A Modal Semantic Approach to English Evidential Raising Constructions

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This paper is an attempt to provide a semantic analysis of so-called raising constructions in English, which are frequently discussed in the syntactic area, but rarely dealt with in the semantic field. I argue in this paper that English raising constructions behave like evidentials since it is obvious that they are involved in encoding either direct or indirect evidentiality, and hence they should be semantically treated as evidentials. After comparing epistemic evidentials and illocutionary evidentials in other languages full of evidential markers, I claim that English evidential raising constructions pattern like epistemic evidentials, rather than illocutionary evidentials. Thus, they should be semantically analyzed within modal semantics. **(Dongguk University)**

Key words: evidentiality, evidential raising constructions, epistemic evidential, illocutionary evidential, modal semantics

1. Introduction

This paper is about how to present the semantic analysis of so-called raising constructions in English, as exemplified in (1a-c):

(1) a. John seems / appears to be the right person for the job.
 b. It seems / appears that John is the right person for the job.
 c. Jane seems / appears to be working on a paper.
 d. It seems / appears that Jane is working on a paper.

Sentences like (1a-d), where raising verbs like *seem* and *appear* occur, are understood to mean that the speaker draws a conclusion expressed by the embedded clause from knowledge, perception, and a body of evidence that are available to him. In (1a-b), for

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* An earlier version of this paper was presented at the 2016 ELSOK Fall Conference held at Seoul National University. I thank the audience for their comments and suggestions. I am also grateful for two anonymous reviewers for their valuable comments. All remaining errors are, of course, my own.

example, the speaker might base the statement that John is the right person for the job on the knowledge or perception that he has acquired after having been through with John. In the same manner, the speaker of the utterances in (1c-d) may reach the conclusion that Jane is working on a paper from his observation that Jane is doing something in her office while reading research papers and articles. This shows that raising verbs play the role of encoding the source of information or evidence that the speaker has for his assertion. In this respect, they are said to be involved in expressing evidentiality in the literature (Asudeh and Toivonen (2012), Nikolas and Holmes (2007), and Postal (1974) among others).

Raising constructions have received much attention in the area of syntax, but they have not in the semantic field. Thus, this paper aims at investigating the semantic patterns of raising constructions, and offering their formal semantic analysis in combination with evidentiality. In the formal literature on evidentiality, there are two major approaches to the semantics of evidentials; one is an epistemic approach, and the other an illocutionary one. The epistemic approach argues that evidentials should be dealt with in the same way as epistemic modals are, since they pattern like epistemic modals in some languages such as Bulgarian, German, and Turkish (see Faller (2006b), (Izvorski (1997) and Matthewson et al. (2007)). The illocutionary approach claims, on the other hand, that evidentials in languages such as Cuzco Quechua and Cheyenne are speech act operators since they function to modify the illocutionary force (see Faller (2002) and Murray (2010)). This paper will argue that the English raising constructions are more like epistemic evidentials after comparing them with epistemic and illocutionary evidentials in other languages, and hence they should be semantically analyzed within the modal semantics.

2. Characteristics of Evidential Raising Constructions

Linguistic evidentiality is involved in encoding a source of evidence or information on which the speaker bases his or her statement. While most languages in the word employ specific morphemes or enclitics to mark evidentiality (cf. Cuzco Quechua (Faller (2002)), Cheyenne (Murray (2010)), and Bulgarian (Sauerland and Schenner (2007)) among others), English is a language that does not use any evidential morphemic or inflectional markers. Instead, it employs certain structures or linguistic expressions such as adverbials and verbs[1] that are beyond the morphemic level to express evidentiality

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[1] Here are the evidential examples that are expressed in terms of adverbials and verbs: (i) *Actually, it's raining*, and (ii) *I hear it's raining*. The evidential sentence in (i) can be uttered when the speaker has direct perceptual evidence that it is raining, and the sentence in (ii) is, on the other hand, uttered when the speaker has either direct audible evidence or indirect

(Aikhenvald (2004)), Chafe and Nichols (1986), Cinque (1999), Rooryck (2001), and Song (2014)). For instance, what has been traditionally known as raising constructions are one of the syntactic structures that show this:

(2)   a. Jane seems to be happy.
      b. Jane appears to be happy.

(3)   a. Jane seems happy.
      b. Jane appears happy.
      c. Jane looks happy.

Sentences like (2a-b) and (3a-c) have been traditionally called subject-to-subject raising constructions since as their name suggests, the subject is base-generated in the subject of the embedded infinitival clause (more precisely, SPEC of the lower TP), as in (2a-b), or in the embedded small clause, as in (3a-c), and raised to the subject position in the main clause (i.e. SPEC of the higher TP) to receive case.

When it comes to the interpretation, it is obvious that they are involved in encoding either direct or indirect evidentiality, and hence I will refer to them as 'evidential raising constructions' (henceforth ERC). To see how evidentiality is involved here, consider the following two scenarios. In scenario #1, the speaker sees Jane wearing a smile on her face because she aced the exam. In scenario #2, the speaker does not see Jane directly, but discovers a document which says that Jane has been awarded a Ph.D. degree recently. If we adopt the claim by Asudeh and Toivonen (2012) and Rett and Hyams (2014) that the distinction between the direct and indirect evidentiality can be made according to whether or not the speaker directly perceives the source of perception, namely the raised subject in our examples above,[2] scenario #1 can be taken to be an example of direct evidentiality since the speaker perceives Jane directly, whereas this is not the case with scenario #2. If uttering (2a) in scenario #1, the speaker concludes or infer that Jane is happy from the source of direct evidence. If uttering (2a) in scenario #2, on the other hand, the speaker infers that Jane is happy from the indirect evidence (i.e. the speaker does not perceive the source of the perception directly). Given what has been discussed here, ERCs are involved in drawing an inference about an evidential proposition from a body of direct or indirect evidence.

