# Inference and Epistemic Conditionals

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## 1. Epistemic Conditionals

The purpose of this paper is to elucidate semantico-pragmatic properties of conditionals like these:

(1) a. If Mary typed his thesis, she loves him.

b. 'If the sightings are real,' Voyles said quietly in Tarrance's face, 'we're wasting our time here.'

J. Grisham *The Firm*

c. Things were getting serious. If Evans identified Mrs Templeton and Mrs Nicholson as one and the same person matters were going to become difficult.

A. Christie *Why Didn't They Ask Evans?*

Sweetser (1990) refers to sentences like these as epistemic conditionals. They differ from the following sentences, which she calls content conditionals, in some essential respects:

(2) a. If Mary loves him, she will type his thesis.

b. If light cannot escape from an object, this object appears black from the outside. Hence the name "black hole."

c. If I went to a new place I was with Frans or my mother or father and felt no threat.

T. Chevalier *Girl With A Pearl Earring*

While content conditionals represent the causal links between situations at the content level, epistemic conditionals are concerned with the validity of inferential reasoning processes involving both the propositions expressed in the protases and those expressed in the apodoses.

For example, conditional (1a) expresses the idea that, whenever a speaker knows that Mary typed his thesis, that speaker concludes that she loves him. In other words, in (1a), the knowledge of the truth of the premise proposition expressed in the protasis is a precondition for concluding the truth of the proposition expressed in the apodosis—the knowledge causes the conclusion. Thus, unlike a content conditional, the connecting link in (1a) is between the epistemic states or situations. Also the linking relation in (1a) appears to be in the reverse direction; the state of affairs described in the apodosis is causally prior to that described in the protasis. This is contrasted with the causal relation in (2a), where the loving is a precondition for the typing.

*If*-clauses in epistemic conditionals are both syntactically and semantically fairly independent of their matrix clauses. To begin with, they can have the independent or deictic tense, as shown in:

(i) Deictic present tense:

(3) a. If you've been travelling all night, you probably need a rest.

Hornby (1975: 229)

b. If it is raining (now), the lawn will be too wet to play on this afternoon.

Haegeman (1983: 147)

c. 'Forgery,' said Frankie thoughtfully. 'That letter from you, Bobby, was remarkably well done. I wonder how he knew your handwriting?'

*'If he's in with the Caymans he probably saw my letter about the Evans business.'*

A. Christie *Why Didn't They Ask Evans?*

(ii) Deictic past tense (Hornby (1975: 229-230):

(4) a. If he arrived only yesterday, he's unlikely to leave today.

b. If that was what he told you he was telling lies.

c. If she promised to be here she'll certainly come.

(iii) Deictic future tense:

(5) a. If Claude will be here tomorrow, there's no need to call him now.

Declerck (1984: 286)

b. If the camp will start soon, it will enjoy some good

weather.

Haegeman (1983: 153)

c. They've done a murder and got away with it. But *if it's all going to be raked up again now, it's the woman will give the show away.*

A. Christie *And Then There Were None*

There is also a difference in the distribution of pronouns and coreferent noun phrases in *if*-clauses of the two types, as in: (See Haegeman and Wekker (1984))

(6) a. John will learn all about wine if he/*John goes to France.

b. John should know all about wine, if he/John was in France last year.

The noun phrase *John* in the epistemic-type *if*-clause can be coreferential with the preceding *John* in the main clause, while the noun phrase in the content-type *if*-clause cannot be interpreted in this way.

Finally, as Fintel and Iatridou (2002) point out, quantifiers cannot bind pronouns in epistemic conditionals like those in (7):

(7) a. If John's light is on, he is home.

b. John is home, if his light is on.

This restriction is shown by the fact that the structure (8), where *every* is intended to bind the pronoun *his*, is ungrammatical:

(8) *Every student$_x$ is home if his$_x$ light is on.

The reason for the ungrammaticality, they claim, is that the quantifier cannot scope over the epistemic operator. To illustrate this, consider the following clearer case:

(9) *Every student$_x$ must be home if his$_x$ light is on.

The structure (9), which contains the overt epistemic operator *must,* is ungrammatical because the quantifier *every* (*student*) has scope over the modal operator *must: every* > *must.* It is thus claimed that just as in the case of (9), sentence (8) has a structure where the quantifier of its main clause has scope over the covert epistemic operator. The reason why the quantifier can have a wider scope is that the epistemic operator's scope is confined to the main clause, but not to the whole conditional. Consider the following example:

(10) If the light is on, John must be home.

