

[講演]

On Epistemic Modality: A Pragmatic Approach*

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Epistemic modals or predicates in English and Japanese are analyzed from three viewpoints: (i) reality of **p** (=propositional content), (ii) time of **p**, and (iii) causality of **p**, and three conditions are proposed: the Reality Condition, the Actuality Condition, and the Present Condition, which are in a hierarchical order. It is argued that when the epistemic modal expresses a cause inference, the **p** must be present or past, but not future which is expressed by the future *will*, in the real world.

Key words : epistemic modality, cause inference, result inference, Reality Condition, Actuality Condition, Present Condition

1. Introduction

Modality has been studied repeatedly within various frameworks in modern linguistics over the past fifty years (Palmer 1990², 2001²; Langacker 1991; Sawada 1993, 1995, 2006; Bybee, and Fleischman (eds.) 1995; Papafragou 2000; Barbiers, Beukema, and van der Wurff (eds.) 2002; Facchinetti, Krug, and Palmer (eds.) 2003; Klinge and Müller (eds.) 2005; Frawley, (ed.) 2006). As Nuyts (2005: 5) puts it, modality is 'one of the golden oldies' among the basic notions in the semantic analysis of language.' It seems very likely that every language has some means of expressing the concept of modality. If this is the case, modality can be considered a universal category. For the moment, along the lines of Sawada (2006), I define modality as follows:

- (1) Modality is a semantic category which expresses how the propositional content (i.e., the event or state of affairs) should be, not just how it is (or true), or the speaker's or the subject's perception and feeling of it.

(Sawada 2006: 2)

If we represent modality and its propositional content by **M** and **p**, respectively, we can get the following formula:

- (2) **M** [**p**]

In order to make the concept of modality clearer, let us compare the following two examples:

- (3) a. John *is* in his office. (non-modal)
b. John *may* be in his office. (modal)

(Klinge 2005: 170)

In (3), (3a) is non-modal in that **p** (=“John is in his room.”) is asserted, but not modalized, while (3b) is modal in that **p** is modalized, but not asserted, because the speaker of (3b) is not sure whether or not John is in his office (see Palmer (2001²: 3-4) concerning the notion of assertion). If modality is used in the utterance, by Grice's (1989: 27) Maxim of Quantity (=“Do not say that for which you lack adequate evidence.”) of The Cooperative Principle, there arises the implicature that the speaker is not sure about its truth.

The purpose of this paper is to consider epistemic modality, i.e. modality of judgment, in terms of propositional-content conditions in English and Japanese from the three viewpoints in (4):

- (4) (i) reality of **p**
(ii) temporality of **p**
(iii) causality of **p**

This paper makes it clear that when the epistemic modality expresses a cause inference, i.e. an inference on the cause of **p** (=the event or the state of affairs), the **p** must be past or present in the real world, but not the kind of future which is expressed by simple

future *will*. I hope this paper will shed some light on the problem of what the nature of inference in our cognition of the outer world is.

2. What is Epistemic Modality?

2.1. Characterization of Epistemic Modality

As is well-known, Palmer (1990², 2001², 2003) classifies modality into two main categories: propositional modality and event modality, and the former is subcategorized into epistemic and evidential types, whereas the latter is subcategorized into deontic and dynamic types.

Observe the following examples of epistemic, deontic, and dynamic modals (see Nuyts 2006: 2):

(5) epistemic:

She {*may/might/could/should/must*} have missed her train.
(inference/possibility)

(6) deontic:

- a. *This is a terrible party. We really must go home.* (obligation)
- b. {*May/Can*} I put the TV on? (permission)
- c. You *shall* have all you wish for. (promise)

(7) dynamic:

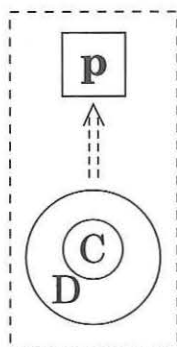
- a. I *can* read Italian, but I *can't* speak it. (ability)
- b. I really *will* stop smoking. (will)

Palmer (2001²: 8-9) explains the above categories as follows: with epistemic modality speakers express their judgments about the factual status of the proposition, whereas with evidential modality they indicate the evidence they have for its factual status. Furthermore, deontic modality relates to obligation or permission, which comes from an external source, whereas dynamic modality relates to ability or willingness, which comes from the individual concerned ¹⁾. Palmer (1990²: 12) states that there appears to be no evidential modality in English.