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hearsay evidence.

[2] It is worth noting that the criteria for distinguishing direct evidentiality from indirect evidentiality still remain disputable in the literature. In contrast to what I have addressed here, some scholars such as Aikhenvald (2004) argue that direct evidence must be direct irrespective of the direct perception of the subject, as long as it is visual or first-hand evidence. However, the dispute over this is not our primary concern, so I won't get into the detail of it.

I will close this section by mentioning one thing. As was discussed in the literature, raising constructions are characterized by the fact that the raising predicates do not assign a thematic role to the subject in the main clause but to the embedded clause. Therefore, they allow for an expletive in the subject position, as illustrated in the following:

(4) a. It seems that Jane is happy.
     b. It appears that Jane is happy.
     c. It looks like Jane is happy.

In the examples, the embedded subjects are not allowed to move out to the subject position in the main clause, more precisely the SPEC of the higher TP, since they are case-marked by the embedded tense. The expletive *it* fills in the empty matrix subject position to satisfy the extended projection principle according to which every sentence is required to have a subject. It is worth noting that ERCs are involved in encoding either direct (visual) evidentiality or indirect (inferential) evidentiality, whether they allow for the non-expletive subject (as in (2) and (3)) or the expletive subject (as in (4)). In addition to this, one should note that the predicate like *look* behaves syntactically differently from the 'canonical' raising verbs like *seem* and *appear*. It does not take *that*-clause, but rather *like*-clause as its complement, as illustrated in the following:

(5) *It looks that Jane is happy.

On the contrary, the canonical raising verbs are compatible with *like*-clauses, as shown in (6):

(6) a. It seems like Jane is happy.
     b. It appears like Jane is happy.

In spite of the syntactic difference between the canonical raising verbs like *seem* and *appear* and the verb *look*, what they have in common is that they allow for the expletive subject in the matrix clause. Thereby, I will conceive of this as one of the required conditions for ERCs, and thus the predicate *look* will count as a member of a set of evidential raising verbs.

3. Illocutionary or Epistemic Evidential?

It has been observed in the literature on evidentiality that there are two main semantic types of evidentials; illocutionary evidentials and epistemic evidentials (see

Faller (2002, 2006), Matthewson et al. (2007), and Murray (2010)). Illocutionary evidentials are considered as illocutionary operators in the sense that they function to modify illocutionary force. Evidentials of this type include evidentials from Cuzco Quechua and Cheyenne. Epistemic evidentials are, on the other hand, viewed as propositional operators since they behave like English epistemic modals, and hence are truth-conditional in some respect. Evidentials of this type include ones from St'át'imcets (Matthewson et al. (2007)), Turkish and Bulgarian (Izvorski (1997)), and German reportative evidentials like *sollen* (Faller (2006)).

Some scholars like Murray (2010) claim that English ERCs like *seem*, *appear*, and *look* are classified as illocutionary evidentials, since they are evidential parentheticals like *I hear....*, and *they say.....* which display a pattern of diagnostic tests similar to the illocutionary evidentials.[3] I will, however, argue in this paper that they are more like epistemic evidentials, rather than illocutionary ones. As noted by Falller (2002, 2006), Matthewson et al. (2007), and Murray (2010), significant differences between the two types of evidentials can be captured in terms of semantic diagnostics tests such as the challengeability test, which is about whether sentences with evidentials can be challenged (or denied), and the projection test, which is about scopal relations between two scope-taking constituents in sentences with evidentials. By using several diagnostics tests such as the projection test and aseent / dissent tests, I will show ERCs are epistemic evidentials, rather than illocutionary ones, in what follows.

3.1 Projection Tests: Scopal Association with Tense and Modals

As was mentioned briefly above, the projection test is a test that is used to determine what the projection properties are. To put it differently, it is about determining whether one element can be under the scope of another (see Karttunen (1973) and Lyons (1977)). Cross-linguistically speaking, neither illocutionary evidentials nor epistemic evidentials can take scope under negation (Aikenvald (2004), Faller (2002), Matthewson et al. (2007), and Murray (2010) among others), as illustrated in the example (5) from Cuzco Quechua.

(5) Example from Cuzco Quechua (Illocutionary) (Faller (2002: 15))
    Ines-ga mana=s   qaynunchaw ñaña-n-ta-chu   watuku-sqa
    Inés-TOP not=REP yesterday   sister-3-ACC-NEG visit-PAST-2
    p = 'Inés didn't visit her sister yesterday.'

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[3] Murray (2010) provides no arguments and evidence that show ERCs are illocutionary evidentials, since her main topic is about a semantic analysis of evidentials in Cheyenne. Following Faller (2002) and Bittner (2008), she simply accepts the view that illocutionary evidentials display evidential parenthetical-like behavior (Murray (2010: 47)).

EV: (i) s has reportative evidence that Inés did not visit her sister.
    (ii) # s does not have reportative evidence that Inés visited her sister yesterday.

(5) shows that negation cannot take wide scope over evidential contribution (i.e. reportative evidential in this case). This holds for St'át'mcets which is known as a language whose evidentials are classified as epistemic evdientials (see Matthewson et al. (2007)):

(6) Example from St'át'mcets (Epistemic) (Maththewson et al. (2007: 29))
    aoz   ka   k-wa-s   Sylvia   ku   xlh-tali
    neg   INF   DET-IMPF-3POSS Sylvia   DET   do(CAUS)-TOP
    'It is necessarily not Sylvia who did it.'
    ≠ 'It is not necessarily Sylvia who did it.'