(11) a. If the light is on, MUST (John is home).

b. MUST (If the light is on, John is home).

The operator *must* in (10) has scope only over the main clause as in (11a), rather than over the whole sentence as in (11b).

The peculiar behavior of epistemic conditionals reflects the fact that the grammatical mechanism utilizes peculiar pragmatic or semantic tools for their construction. In the following two sections, I will investigate how the mechanism works in the use of those conditionals.

## 2. Echoic Uses in Epistemic Conditionals

As Declerck and Reed (2001) point out, protases in epistemic conditionals are 'always echoic in one sense or another.' Consider:

(12) a. '... She thinks he's in love with Sylvia. Well, as to that, of course, I can't say.'

'If she thinks so, she's probably right,' interrupted Frankie.

'A woman would know all right about her own husband.'

A. Christie *Why Didn't They Ask Evans?*

b. "But the door was locked—yes. But there is nothing to show if it were locked from the inside or the outside. You see, *the key was missing.*"

"But then—if it is missing...." She took a minute or two. "Then it must have been locked from the *outside.* Otherwise it would be somewhere in the room."

A. Christie *Murder in the Mews*

In (12), the protases 'she thinks so' and 'it is missing' echo the preceding statements 'She thinks he's in love with Sylvia.' and '.., the key was missing.' respectively. Declerck and Reed (2001: 83) further say that protasis clauses 'may also be echoes of an internal or mental proposition.' For example:

(13) (*watching the clock*) If it's a already 8.45, I'd better hurry up.

Declerck and Reed also claim that the speaker takes it for granted that the fulfillment of the condition expressed in a *if*-clause is a fact, that is, (though not necessarily committed to its truth) she is willing to assume the condition as true[1]. Therefore the echoes in (12) and (13) are not the same as reporting utterances like that in (14):

(14) Mary: What did John say?

Joan: "I'm a nice person."

In reporting John's utterance, Joan does not express any

attitude toward the truth of what he said. By contrast, the speakers in (12) and (13) assume some attitude toward the truth of the protasis clauses being echoed[2]. In other words, the echoed protases are playing a dual role in the sense that the speaker does not only echo someone else's or their own utterance or statement, but also express some epistemic attitude toward the echoed propositions. In this respect, they are similar to repeated utterances. Consider:

(15) Foley: ... You better stop eye-ballin' me boy! You're not worthy enough to look your superiors in the eye! Understand?
Perryman: Yes, sir.
Foley: Now, every time I say, "Understand?" I want the whole group to say, "Yes, sir!" Understand? (The underline is mine.)
Group: Yes, sir!
Foley: (*yells*) Understand?
Group: (*shouts*) Yes, sir!
From the movie *An Officer and a Gentleman*

In his underlined utterance 'Understand?' Foley is repeating his preceding utterance and, at the same time, asking the group whether they *understand* what he says. In the next example, the captain recites the pledge for a commencement as all the class raises their hands and repeat after him:

(16) Captain: Class Fifteen Eighty-One, raise your right hand and repeat after me.
*I do solemnly swear...*
Class: I do solemnly swear...
Captain: ... *that I will support and defend the Constitution of the United States of America...*
Class: ... that I will support and defend the Constitution of the United States of America...
*ibid.*

The captain's original utterance is just demonstrating a specimen of a pledge and does not perform any illocutionary act of pledging. Yet the class are not only mimicking his utterance, but also performing a genuine pledge. In the following example, the repeated utterance is assertive:

(17) And he went back to meet the fox.
'Good-bye,' he said.
'Good-bye,' said the fox. 'And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.'
'What is essential is invisible to the eye,' the little prince repeated, so that he would be sure to remember.
A. de Saint-Exupéry *The Little Prince* Tr. by K. Woods

In repeating the fox's utterance, 'what is essential is invisible to the eye,' the prince performs an assertive speech act, committed to the truth of the proposition it expresses.

Both the echoed protases and repeated utterances are of the use of quotation that Recanati calls a hybrid. Consider:

(18) That boy is really 'smart'.

The speaker of (18) uses the word *smart* 'while at the same time implicitly ascribing that use to some other person ... whose usage [she] is blatantly echoing or mimicking[3].' Thus utterance (18) entails the following obtained by removing the quotation marks:

(19) That boy is really smart.

