if   very   lonely-Decl
    'I usually feel very lonely when I'm by myself'

Without the need to incorporate the restriction on the experiencer of the psych predicates *-e ha* in its semantic denotation, the second version is simpler and theoretically more adequate. Thus, I suggest that *-e ha*, as well as its modal base and ordering source is above ASP/T. (Read Hacquard (2010) for more detailed explanations on the binding of the evaluation event).

5.3. Semantic denotation of the zero morpheme for psych predicates without *-e ha*

For more comprehensive understanding of the phenomenon related to psyche predicates, it is desirable also to consider the structure of sentences in which psych predicates are used without *-e ha*. I claim that there is a covert zero morpheme for the perception event accessing endophoric evidence as opposed to visual or sensory evidence (Plungian, 2001, 2010). The use of such performative evidential morphemes is also attested in other languages (DeLancey, 2001; Oswalt, 1986; Plungian, 2010; Roque & Loughnane, 2012). For example, in Amdo, a Tibetan dialect, the evidential morpheme $=^h k \partial^2$ is used when the speaker's internal state is expressed, as in (29), while another evidential morpheme jod$=^h k \partial^2$ is used when the subject of a psych predicate is different from the speaker. (Sun, 1993; Tournadre, 1996), as in (30).

(29) Tæ   ŋæ ^{h}tog   (* jod)$=^h$ kə^2
    Now   I   hungry   EVI
    'I'm hungry now'

(30) Tæ   kʰᵒ   ʰtog   jod=ʰ kə²
    Now   he   hungry   EVI
    'He is hungry now'

It is plausible to assume a zero morpheme in Korean, which is similar to the participatory evidential morpheme $=^{h}kə^{ʔ}$ in Tibetan[9]. If this analysis is on the right track, this morpheme should be lower than the ASP/T of the clause and thus be bound by it, relativizing the perception event to the VP event. Under this assumption, the semantic denotation of the zero morpheme can be presented as follows.

$[[\text{ENDO-psych}]] = \lambda f_{<\varepsilon,stt>}\ \lambda g_{<\varepsilon,stt>}\ \lambda q_{<st>}\ \lambda e.\ [\forall w'\in_{max\ g(e)}\ (\cap f(e)):\ q(w')=1]$

$\cap f(e) = \{w':\ w'$ is compatible with the what $Ag(e)$ perceives at time $(e)\}$

Ordering source $g(e) = \{q\ |\ Ag(e)$ at time (e) accesses the endophoric evidence for $q(w')=1\}$

As only the experiencer can directly perceive his/her own internal state at the VP event time, the agent and the time of the perception has to be the experiencer, i.e., the local subject of the psych predicate, and the VP event time, respectively. The e^{0} of the covert modal is bound by the Asp/T of the clause, which relativizes it to the event of the VP. For example, the sentence in (31) indicates that in every possible world compatible with what the speaker perceives at the speech time, the speaker feels cold. The past clause in (32), on the other hand, indicates that in every possible world compatible with what the speaker perceived in a period of time that precedes the speech time, the speaker feels cold.

(31) Na-nun   cikum   chwup-Ø-ta.
    I-TOP   now   feel cold-Pres-Decl
    'I feel cold now.'

(32) Na-nun   ecey   chwup-ess-ta.
    I-TOP   yesterday   feel cold-Past-Decl
    'I felt cold yesterday'

---

9) The Amdo Tibetan evidentiality morpheme $=^{h}kə^{ʔ}$ can be used even when the subject is not the speaker as long as the evidence of the reported event was directly obtained by the speaker. For example, it can be used the sentence 'He is writing a letter' if the speaker have a direct evidence for the utterance (Sun, 1993). However, the use of Korean zero morpheme may be restricted to psych predicates due to the rigidity of the perspective shifting in clauses with a psych predicate.

These examples suggest that the logophor of the clause must be the experiencer. Otherwise, the worlds that the experiencer perceives cannot be accessed by the logophor, and the proposition p can only be evaluated, which requires the support of *-e ha*.

6. Conclusion

This paper explored the use of the morpheme *-e ha* for Korean psych predicates. These predicates require the addition of *-e ha* in certain contexts. In matrix clauses, *-e ha* is necessary when the experiencer whose internal state is reported is not the speaker. Similarly, in embedded clauses, *-e ha* is required when the experiencer is not the subject of the matrix clause.

One of the key findings is that the addition of *-e ha* changes the syntactic category of psyche predicates from adjectives to verbs. This shift in syntactic category is evident when comparing the use of complementizers in relative clauses. The requirement for *-e ha* in certain psyche predicates used in matrix clauses can be attributed to the requirement of endophoric/participatory evidence of psych predicates and the mismatch between the experiencer and the logophor of the clause. The proposition containing a psych predicate requires endophoric evidence, which is available only to the experiencer. In Korean, however, the logophor of the matrix clause in the speaker by default and that of the embedded clause is the subject of the matrix clause. Accordingly, when these logophors are different from the experiencer, the endophoric evidence cannot be obtained and thus, the internal state can be uttered based on the evidence available to the logophor, and this is represented by the evidential morpheme *-e ha*.

This paper also highlighted some characteristics in the use of *-e ha*: it can 1) be used in conditional antecedents, 2) have narrow scope than negation, and 3) be used in embedded clauses of attitude predicates or in complement clauses, resulting in a shift in the point of view.

Based on these patterns, I first proposed that there is logophoric operator at the left periphery and explained the shift of the logophors in subordinate clauses. Then I analyzed *-e ha* as an evidential morpheme with epistemic modality, and proposed its semantic denotation. Finally, for the clauses with a psych predicates in which the experiencer coincides with the logophor, I suggested a zero morpheme, incorporating the necessity of the endophoric evidence for psych predicates in its

semantic denotation.

The discussion in this paper sheds light on the analogy between the Korean evidential morpheme *-e ha* and epistemic modals, such as *must or certainly*, supporting the analysis of evidentials as epistemic elements. In addition, it also suggests how the change in the perspective of a clause can be analyzed semantically and syntactically, even though it is not superficially evident. The structure with the logophoric operator may extend to the research on various linguistic phenomena affected by the logophoricity, deepening our understanding of the interaction between the linguistic data and its event-related interpretation.

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