2. 2. Epistemic Modality and Evidential Modality

Within a cognitive framework (Langacker 1991: 271, 2002a, 2002b: 13; 2004, 2006: 19, Yamanashi 2000), modality is regarded as expressing a grounding relationship which relates the conceptualizers (i.e., the speaker and the hearer) on the ground to the objective process (= [p]) on the stage. Therefore, in his framework modality is regarded as a subjective, but not objective, entity in that it is not profiled on the stage, as in:

(8) Langacker's Model



In the above figure, **p** is an objective process on the 'stage,' **C** is a conceptualizer who construes the **p**, **D** is the conceptualizer's cognitive domain, and the double arrow represents a grounding relationship (Langacker 2004: 545). If we assume here that **p** is a propositional content and the modality is a propositional, but not an event, modality, the modality in question is epistemic or evidential.

Unlike English, there is evidential modality in Japanese, because in the modal *rashii* 'seem' is ambiguous between epistemic and evidential meanings. Observe the following examples in (9):

(9) a. *dooyara* ano jousei-wa kono ko -no hahaoya-rashii.

Perhaps that woman-TOP this child-GEN mother -seem
'Perhaps, that woman is this child's mother.'

b. *terebi-ni-yoruto*, sono eiga-wa omoshiroi -rashii.

TV-to-according the movie-TOP interesting -seem.
'According to the TV, the movie is interesting.'

In (9a), the modal adverb *dooyara* 'perhaps' and the modal auxiliary *rashii* 'seem' express the speaker's judgment about the factual status of the proposition that that woman is this child's mother. Though the woman and the child show remarkable resemblance, the speaker is avoiding his assertion because he is not certain about its truth. Therefore, *rashii* in (9a) is epistemic.

On the other hand, in (9b), *rashii* expresses the information that the movie is interesting based on external information source, such as hearsay, a rumor, a book, a newspaper, TV, etc. In the case of (9b), the information source is TV. Therefore, *rashii* in (9b) is evidential. The cognitive difference between epistemic and evidential modalities seems to be that the former expresses the speaker's own judgment, while the latter conveys the information source.

One of the arguments for postulating both epistemic and evidential modalities in Japanese comes from the fact that unlike epistemic modality, evidential modality cannot express a past modality. For example, epistemic *rashii*, but not evidential *rashii*, can express his or her past judgment. To put it differently, epistemic *rashii*, but not evidential *rashii*, can occur in the past tense:

(10) a. Taroo-wa isogashii-rashi-katta.

Taroo-TOP busy -seem -PAST

'Perhaps, Taroo seemed to be busy.' (Epistemic)

b. *terebi-ni-yoruto, sono eiga-wa omoshiroi-rashi-katta.

TV -to-according the movie-TOP interesting-seem -PAST

'According to TV, the movie was said to be interesting.' (Evidential)

The difference of acceptability between (10a) and (10b) can be attributed to the fact that the temporal contrast between the present judgment and the past judgment is meaningful, but the temporal contrast between the the present information based on the present TV information and the past information based on the past TV information is not, at least in Japanese modality. However, I would like to leave as an open question why it is that evidential modality cannot be past in Japanese.

3. Reality Condition

Let us assume here that **p** can be classified into (i) real and (ii) hypothetical (or irreal), and that, basically in English, a real **p** is expressed by an indicative mood, whereas a hypothetical **p** is expressed by a subjunctive mood (Sawada 2006: 117). A real **p** is a **p** which is regarded as existing in the real world, and a hypothetical **p** is a **p** which is regarded as not existing or unlikely to exist in the real world.

Let us now consider the following example from the viewpoint of the real-hypothetical contrast:

(11) If the enemy attacked, the bridge *could* be blown up.