In a sentence like (6), the inferential evidential *ka* in St'át'mcets occurs with negation, and the former is not allowed to be under the scope of the latter for its interpretation.
This holds for English ERCs. Consider the following sentence which contains the ERC and negation:

(7) John does not seem to be happy.

(7) presupposes that the speaker has indirect evidence or good reason which makes her think that John is not happy. Thereby, (7) is paraphrased as (8a), rather than (8b):

(8) a. (I infer from indirect evidence) It's not the case that John is happy.
    b. ≠ It's not the case that (I infer from indirect evidence) John is happy.

The paraphrase of (7) shows that negation cannot take wider scope than the evidential, and consequently, the proposition content in (7) can be negated, whereas the evidential contribution cannot. This indicates that the indirect evidence requirement is not cancelled by negation, which is a common property shared by epistemic evidentials and illocutionary evidentials. This is due to the fact that the ERCs are involved in the presupposition of the availability of indirect evidence.
However, epistemic evidentials can be interpreted differently when they are scopally associated with tense and modals, while this is not the case with illocutionary evidentials. For one thing, illocutionary evidentials cannot take its reference time from tense. To see this, consider the following example from Cuzco Quechua whose evidentials are illocutionary evidentials.

(10) Ines-qa   qaynunchay ñaña-n-ta=s   watuku-sqa
     Inés-TOP   yesterday sister-ACC=REP   visit-PAST-2
     P = 'Inés visited her sister yesterday.'
     EV = speaker was told that P   (Faller (2006:16))

In (10), the time of the speaker being told that P does not make reference to any particular time, while the time of the proposition P refers to a particular time denoted by *yesterday*. Thus, the evidential contribution (i.e. reportative here) is not associated with the past tense in (10) at all.

This is not, however, the case with epistemic evidentials. Consider the following example from a German epistemic evidential.

(11) Übermäβiger kartoffelgenuss sollte angeblich zu Schwindsucht, Rachitis,
     Bauchgrimmen oder gr syphilis führen.
     'The consumption of too many potatoes was said to allegedly cause
       consumption, rachitis, stomach ache or even syphilis.' (Faller (2006: 17))

In (11), the past tense form *sollte* of the German reportative evidential *sollen* makes reference to a time in the past. According to Faller (2006a), thus, (11) is interpreted as it was alleged in the past that the consumption of too many potatoes had negative effects on health, rather than it is alleged that the consumption of too many potatoes had negative effects on health in the past.[4] This indicates that the German epistemic (reportative) evidential is associated with the tense that occurs with it, and it behaves differently from illocutionary evidentials.

A similar argument can be made for ERCs in English. To see this, consider the following sentence:

(12) a. John seemed to be happy yesterday.
     b. Mary appeared to move to London.

The evidential raising verbs *seem* and *appear* with the past tense morpheme in (12a-b)

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[4] One anonymous reviewer points out that it is probably unfair to compare the example in (10) with that in (11) because unlike the former, the latter does not contain a past time adverbial like *yesterday*. The German example in (11) is about a generally allegedly statement regarding the effect of the consumption of too many potatos, and thus, it is not appropriate to use a temporal adverbial like *yesterday* denoting a specific past time in (11). According to Faller (2006), (11) can be interpreted to have a 'simultaneous reading' where the time denoted by the evidential contribution *sollte* coincides with the time denoted by the evidential proposition. What I am trying to show here on the basis of this is that epistemic evidentials scopally interact with tense, while illocutionary evidentials do not. In the same manner, the English ERC sentences in (12) presented here can allow for the simultaneous reading.

denote a past time, as we saw above in the German example. Thereby, (12a) is interpreted to mean that it seemed yesterday that John was happy at that past time. However, the reading in which it seems (now) that John was happy in the past is impossible to get from (12a). The same comments go for a sentence like (12b). The examples in (12a-b) shows that the English ERCs scopally interact with the past tense, just like the German reporative evidential, which corroborate the claim that the ERCs behave like epistemic evidentials.

3.2 The falsity of Embedded Propositions

This is a test about whether epistemic evidentials are felicitous or not if the speaker is cognizant of the falsity of the embedded proposition. As was discussed in the literature (Faller (2002), and Matthewson et al. (2007)), one of the differences between epistemic evidentials and illocutionary evidentials is that the former is not felicitous if the embedded proposition is known to be false, whereas this is not the case with the latter. The epistemic modal approach to evidentials claims that they will be unacceptable in a situation where the speaker is convinced that the proposition under the scope of the evidential is false. This indicates that the speaker commits herself to the possibility or necessity of the proposition being true. To see this, take English epistemic modals for instance:

(13) # It may / must be raining, but it is not (raining).[5]   (Faller (2002:19))

A sentence like (13) with epistemic modals in the first sentence is infelicitous, since the speaker knows that the proposition under the scope of the epistemic modals is false, as indicated in the second sentence in (13).[6]

In the same manner, the ERCs behave like this, as illustrated in the following examples:

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[5] As Groenendijk et al. (1996) note, an utterance like (1) might sound felicitous when the two sentences in (13) are uttered subsequently by the same person in a context where there is a certain period of pause (indicated by the dots in the example that follows) between the utterance time of the first sentence and that of the second sentence, as in *It must be raining*. ……….. *It isn't raining*. This is possible because for some reason the speaker thinks it is possibly raining at the utterance time of the first sentence, and later she looks out the window and discovers that it is not raining. In fact, Groenendijk et al. (1996) mention the example to make a point in favor of the dynamic view of semantics as a context change potential.