In (18), the quotation is local and only the limited portion of the utterance is quoted. In the cases of (12), (13), (15), (16) and (17), however, the quotation has the whole utterance within its scope and the whole sentence is used to depict another usage while doing its normal semantic work.

## 3. Closed Quotations in Epistemic Conditionals

Recanati (2001) differentiates between two types of quotation: the open and closed type. Let us look at his examples:

(20) Stop that John! 'Nobody likes me', 'I am miserable' ... Don't you think you exaggerates a bit?
(21) John keeps crying and saying 'Nobody like me'.

In (20), quotations 'Nobody likes me' occurs on its own, not as part of a construction. In (21), it fills a slot in the sentence 'John keeps crying and saying ____' and serves as a singular term. Recanati says that the former is open and, by contrast, the latter is closed.

The echoed clause 'the light is on' in epistemic conditional (10), repeated here for convenience, seems to be closed; it fills a slot in the conditional 'If ____, John must be home', though it may not serve as a singular term:

(10) If the light is on, John must be home.

Namely we may say that the protasis clause is quoted, as in:

(22) If 'the light is on', John must be home.

To make it clear how the quoter is related to the quoted clause in (22), consider the example Noh (2000: 19) gives as a mixed quotation:

(23) The teacher said, "I will use 'the rod of love' to make you learn better."

In the direct speech (23), the speaker reports what the teacher, say Mary, uttered, i.e., "I will use ... you learn better." In that quoted utterance, she used the words *the rod of love* and, at the same time, may have quoted them. Thus the phrase *the rod of love* is doubly quoted, that is, by Mary and then by the speaker of (23). Next consider:

(24) a. I said, "I will use 'the rod of love' to make you learn better."

b. Honestly (I say), "I will use 'the rod of love' to make you learn better."

In (24a), Mary herself reports her past utterance, in which she quoted the phrase *the rod of love.* In (24b), in uttering the reporting sentence *Honestly (I say)*..., she utters the reported sentence *I will use the rod of love to* ..., where she quotes that phrase. Notice here that in (24b), Mary does not just report the utterance "I will use ...," but performs a genuine speech act of, say, warning.

Further consider:

(25) Honestly (I say), " 'What is essential is invisible to the eye.' "

In (25), the utterance " 'What is essential is ...' " is doubly quoted as a whole; in uttering the sentence *Honestly (I say),* the speaker, say, the prince, reports and echoes that utterance simultaneously. In (10), I claim, the same thing happens to the conditional and its protasis.

(26) If " 'the light is on' ", John must be home.

In uttering the conditional 'If ____, John must be home,' the speaker quotes the utterance 'the light is on,' which fills the slot, and, at the same time, echoes some other utterance. Furthermore, I claim that the apodosis in (26) is quoted in the sense that the utterance modified by the speech act adverb *honestly* in (27a) is interpreted as a reporting speech of a sort, as in (27b):

(27) a. Honestly, what is essential is invisible to the eye.

b. Honestly I say, "What is essential is invisible to the eye."

Namely, the main clause of (10) is used and, at the same time, quoted to stand for the type which its utterance instantiates. If I am right, conditional (10) is constructed by filling the two slots of 'If ____, then ____.' and interpreted as:

(28) If " 'the light is on' ", " 'John must be home' ".

More precisely, following Recanati (2001), the slots are filled by the occurrences of 'Dem(onstration)', an iconic symbol; and those occurrences refer to the quoted materials or the utterance types, which are not semantically parts of the conditional in which they are presented. This is illustrated, as in:

(29) If [Dem] , then [Dem].
↓ ↓
'the light is on' 'John must be home'

My claim is indirectly supported by the peculiar behaviors of epistemic conditionals concerning pronominalization and modality, which are mentioned in section 1. In the case of an epistemic conditional, an antecedent noun phrase in the apodosis clause does not bind a pronoun in the protasis clause; and the modal operator in the apodosis does not have scope over the whole conditional. This means that the utterance of the apodosis, rather than that of the whole conditional, is committed to the truth of its own propositional content.

To sum up, in uttering an epistemic conditional, the speaker expresses her attitude toward the truth of the three propositional contents, i.e., that of the *if*-clause, the main clause and the whole conditional. First she assumes the protasis as true and then, under that assumption, infers the truth of the apodosis; and finally she asserts the truth of an inferential relationship between them[4].

## 4. Speaker's Epistemic Situations in Epistemic Conditionals

A sentence has two meanings: propositional and attitudinal. The propositional meaning of a sentence is an objective description of a situation that the speaker is supposed to focus on in uttering it; and the attitudinal meaning is her attitude toward the truth of that propositional meaning. Consider:

(30) John is smart.