(Declerck and Reed 2001: 235)

(11) is hypothetical because the verb *attacked* and the modal *could* is in a past subjunctive form. *Could* in (11) is ambiguous: one meaning is epistemic (=judgment) and the other is dynamic (=possibility or ability). It refers to the speaker's inference in the former interpretation (= it is possible that the bridge would be blown up.), whereas it refers to the 'dynamic' possibility in the latter interpretation (= it would be possible for the bridge to be blown up.).

Let us now consider what other modals can occur in (12) in an epistemic meaning:

(12) a. If the enemy attacked, the bridge

{ *might/could/should/*must* } be blown up. (epistemic)

b. If Holmes had been playing, Scotland

{ *may/might/could/should/*must* } have won. (epistemic)

It is important to notice that epistemic *must* is unacceptable in the group of epistemic modals in (12). Why is it unacceptable? It is possible to explain the non-acceptability of epistemic *must* by the following condition:

(13) Reality Condition:

The **p** must be real: it must be a real, but not hypothetical, situation.

Epistemic *must* is unacceptable in (12) because it violates the Reality Condition in (13).

Next, let us consider the situation of Japanese epistemic modals. Observe the follow-

ing example:

- (14) Kare-ga ima kore-o mi-tara, okoru-daroo.
 He -NOM now this-ACC see-if, angry -would
 'If he saw this now, he would be angry.'

This sentence is a hypothetical conditional, which implies that he isn't here now, so he cannot see this, and that therefore, his anger is unreal. The epistemic modal *daroo* 'would' is used here to refer to the speaker's inference of a hypothetical situation.

Now, compare the following two sentences:

- (15) Kare-ga ima kore-o mi-tara, okoru-kamosirenai.
 he -NOM now this-ACC see-if, angry-might
 'If he saw this now, he might be angry.'
- (16)*Kare-ga ima kore-o mi-tara, okoru-rashii.
 he -NOM now this-ACC see-if, angry-seem
 '*If he saw this now, he seems to be angry.'

Notice that unlike (15), (16) is unacceptable in Japanese and English. The difference between (15) and (16) lies in the kind of the modal which is used in an apodosis of the hypothetical conditional: *kamosirenai* 'might' is well-formed, but *rashii* 'seem to' is not. This contrast of acceptability can also be explained on the basis of the Reality Condition in (13): epistemic *rashii* 'seem to', but not *kamosirenai* 'might,' violates this condition.

The above analysis leads to the following observation:

- (17) The **p** which is referred to by epistemic *must* or epistemic *rashii*, but not epistemic *might* or epistemic *kamosirenai*, must be real, but not hypothetical.

This observation shows that the Reality can be applied to English and Japanese irrespective of the typological difference between the two languages.

Let us assume now that **p** can be classified into real and hypothetical **p**'s, and each can be further classified into definite and non-definite **p**'s. A definite **p** can be defined as a **p** which the speaker can assert as true, whereas a non-definite **p** can be defined as a **p** which he or she cannot assert as true.

Epistemic modals refer to a non-definite **p** because the speaker will not employ

modals if he or she is certain about the situation and can assert its truth. The examples in (12), (15), and (16) show that a more severe condition is imposed on epistemic *must* in English or *rashii* in Japanese than epistemic *might* and *should* in English or epistemic *daroo* or *kamosirenai* in Japanese.

Now, why cannot epistemic *must* or epistemic *rashii* refer to a hypothetical situation? We can find the answer in the difference of inferential systems in epistemic modals. This is the theme of the next section.

4. Actuality Condition

This section argues for another condition: the Actuality Condition. Observe the following examples of epistemic modals:

(18) You {*may/might/could/*must*} feel better after a good night's sleep.

(19) Don't wait for me — I {*may/might/could/*must*} be a few minutes late.

Notice that only epistemic *must* is unacceptable among the four epistemic modals in (18) and (19). Why is it unacceptable?