[6] This is also true of the evidentials from St'át'mcets which are known as epistemic evidentials. I will not present the examples from St'át'mcets here to save space. The reader can refer to Mattewson et al. (2007) for more information.

(14) a. # It seems to be raining, but it is not (raining).
    b. # The bus seems to be full (it is true or it really is), but it is not (full).
    c. # John seems happy, but he is not (happy).

(15) # She looks beautiful, but she is not.

On the contrary, a Quechua speech-act reportative *-si*, which is considered as an illocutionary evidential, felicitous in a context where the speaker does not believe the proposition under the scope of the evidential is true. This is shown in the following example from Cuzco Quechua:

(16) para-sha-n-**si**   ichaqa mana   crei-ni-chu
    rain-PROG-3-**si**   but   not   believe-1-NEG
    p = 'It is raining, but I do not believe it.'
    EV = speaker is / was told that it is raining.   (Faller (2002: 194))

Unlike English epistemic modals, the Cuzco Quechua reportative evidential in (16) can be used even in a situation where the speaker denies the truth of the embedded proposition. This indicates that the speaker does not commit to the truth of the embedded proposition.

3.3 The Truth of Embedded Proposition

This is a test about whether epistemic evidential are felicitous or not if the speaker knows the embedded proposition is true. The epistemic modal approach predicts that evidentials will not be licensed to be used in a context where the speaker is aware that the embedded proposition is true, as was discussed in Matthewson et al. (2007). The use of an epistemic or inferential evidential is involved in making an inference from indirect evidence, and hence the speaker cannot know for sure that the proposition under the scope of an epistemic modal or evidential is true. For example, suppose that the speaker knows that John is in the room (i.e. actually she sees him in the room). Then the following epistemically modalized utterance (17a) is infelicitous, while an unmodalized sentence like (17b) is not:

(17) a. # John must be in the room.
    b. John is in the room.

Likewise, the St'át'imcets evidentials, which are epistemic evdientials, behave like English epistemic modals, since they are not licensed if the speaker knows the embedded proposition is true, as illustrated in the following example:

(18) St'át'imcets evidential (epistemic evidential)
  # nilh **k' a** k-Sylvia ku xílh-tal'i; wá7-lhkan t'u7 áts'x-en
  FOC INFER DET-S. DET do(CAUS)-TOP IMPF-1SG.SUBJ just see-DIR
  'It must have been Sylvia who did it, I saw her.' (Matthewson et al. (2007: 25))

This is also true of the ERC. Consider the context above in (17) again. In this context, the use of the ERC is infelicitous, just like epistemic modals:[7]

(19) # John seems to be in the room.

One should, however, note that the ERCs in English contrast with Cuzco Quechua's direct evidentials such as a visual evidential *-mi*. Consider the following sentence with the Cuzco Quechua's direct evidential:

(20) Para-sha-n-**mi**
  rain-PROG-3-**mi**
  '[I see that] it's raining' (Faller (2002: 16))

Seeing that it is raining, the speaker strongly believes that the embedded proposition is true. In spite of this, he or she uses the direct evidential *−mi* in (20). This indicates that the direct evidential functions to justify the speaker's assertion or belief that it is raining. A sentence like (20) shows that the illocutionary evidentials in languages like Cuzco Quechua can be used even when the speaker knows the embedded proposition is true

3.4. Assent / dissent Tests

It is argued in the literature that if a linguistic element is challegeable, more precisely questioned, reject or denied, it contributes to the truth of the proposition expressed by that element. If it is not, on the other hand, it does not contribute to the truth (see Faller (2002, 2006), Lyons (1977), Murray (2010), Matthewson et al. (2007), Palmer (2001), and Sweester (1990) among others). As was discussed in Faller (2002, 2006) and Murray (2010), the evidential proposition can be challengeable, while the evidential contribution

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[7] In some contexts, *seem* can be used to make weaker statements just like modals in such a way that the speaker might want to express what she wants to say in a more polite or careful and less direct way, as in *I seem to have forgotten your name*. This is also true of modals. You might use a modalized sentence like *I must've forgotten your name* to express the same situation. I will not take this kind of sentences into consideration, since it has nothing to do with evidential meaning.

is not. Languages such as Cuzco Quechua and Cheyenne whose evidentials are illocutionary modifiers, for example, fit in with this account. Faller (2002, 2006) and Papafragou (2006), in contrast, argue that epistemic modals or evidentials pass the challengeability test, which is different from illocutionary evidentials.[8] Following Matthewson et al. (2007), I will use the phrase *That's (not) true* to show whether epistemic evidentials are challengeable or not. Consider the following epistemically modalized sentence:

(20) A: Jane must be in New York.
    B: That's not true. She went there several months ago. She may be somewhere else.

In (20), the speaker B does not deny the evidential proposition (or the embedded proposition) that Jane is in New York. Instead, she denies the epistemic modal claim that Jane *must* be in New York (or Jane is certain to be in New York / It is certain that Jane is in New York). Thereby, (20) suggests that epistemic modals commit to the truth of the proposition.