The propositional meaning of this sentence is a type of

situation whose instance situation supports a state of affairs in which John is smart. The type is represented as:

(31) [**s**|**s**⊨《smart, j》]

When the utterance of (30) carries true information, there exists a situation s in which John's smartness is actualized, as shown in:

(32) s⊨《smart, j》

The attitudinal meaning of (30), which reflects a modal aspect of its meaning, is a type of epistemic situation whose instance situation supports the speaker's belief attitude, as in:

(33) [**e**|**e**⊨《True, (s⊨《smart, j》)》]

When a speaker, say, Mary, utters sentence (30), the state of affairs, 《Ture, (s⊨《smart, j》)》, is realized in her epistemic situation at that utterance, i.e., $e^m$. This is shown as in[5]:

(34) $e^m$⊨《True, (s⊨《smart, j》)》

(The superscript of an epistemic-situation symbol will be omitted, unless necessary.)

According to situation semantics, a conditional represents a general relationship between the two situation types respectively represented by its protasis and apodosis. Consider:

(35) If Mary goes, John will go.

This content conditional represents the relationship between the Mary-going type and the John-going type, as in[6]:

(36) [**s**|**s**⊨《going, m》] ⇒ [**s**|**s**⊨《going, j》]

This relationship is actualized by a channel situation c, as in:

(37) c⊨[**s**|**s**⊨《going, m》] ⇒ [**s**|**s**⊨《going, j》]

The channel c defines the relation $R_c$ that connects Mary-going situations to John-going situations and so (37) can be rephrased as:

(38) ∀s, t[s⊨《going, m》∧ $R_c$(s, t) → $t$⊨⊨《going, j》]

Since conditional (35) is a indicative sentence, its attitudinal meaning is like this:

(39) [**e**|**e**⊨《True, (c⊨$T_1$ ⇒ $T_2$)》]
$T_1$=[**s**|**s**⊨《going, m》]
$T_2$=[**s**|**s**⊨《going, j》]

When some speaker, say Joan, utters (35), her epistemic situation e instantiates this epistemic situation type, as in:

(40) e⊨《True, (c⊨$T_1$ ⇒ $T_2$)》

Next consider epistemic conditional (10), repeated here for convenience:

(10) If the lights are on, John is home.

As we saw in the previous section, the utterances of the protasis and apodosis are demonstrations and they are doubly quoted, as in:

(41) If " 'the lights are on'," " 'John is home'."

In uttering (41), the speaker does not only mention the protasis and apodosis, but also use them to express her belief attitudes toward their truth. Thus her attitudes are realized in epistemic situations $e_1$ and $e_2$, as in:

(42) a. $e_1$⊨《True, (s⊨《On, lgt》)》
b. $e_2$⊨《True, (s⊨《home, j》)》

Conditional (10) represents, as a whole, the relationship between the two epistemic situation types referred to by the demonstrations of the protasis and apodosis, which means that the two types which the epistemic situations $e_1$ and $e_2$ instantiate constitutes that type relationship, as in[7]:

(43) [**e**|**e**⊨《True, $p$》] ⇒ [**e**|**e**⊨《True, $q$》]
$p$=(s⊨《On, lgt》)
$q$=(s⊨《home, j》)

In the utterance of (41), this propositional meaning of (10) is instantiated by channel situation c, as shown in:

(44) c⊨[**e**|**e**⊨《True, $p$》] ⇒ [**e**|**e**⊨《True, $q$》]
↔ ∀e, e' [e⊨《True, $p$》∧ $R_c$(e, e') → e'⊨《True, $q$》]

Furthermore, the speaker expresses her attitude toward the truth of the propositional meaning, as in:

(45) $e_0$⊨《True, (c⊨$T_1$ ⇒ $T_2$)》
$T_1$=($e_1$⊨《True, $p$》)
$T_2$=($e_2$⊨《True, $q$》)

So the attitudinal meaning of (10) is the type of epistemic situation $e_0$:

(46) [**e**|**e**⊨《True, (c⊨$T_1$ ⇒ $T_2$)》]
$T_1$=($e_1$⊨《True, $p$》)
$T_2$=($e_2$⊨《True, $q$》)

In summing up, there are three epistemic situations $e_0$, $e_1$, and $e_2$ in the utterance of epistemic conditional (10):

(47) ・$e_0$⊨《True, (c⊨$T_1$ ⇒ $T_2$)》
・$e_1$⊨《True, $p$》
・$e_2$⊨《True, $q$》

In $e_1$, the speaker takes it for granted that $p$ is true; so

in $e_2$, she concludes that *q* is also true; and at the same time, she is committed to the truth about the inferential relationship between *p* and *q* or of the claim that *q* follows *p*.