Along the line of Sawada (2006: 260), I will propose the following condition on epistemic *must*:

(20) Actuality Condition:

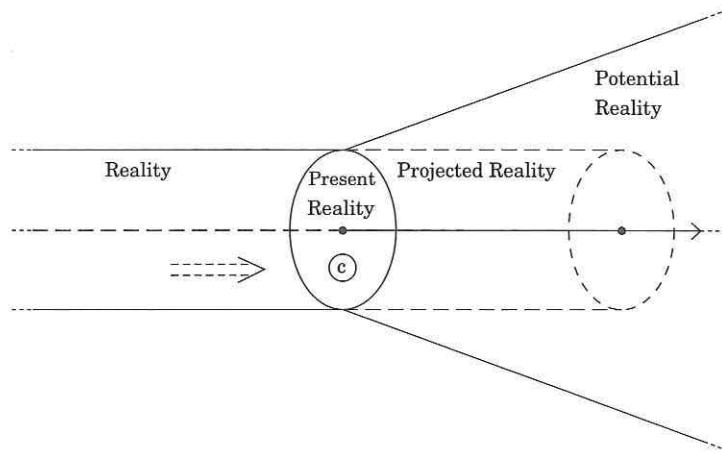
The **p** must be actual: it must be past or present in the real world, but not the kind of future which is expressed by simple future *will*.

Compare (18) with (21) below. Interestingly, (21) is well-formed, unlike (18):

(21) You *must* feel better after having had a good night's sleep. (E)

The Actuality Condition in (20) enables us to explain this fact in a natural way, because epistemic *must* in (21) refers to the present state of affairs, but not to the kind of future which is expressed by simple future *will*.

In the case of a simple future sentence, the **p** referred to by the sentence belongs to a future domain, which is temporally far away from a present domain. This is what Langacker (1991: 277-278) calls projected reality, as in:



(22)

The process in question is in a form of a cylinder which moves from past to future along the time axis. The situation in the projected reality is sure to occur (Langacker 1991: 278). C stands for the conceptualizer and the double arrow stands for the evolutionary momentum.

Now, how can we explain the Actuality Condition from a cognitive viewpoint? I will explain this as follows: when the speaker is inferring the **p** by using epistemic *must*, the inference is usually based on some direct evidence such as sound, sight, smell, or taste, etc. However, if the **p** is a future situation which is expressed by a simple future *will*, the speaker cannot have access to such direct evidence. In that situation, we cannot use epistemic *must* because it expresses the speaker's inference based on direct evidence at the time of utterance.

5. Causality

When the speaker infers **p**, his inference is usually based on some evidence. Then the evidence and the inferred **p** can be safely said to form a cause-and-effect relationship.

Now, does the inferred **p** correspond to the result of the evidence, or does it correspond to the cause of the evidence? This section argues that the causality of **p** plays an important role in our inference system.

5.1. Patterns of Inference: Result Inference and Cause Inference

Let us assume here that our inference can be divided into two types: a result inference and a cause inference (Sawada 2006: 243ff.). A result inference is an inference on the result of evidence, whereas a cause inference is an inference on the cause of the evidence.

Let us consider the type of inference in epistemic *must* in the following example:

(23) Caroline pushed her spectacles up and looked at me.

'You seem very grumpy, James. It *must be your liver*. A blue pill, I think, tonight.'

(A. Christie, *The Murder of Roger Ackroyd*) (Underline is mine)

In this situation, the speaker, Caroline, tells the hearer, Dr. Shepard, to take a blue pill because she can observe that he is very grumpy now. The inferred *p* of epistemic *must*, i.e. that "it is your liver," is in a causal relation to the evidence: Shepard's liver is the cause of his grumpiness (=bad temper). Therefore, epistemic *must* in (23) can be regarded as expressing a cause inference.

Interestingly, in the case of a cause inference, epistemic *may*, *might*, or *could*, but not *should*, can be substituted for epistemic *must*, as shown by (24):

(24) It {*must/*should/may/might/could*} be your liver.

(24) shows that epistemic *should*, but not epistemic *may*, *might*, or *could*, cannot express a cause inference.