The evidentials from St'át'imcets pattern like the English epistemic modals. To see this, consider the following sentence with a St'át'imcets evidential which is uttered in the situation where A is driving past John's house with B and sees the lights of his house are on:

(21) A: wá7   **k'a**   l-ta   tsticw-s-a   s-John;   tákem   i
       be **INFER** in-DET house-3POSS-EXIS NOM-John   all   DET.PL
       sis'ák'w-s-a   wa7   s-gwel
       light-3-POSS-EXIS   IMPF   STAT-burn
       'John must be home; all his lights are on.'
    B: aoz   kw-a-s   wenácw; papt wa7 lháp-en-as   kw-a-s
        NEG   DET-IMP-3-POSS true   always IMPF forget-DIR-3ERG DET-IMPF-3POSS
        lháp-an'-as   i   sts'ák'w-s-a   lh-as   úts'qa7
        put.out-DIR-3ERG   DET.PL   light-3POSS-EXIS   when-3CONJ   go.out
        'That's not true. He always forgets to turn lights off when he goes out.'
        B's statement = "It is not true that John must be home."
        B's statement ≠ "John is not home."   (Matthewson et al. (2007: 34))

We can see clearly that the St'át'imcets inferential evidential *k'á* in (21) is denied.

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[8] I will not get into the examples from illocutionary evidentials here to save space. Instead, I will concentrate on epistemic evidentials. The reader can refer to the works cited in this paper for those from illocutionary evidentials.

After hearing A's utterance, the speaker B challenges the premise used by A and creates the modal base. Thus B denies not the embedded proposition in this example, but rather A's information or evidence which has led him to the conclusion that John is certain to be home. This shows that the St'át'imcets evidential can be challenged, so it has an epistemic evidential flavor. Given what I have discussed so far, the epistemic evidentials are challenged, whereas the illocutionary evidentials are not. Thus, the epistemic evidentials contribute to the truth of the evidential proposition, while the illocutionary evidentials do not.

Let us turn to the ERCs and see whether they behave like epistemic evidentials or illocutionary evidentials. Consider the following dialogue that takes place in exactly the same situation as (21) takes place.

(22) A: John seems to be home. All his lights are on.
  B: That's not true. He always forgets to turn his lights off when he goes out.

What B denies in (21) is not the embedded proposition that John is not home, but the evidential claim, which means something like this: It is not true that John seems to be home. To put it differently, what B means is that it is not true that it is inferred from the evidence that the lights are on that John is home, and hence B challenges the evidential contribution. Let us take another example:[9]

(23) A: Max seems to be the thief.
  B: That's not true. There are some other plausible suspects. John seems completely innocent.

The same comments go for (23). The speaker B is challenging A's version of evidence that has led him to the proposition that John is the thief, rather than the evidential proposition itself. As a matter of fact, the speaker B does not know that Max is the thief, but what A asserts is incompatible with all the knowledge or information she knows, and hence she disagrees with A's inferential claim that Max is the thief. Given this, the ERC can be challenged just like epistemic modals, and hence it is taken to be an epistemic evidential.

3.5. Embeddability

Another difference between illocutionary evidentials and epistemic evidentials lies in the fact that the former cannot be embedded either syntactically or semantically into subordinate clauses, whereas the latter can, as was noted by Faller (2002, 2006a)).

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[9] This example is inspired from Faller (2002) and Matthewson et al. (2007).

Consider the following sentence from Cuzco Quechua whose evidentials are illocutionary ones:

(13) (Sichus) Pidru-cha   ña   iskay tanta-ta- ña (*=s)   mikhu-rqa-n
     if   Pedro-DIM already two roll-ACC-DISC=**REP** eat-PAST-3
     chayqa ana huq-ta   qu-y-chu
     then   don't other-ACC give-IMP-NEG
     'If Pedro already ate two rolls, don't give him another one.'
          (Faller (2002: 221))

The occurrence of the reportative evidential =*si* in the antecedent clause leads to the ungrammaticality of (13), which illustrates that the illocutionary evidential is not embeddable into a subordinate clause.[10]

Unlike illocutionary evidentials, however, epistemic evidentials are embeddable, as exemplified in the following German sentence whose reportative evidential is an epistemic one:

(14) Also wenn es bei dir schneien soll, dann schneit es bei mir auch.
     'If it is said to snow near you, then it will snow near me as well.'

                                          (Faller (2006a: 9))

In (14), the reportative evidential *soll* occurs in the antecedent of a conditional sentence, which indicates that the epistemic evidential is embeddable. According to Faller (2006a), the reportative evidential is semantically embedded into the subordinate clause in the example in (14). To be more precise, it is interpreted within the conditional as the addressee of (14) having reportative evidence. However, it can also be interpreted as the speaker of (14) having the evidence, as Murray (2010) notes. Given the ambiguity, it is not clear whether the reportative evidential is semantically embedded in (14). Despite this, what matters in the example is that the epistemic evidential is embedded into a subordinate clause. This is also true of St'át imcets, which has epistemic evidentials. Matthewson et al. (2007) claim that St'át'imcets evidentials are freely embeddable under propositional attitude verbs, but they cannot be embedded into the St'át'imcets conditional clauses equivalent to *if*-clauses in English.[11] Their failure to

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[10] As Faller (2002) shows, the reparative evidential =*si* can occur in the consequent clause of a conditional sentence (or implications). Note that the consequent is a main clause. This implies that reportative =*si* is not embedded in this case. The example for this will not be presented here to save space. The reader can refer to Faller (2002) for the instance of this.

[11] I will present no examples from St'át imcets evidentials here to save space. The reader can refer to Matthewson et al. (2007) for the instance.

be embedded into the conditional clauses does not necessarily mean that they are not epistemic evidentials, since they behave like subjective epistemic modals in English in the sense that they contribute to propositional content, just as the subjective epistemic modals do.[12]

The ERCs are freely embedded under the conditionals as well as under the attitude verbs, as illustrated in (15) and (16) respectively.