Before leaving this section, a few words are in order about modality in epistemic conditionals. Their apodoses often contain modal auxiliaries or modal adverbs:

(48) a. Herb: Frank tells me you're a singer.
Rachel: Yeah, that's right.
Herb: Yeah, well, uh, we're are kinda out of things up her. I'm sorry.
Rachel: Well, that's okay.
Herb: You must be very successful if you need someone like Frank.
From the movie *The Bodyguard*

b. "But the door was locked—yes. But there is nothing to show if it were locked from the inside or the outside. You see, *the key was missing.*"
"But then—if it is missing...." She took a minute or two. "Then it must have been locked from the *outside*. Otherwise it would be somewhere in the room."
A. Christie *Murder in the Mews*

c. Frank: She's out to kill you.
Andrew: My dear Hunter, if that was indeed her purpose, you should know by now that she fulfilled it long ago.
T. Rattigan *The Browning Version*

(49) If he's in with the Caymans he probably saw my letter about the Evans business.
A. Christie *Why Didn't They Ask Evans?*

They also contain the semi-modal *seem* or propositional-attitude expressions[8]:

(50) a. Alex Pritchard, or Alan Carstairs, must have been murdered. If he wasn't there seems no point in the attack upon Jones.
A. Christie *Why Didn't They Ask Evans?*

b In fact, Bobby reflected, if she had not recognized her own photograph, it seemed doubtful if anyone else would have done so.
[=If she did not recognized her own photograph, it seems doubtful if anyone else will have done so.]
A. Christie *Why Didn't They Ask Evans?*

(51) a. 'If Dr Nicholson is so fond of children I suppose he came to your children's party?' said Frankie carelessly.
'Unfortunately he was away for a day or two just then. I think he had to go to London for some conference.'
A. Christie *Why Didn't They Ask Evans?*

b. If in fact McDeere met with the Fibbies up there and failed to report it, then I'm sure Lazarov will instruct me to move quickly.
J. Grisham *The Firm*

In some cases, a protasis contains a modal expression (See Declerck and Reed (2001: 88-89):

(52) If he {is probably / may perhaps be} a paedophile, we'd better keep the children away from him.

The modal parts in these examples can be made explicit by the following paraphrases:

(53) a. It must be true that you are very successful.
b. It must be true that it was locked from the inside.
c. It should be true that you know by now that she fulfilled it long ago.
d. It is probably true that he saw my letter about the Evans business.
e. It seems that there is no point in the attack upon Jones.
f. It seems doubtless if anyone else did so. [=It seems that no one else did so.]
g. I suppose that he had to go to London for some conference.
h. I am sure that Lazarov will instruct me to move quickly.
i. It is probably / may perhaps be true that he is a paedophile.

These epistemic expressions are used performatively; and the situations in which epistemic judgments are performed by them are represented as 'e⊨《True, *p*》', just as the judgment performed by the phrase *it is true* (*that*) is. The differences in epistemic value between the modal parts may be expressed by some other situations, say 's⊨《Must, e》' or 's⊨《Probable, e》'.

## 5. Inferential Processes

Copi (1972: 5) says, "Inference is a process by which one proposition is reached and affirmed on the basis of

one or more other propositions accepted as the starting point of the process." Sweetser (1990: 116) claims that an epistemic conditional expresses such an inferential process: "In the epistemic domain, *if-then* conjunction expresses the idea that knowledge of the truth of the hypothetical premise expressed in the protasis would be a sufficient condition for concluding the truth of the proposition expressed in the apodosis." Declerck and Reed (2001: 42) also make a similar remark: "These [=Epistemic conditionals] are conditionals that represent a process of reasoning of the type 'If P is true, Q is true' in which the P-clause is 'premise-expressing' and the Q-clause asserts the conclusion which the speaker draws from P."