5.2. Causality and Epistemic Modality in English

Let us now consider which type of inference English modals express, i.e. a result inference or a cause inference? Observe the following examples:

(25) a. It is twelve, he {*may/might/could/should/must*} be at work now.

b. According to the schedule, they

{*may/might/could/should/must*} be working on the engine now.

(26) a. He looks tired, he {*may/might/could/*should/must*}

be working too much these days.

b. I can't hear any noise, he {*may/might/could/*should/must*}

be asleep.

As Rivière (1981) and Sawada (2006) observe, epistemic *should* is well-formed in (25), but not in (26). The difference of (25) and (26) lies in the type of inference: the epistemic modals in (25) express a result inference in that the time schedule is a cause, and the working is its result, whereas the epistemic modals in (26) express a cause inference in that his excessive work is a cause of his tiredness, or his sleep is a cause of his silence.

The above data suggest (27) and (28):

(27) The Symmetry of the Direction of Inference:

Both a result inference and a cause inference are possible in the case of epistemic *must*, *may*, *might*, and *could*.

(28) The Asymmetry of the Direction of Inference:

A result inference, but not a cause inference, is possible in the case of epistemic *should*.

5.3. Causality and Epistemic Modality in Japanese

What about the case of epistemic predicates in Japanese? Do they express a result inference or do they express a cause inference? Compare the following examples:

(29) *Watashi-wa mada kawa -o mite -i-nai-ga,*
 I -TOP yet river-ACC see -not-but,
yuube ooame-ga fut-ta kara,
 last night heavy rain-NOM fall-PAST because
kawa-wa hanran-site-iru
 river-TOP flooded -be
*{nichigainai (=must)/ *no-nichigainai (=must)/ kamoshirenai*
*(=may/might) / *no-kamoshirenai (=may/might) / *rashii/*
*(=seem to/appear to) / *yooda (=seem to/appear to) / hazuda (=should) /*
*daroo (=will/would) / *no-daroo (=will/would)}.*

'I haven't seen the river yet, but the river {must/should/may/*seems to/*appears to} be flooded because it rained heavily last night.'

- (30) Kodomo-ga hitoride naite-i-ru. Maigo ni nat-ta
 child -NOM alone cry-PROG-PRES lost child to become-Past
 {*nichigainai* (=must)/ *no-nichigainai* (=must)/ ?*kamoshirenai*
 (=may/might)/ *no-kamoshirenai* (=may/might)/ *rashii*/
 (=seem to/appear to)/ *yooda* (=seem to/appear to)/ **hazuda* (=should)/
 **daroo* (=will/would)/ *no-daroo* (=will/would)}.
 'A child is crying. He {must/*should/may/seems to/*would} be lost.'

Let us consider (29) first. In (29) the speaker is inferring that the river is swollen based on the fact that it rained heavily last night. However, in this case there is a lack of observation, so the speaker's inference is not based on direct evidence, but on his own deduction that a heavy rain will cause a flood. Therefore, the epistemic modals express a result inference in (29). In this type of inference, *nichigainai* 'must', *kamoshirenai* 'may/might', *hazuda* 'should,' and *daroo* 'will/would' are all well-formed. However, *rashii* 'seem/appear to,' *yooda* 'seem/appear to,' and all of the *no* 'fact/thing' forms are ill-formed, because they express a result inference based on direct evidence.

Next, let us consider (30). In contrast to (29), in (30) the speaker is inferring that the child is lost based on the fact that he or she is crying alone. Unlike (29), in this case the speaker's inference is not based on just deduction or calculation but on direct evidence: being lost is clearly the cause of crying. Therefore, the epistemic modals express a cause inference in (30). In this type of inference, *rashii* 'seem/appear to,' *yooda* 'seem/appear to,' and all of the *no* 'fact/thing' forms are well-formed. However, *nichigainai* 'must', *kamoshirenai* 'may/might,' *hazuda* 'should,' and *daroo* 'will/would' are all ill-formed, because they express a result inference, but not a cause inference.