(15) If Blair seems like he is cooking, he does so for his girl friend.

(16) Jane said Mary seems to be pregnant.

As we can see from (15), the evidential raising verb *seem* occurs in the antecedent clause. In other words, it can be interpreted in the scope of a conditional clause. Suppose that you know Blair always cooks for her girlfriend. Seeing that he is doing something in the kitchen (but you are not 100% sure whether he is cooking), you might utter (15). Given this, (15) can be paraphrased as 'If it is the case that it is inferred from the visual evidence that Blair is cooking, then he does so for his girlfriend.' Thereby, *seem* behaves like epistemic evidentials, rather than illocutionary ones. A sentence like (16) can be uttered under the following situation.[13] Suppose that Jane saw Mary has a big belly. She is not 100% sure that she is pregnant, but she is quite convinced that she is. Later, Jane told you that Mary seems to be pregnant. You tell me about this by uttering (16). The utterance of (16) sounds quite natural in this situation. It demonstrates that the evidential *seem* is embedded in the complement clause of an attitude verb. One should, however, recall that the languages like Cuzco Quechua and Cheyenne which have illocutionary evidentials do not allow evidentials to be embedded under propositional attitude verbs, as was noted by Murray (2010) and Mattewson et al. (2005). The ability of the evidential *seem* to embed under the attitude verb can be taken to be a piece of evidence that corroborates the claim that the English ERCs pattern like epistemic evidentials.

Here is the summary of what we have discussed about the grammatical status of English ERCs in relation to other evidentials with respect to the tests we have considered in this section:

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[12] Papafragou (2006) argues that subjective epistemic modals contribute to propositional content, and can be embeddable when they are interpreted subjectively.

[13] This is inspired by Matthewson et al. (2007).

Types of Challengeability Tests	Illocutionary Evidentials	Epistemic Evidentials	Raising Verb Evidentials
Are evidentials scopally associated with tense and modals?	No	Yes	Yes
Are evidentials allowed in case of the falsity of embedded propositions?	Yes	No	No
Are evidentials licensed in case of the truth of embedded propositions?	Yes	No	No
Are evidential contributions challengeable?	No	Yes	Yes
Are evidentials embeddable?	No	Yes	Yes

Table 1. Differences between Illocutionary, Epistemic, and Raising Verb Evidentials

Table 1 shows that ERCs and epistemic evidentials both share the same results of the challengeable tests. Thus, we conclude that they belong not so much to illocutionary evidentials as to epistemic evidenitals, indicating that they should be analyzed in terms of the epistemic modal approach, rather than the illocutionary operator approach. And this will be elaborated in what follows.
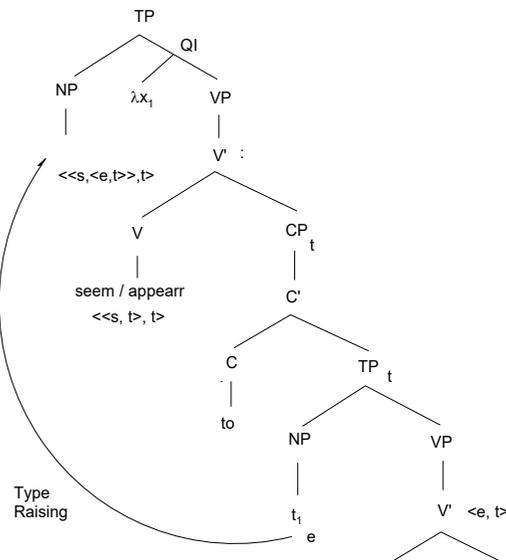
I will close this section by mentioning one thing. The purpose of this section is to show that ERCs are more like epistemic evidentials. The claim that I have made about this in this section does not indicate that linguistic evidentials have their own different properties or characteristics from language to language. To be more precise, one language might have both of the evidentials, depending on the types of evidentials within that language.[14] It is unreasonable to say that all evidentials of Cuzco Quechua and Cheyenne are illocutionary evidentials. As Faller (2011) notes, inferential evidentials and other evidentials such as directive or reportative ones in Cuzco Quechua are more like epistemic evidentials and illocutionary evidentials respectively, in the sense that the former definitely shares common properties with epistemic modals, whereas this is not the case with the latter. In the same vein, my argumentation concerning ERCs is not that English is a language which has epistemic evidentials, but that ERCs as a part of English evidentials behave like epistemic evidentials.

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[14] One anonymous reviewer points out this to me, for which I am grateful to him or her.

4. Preliminary

Before getting into the semantic account of the ERC, I will briefly address how evidential raising sentences are semantically derived. I will follow the syntactic representation of the subject-to-subject raising verb like *seem* which has been commonly accepted in the generative grammar, and hence the LF would be something like this:[15]

(17)

```
                        TP
                       /  \
                          QI
                         /  \
              NP      λx₁    VP
              |               |
                             V'  :
        <<s,<e,t>>,t>        / \
                            V     CP
                            |       t
                    seem / appearr  |
                      <<s, t>, t>   C'
                                   /  \
                                  C    TP  t
                                  |    /  \
                                  to  NP   VP
                                      |     |
                     Type             t₁    V'  <e, t>
                     Raising          e     /\
```

The subject NP (or DP) is base-generated in the SPEC of the lower TP, and moves out to the SPEC of the higher TP to get case. The NP movement has the same effect as quantifier raising (QR), and thus the quantifying-in (QI) rule applies here. In addition, NPs undergo type raising once their movement takes place. In the LF in (17), a trace is left behind in the NP in the lower TP, so it is of type e. When it moves to the SPEC of the high TP, its semantic type has lifted to $<<s, <e, t>>, t>$ which is a generalized quantifier type. The ERC verb like *seem* is of type $<<s, t>, t>$ with a denotation of a set of propositions, and translates as $\lambda P[seem'(P)]$, where P is a variable of type $<s, t>$ with a denotation of propositions. On the basis of the LF in (17), the following demonstrates a semantic procedure for an ERC sentence like *John seems to be happy*:

_____

[15] In this LF, tense is ignored since it is beyond the topic of the present study.

(18)
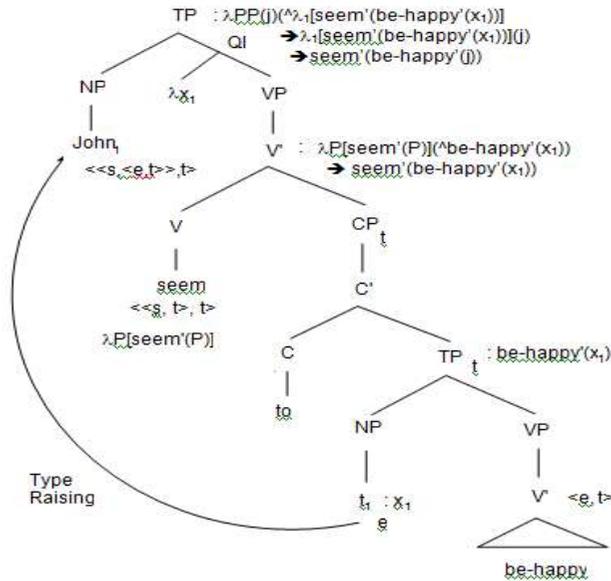
Based on this, I will elaborate upon the semantic interpretation of the ERCs in what follows.

5. Semantic Analysis

We have seen from the previous sections that the English ERCs like *seem*, *appear*, and *look* are epistemic evidentials which are characterized by the fact that they contribute to the truth of the evidential proposition, and hence they are propositional. Thereby, their semantics can be accounted for in terms of the modal semantics. I will adopt the theory of modality that is proposed by Kratzer (1991) because it is one of the most influential theories in this area.

According to Kratzer's theory of modality, the modal base and the ordering sources play a crucial role in accounting for the semantics of modals. The modal base is a conversational background that is a function from possible worlds to a set of propositions, and plays the role of picking out a set of worlds accessible from the evaluation world. The ordering source is a (stereotypical) conversational background that functions to select a set of best worlds from a set of accessible worlds that are obtained from the modal base. The set of best worlds constitutes the domain of the modal force.

Recall from section 2 that ERCs are involved in decoding direct and indirect perceptual evidence. In other words, ERCs require a direct perception or observation of

the non-expletive subject in the main clause as well as a body of indirect perceptual evidence, from both of which the speaker infers an evidential proposition. This indicates that the speaker perceives the source of perception in the former case, yet she does not in the latter case.[16] One should remember that I have argued that the raising verb *seem* is an epistemic evidential, and hence it can be used epistemically when the speaker bases her statement or assertion on a body of perceptual evidence, whether it is visual, auditory, or olfactory evidence. For example, when your car smells awful, you can say it seems dirty. In this example, you have a piece of olfactory evidence for your statement. When you see a tall building, you can say it seems tall. In this case, you base your statement on a piece of visual evidence. Whether the speaker has a body of perceptual evidence or not is a crucial factor in determining the modal base for ERCs. Thereby the modal base MB for the ERC would be a set of propositions that describe a body of perceptual evidence the speaker has, which can be represented as follows:

(19) $MB(w)$ = {p: p describes a body of perceptual evidence PE the speaker has in w}.

Given the modal base in (22), we will be able to define an accessibility relation for ERCs:

(20) $\cap MB(w)$ = {$w' \in W$: $\forall p$ [$p \in MB(w) \rightarrow w' \in p$]}

The accessibility relation is a set of possible worlds in which every proposition in $MB(w)$ is true. To put it differently, a set of accessible worlds for ERC is a set of possible worlds where every proposition in $MB(w)$ that describe a body of perceptual evidence the speaker has in the evaluation world is true. According to (20), a world w' is accessible from w iff all the propositions describing the speaker's perceptual evidence in $MB(w)$ are true in w'.

One should recall that ERCs are involved in inferring a particular proposition from a body of perceptual evidence. For instance, as was discussed earlier, if you saw that Mary is doing something in the kitchen, you can probably say, "Mary seems to be cooking." as a result of the inference from the perceptual evidence you have. In other words, you base your statement on your observational evidence. This kind of inference arising from ERCs does not directly follow from a body of perceptual evidence in MB. Instead, it follows from a set of other assumptions or propositions the speaker believes to be true about a set of perceptual evidence in the modal base. We can make such a

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[16] This has already been discussed in section 2 by giving an example. The reader can go back to section 2 for the clarification of this.

kind of inference possible by building the ordering source in such a way that it includes the speaker's beliefs about the perceptual evidence on which he bases his inference, as was suggested by Portner (2009).[17] To put it differently, the ordering source makes it possible for a body of evidence in MB to be inferential for a particular proposition under the scope of ERCs. Given what I have discussed in this passage, the ordering source g for ERCs would be a doxastic ordering source:

(21) $g(w)$ = {p: the speaker believes p about perceptual evidence PE in w}.