Let us now consider the example below. Its context is the speaker's reaction when he or she hears the news that the levee of the river is broken:

- (31) Sore-wa taihen-da.
 That -TOP terrible-be
 yuube ooame -ga fut-ta kara,
 last night heavy rain-NOM fall -PAST because
 kawa-wa hanran-site-iru
 river-TOP flooded -be
 {*nichigainai* (=must)/ *no-nichigainai* (=must)/ ?*kamoshirenai*

(=may/might) /*no-kamoshirenai* (=may/might) / *rashii* /
 (=seem to/appear to) / *yooda* (=seem to/appear to) / **hazuda* (=should) /
 **daroo* (=will/would) / *no-daroo* (=will/would)).
 ‘That’s terrible! The river {must/*should/may/seems to/*would} be
 swollen because it rained heavily last night.’

Interestingly, the acceptability of (31) is not parallel with (29), but with (30). Why is it so?

Context plays a vital role here. That is to say, in (31) the fact that the river is swollen because of the heavy rain is not the result of something else, but a direct cause of the break of the levee, which has been referred to in the preceding utterance. Therefore, (31) describes a cause inference as (30) does.

6. Present Condition

It is a well-known fact that in the case of some epistemic modals in Old Japanese, they observe a condition more severe than the Actuality Condition: the Present Condition (Matsuo (1969), Yoshida (1973)). For example, the epistemic modal *rashi* ‘seem to /appear to’ only expresses the speaker’s inference of the present situation in the real world. The following example is adduced from *Man’yo-shuu*, an anthology consisting of 4,516 poems compiled in the middle of the 8th century:

(32) *Kasuga-no-ni keburi tatsu mi-yu otome-rashi haru-no-no*
Kasuga-plain-in kemuri rise see maidens spring-field-of
uhagi tsumi -te ni -rashi-mo.
starwort picking and boiling –seem-EXC

(*Man’yo-shuu*, Volume 10, 1879)

‘I can see the smoke
 Rising from Kasuga plain;
 Perhaps some maidens
 Have gathered starworts of spring
 And then they are now boiling.’

(Translated by Teruo Suga)

In (32) *rashi* ‘seem to /appear to’ is used on the basis of direct evidence to express the

speaker's inference that the situation exists or is true at the present moment. Thus, in (32) the speaker sees smoke rising in the field of Kasugano, and infers, based on the smoke, that girls are cooking young herbs. Notice that in (32) *rashi* expresses a cause inference, but not a result inference, in that boiling young herbs is a cause of the smoke (Nakanishi 1996: 225). In such a cause inference, direct evidence based on the five senses of vision, sound, taste, smell, and touch is the direct reflection of some other unseen situation. We can conclude from the above analysis that *rashi* observes the following condition:

(33) Present Condition:

The **p** must be present.

7. Conclusion

This paper has analyzed epistemic modals or predicates in English and Japanese from three viewpoints: (i) reality of **p**, (ii) time of **p**, and (iii) causality of **p**.

We have argued for the three conditions: the Reality Condition, the Actuality Condition, and the Present Condition. It is important to notice that they are in a hierarchical order as in:

(34) Present Condition > Actuality Condition > Reality Condition

Furthermore, it is possible to conclude as in (47) concerning the relationship of the above epistemic hierarchy and the type of inference:

(35) A cause inference must observe the Actuality Condition.

This condition states that when the epistemic modal expresses a cause inference, the **p** must be present or past, but not future which is expressed by the future *will*, in the real world. This condition is reasonable in that, unlike a result, a cause already exists prior to a result.

We must emphasize now that pragmatic factors play an important role in epistemic modality, because the speaker's cognition of the causal relation is crucially based on the immediate context of the utterance and the speaker's encyclopedic knowledge and the historical background of the utterance. This strongly suggests that modality is closely related to pragmatics.

Notes

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1) However, as Nuyts (2006: 4) discusses, dynamic modality is not necessarily concerned with the individuals' internal properties, but with external environments in the following sentences:

- (i) a. The book *need* not be in the library. It *can* also be on my desk.
b. We all *have to* die someday. (Nuyts 2006: 4)

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