The ordering source functions to impose an ordering on the worlds in $\cap MB(w)$ according to an ordering relation established by that ordering source, and consequently pick a set of ideal worlds out of them. According to (21), the ordering source $g(w)$ for ERCs is a set of (stereotypical) propositions the speaker believes to be true regarding a body of perceptual evidence PE. For instance, John saw Mary is doing something in the kitchen and a bowl is boiling next to her, and said, "Mary seems to be cooking." In this situation, the modal base $MB(w)$ and the ordering source $g(w)$ would be (22) and (23), respectively:

(22) $MB(w)$ = {Mary is doing something in the kitchen. The bowl is boiling next to her .....}.

(23) $g(w)$ = {People usually cook in the kitchen. People boil a bowl while cooking. People bake something while cooking .....}

Recall that the ordering source $g(w)$ in (23) is John's doxastic worlds where he believes that a set of propositions that follow from a body of perceptual evidence in MB is true. Given (22) and (23), John can justify entailing his utterance from them.

Once we have determined the ordering source $g(w)$ for ERCs, the next step is to define an ordering relation $\leq_g$ established by the ordering source. The ordering relation serves not only to select most highly ranked words from the domain of quantification for the ERCs, but to exclude those worlds that are not best ranked. By using ERCs induced by *seem* and *appear*, in other words, the speaker signals that certain worlds might not be considered for the semantic interpretation of ERCs. We can exclude those worlds in terms of the ordering relation. The ordering relation for ERCs can be defined as follows:

(24) For any v, u $\in$ W, for any p $\in$ g(w), v $\leq_{g(w)}$ u iff {p: u $\in$ p} $\subseteq$ {p: v $\in$ p}.

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[17] Faller (2011) also makes a similar point, following Portner (2009).

According to (24), a world v is either ranked higher than or ranked equal to another world u iff every proposition that is true in u is also true in v. Given the modal base MB(w) and the ordering source g(w), we can give the semantics of the ERC as follows:

(25) $[\![ER'(\alpha, p)]\!]^{MB, g, w} = 1$ iff for every $w' \in \{u: \text{best-ranked}(\cap MB(w), g(w))\}$,
$$[\![p]\!]^{MB, g, w'} = 1,$$
where ER is an evidential raising predicate like *seem* and *appear*.

In (25), $\{u: \text{best-ranked}(\cap MB(w), g(w))\}$ is a set of best worlds that are obtained by ordering accessible worlds in $\cap MB(w)$ according to the ordering source g(w) established by the ordering relation $\leq_{g(w)}$ in (24). Recall that the set of best worlds for the ERCs are those where the speaker has direct or indirect perceptual evidence and believes p inferred from the evidence is true.

Let us take the following sentence for instance to see how the present semantic analysis fits in. Consider the following utterance once again, repeated below as (26), with the modal base MB in (22) and the ordering source g in (23):

(26) Mary seems to be cooking.

The LF and its IL translation would be (27a) and (27b), respectively:

(27) a. LF: [TP Mary$_1$ seems [TP t$_1$ to be cooking]]
      b. IL translation: seem'(be-cooking(m))[18]

Given (22) and (23), the semantic interpretation of (27b) would be stated as follows:

(28) $[\![\text{seem'(be-cooking(m))}]\!]^{MB, g, w} = 1$ iff for every $w' \in \{u: \text{best-ranked}(\cap MB(w), g(w))\}$, $[\![\text{be-cooking (m)}]\!]^{MB, g, w'} = 1$.

(28) says that (27b) is true in w iff *Mary is cooking* is true in every best-ranked world determined by $\cap MB(w)$ and g(w). Recall that the set of accessible worlds for (28) are those worlds in $\cap MB(w)$ where every proposition which describe a body of perceptual evidence is true. Given this, we can determine the best-ranked worlds with respect to which (28) is evaluated, on the basis of the speaker's doxastic ordering source g(w). According to the ordering relation established by $g_{\leq(w)}$, a world w' in $\cap MB(w)$ is better than another world w'' in $\cap MB(w)$ if and only if a proposition in g(w) that is true in w'' is also true in w'. Given the ordering source g(w) in (23), a set of the speaker's

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[18] The tense and the progressive aspect are ignored in the translation, since they are beyond the topic of this paper.

belief worlds where people usually cook in the kitchen is true, where people boil a bowl while cooking is true, and where people bake something while cooking is true are more highly ranked than a set of the belief worlds where people bake something while cooking is true. Therefore, the set of best-ranked worlds that are obtained in this way from the ordering relation established by $\leq_{g(w)}$ entails that Mary is cooking. Given this, (28) is true with respect to the best worlds determined by MB(w) consisting of perceptual evidence and g(w) based on the speaker's doxastic worlds. This is a desired result for the interpretation of ERCs.

6. Concluding Remarks

In contrast to the claim made in the literature on evidentiality that English ERCs are illocutionary evidentials, this paper has argued that ERCs are epistemic evidentials on the ground that they pattern like other epistemic evidentials in other languages, and thus, they should be semantically analyzed within the framework of the modal semantics proposed by Kratzer (1991). ERCs function to encode the source of information on the speaker's part, whether it is direct or indirect perception. Thereby, the modal base for ERC is a set of propositions that describe the source of information the speaker has for his assertion. In addition, ERCs are involved in inferring a proposition in the embedded clause from the direct or indirect perception in the modal base. The inference can be captured in terms of an ordering source which is a non-empty set of the speaker's doxastic worlds where his beliefs are true. The ordering source needs to be a non-empty set inasmuch as it is involved in inference.

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