Whitehead and Russell (1910: 7) remarked that in common usage, the process of inference is often confused with 'implication' expressed in an epistemic conditional and explained it as follows:

> The process of inference is as follows: a proposition "$p$" is asserted, and a proposition "$p$ implies $q$" is asserted, and then as a sequel the proposition "$q$" is asserted. The trust in inference is the belief that if they two former assertions are not in error, the final assertion is not in error. Accordingly whenever, in symbols, where $p$ and $q$ have of course special determinations,
>
> " $\vdash p$" and " $\vdash p \supset q$"
>
> have occurred, the " $\vdash p$" will occur if it is desired to put it on record. The process of the inference cannot be reduced to symbols. Its sole record is the occurrence of " $\vdash q$."
>
> Whitehead and Russell (1910: 8-9)

Namely the inferential process consists of the three stages: " $\vdash p$", " $\vdash p \supset q$" and " $\vdash p$". We often express an inferential relation like this by connecting two sentences with the conjunctive word *therefore* or *so,* as in:

(54) These are his footprints, therefore/so he's been here recently.

Thus they continued:

> It is of course convenient, even at the risk of repetition, to write " $\vdash p$" and " $\vdash p \supset q$" in close juxtaposition before proceeding to " $\vdash q$" as the result of an inference. When this is to be done, for the sake of drawing attention to the inference which is being made, we shall write instead
>
> " $\vdash p \supset \vdash q$"
>
> which is to be considered as a mere abbreviation of the threefold statement
>
> " $\vdash p$" and " $\vdash p \supset q$" and " $\vdash q$."
>
> Thus " $\vdash p \supset \vdash q$" may be read "$p$, therefore $q$," being in fact the same abbreviation, essentially, as this is; for "$p$, therefore $q$" does not explicitly state, what is part of its meaning, that $p$ implies $q$. An inference is the dropping of a true premiss; it is the dissolution of an implication.
>
> *ibid.*

Is an epistemic conditional an abbreviation of the three-stage inferential relationship? The answer is no. It may be similar to " $\vdash p \supset \vdash q$", but it is not an abbreviated form like "$p$, therefore $q$." To utter "$p$, therefore $q$" is just to assert an inferential relationship between the two propositions $p$ and $q$.

By contrast, to utter an epistemic conditional (If "'$p$'", then "'$q$'") is to perform an inferential act—reasoning from premise $p$ to conclusion $q$[9]. This means that the utterance includes the three assertions " $\vdash p$" and " $\vdash p \supset q$" and " $\vdash q$"; that is, the utterance "'$p$'" makes an assertion " $\vdash p$" and at the same time demonstrates its type; the utterance " $\vdash q$" also asserts " $\vdash q$" and demonstrates its type; and the utterance of the whole clause "If ..., then ...." asserts an implication "$p$ implies $q$"—" $\vdash p \supset \vdash q$."

## 6. Conclusion

An epistemic conditional contains the two doubly quoted clauses—the protasis and apodosis, and expresses a relationship between the two epistemic situation types respectively represented by the clauses. In uttering the conditional, the speaker actually performs an act of reasoning—drawing a conclusion from a premise. More specifically, she asserts the protasis as a premise and the inferential relationship and, under this assumption, also asserts the apodosis as a conclusion; and she performs these three acts simultaneously.

**Notes**

1) Declerck (1984: 286) remarks that in an epistemic conditional, the meaning of the *if*-clause comes very close to that of an *as*- or *since*-clause.

2) Declerck (1984: 285-286) points out that in (i) and (ii), where the protases are echoed, 'the meaning of *if*

comes very close to that as *as* or *since*':

i. If he won't arrive before nine, there's no point in ordering dinner for him.

ii. If the lava will come down as far as this, we must evacuate these houses immediately.

3) For details of a hybrid use, see Recanati (2000: 139-140) and (2001).

4) As Declerck and Reed (2001: 285) point out, *if*-clauses 'express *the most relevant* rather than *the only* premise underlying the inferential reasoning process.' Barwise (1989, Ch. 5) discussed formal treatment of implicit premises that are pragmatically presupposed and so not considered to be worth mentioning in the ordinary use of conditionals.

5) For details about epistemic judgment and its situations, see Nakashima (2007).

6) For the treatment of conditionals in situation semantics, see Nakashima (2006).

7) Epistemic conditional (10) can be paraphrased with the predicate *true,* as in:

i. If it is true that the lights are on, it is true that John is home.

In a case like this, the phrase *it is true* (*that*) is used performatively, rather than descriptively.

8) As Dancygier (1998: 88) points out, the link between the *if*-clause and the main clause is sometimes expressed by the phrase (*then*) *it means that,* as in:

i. If he is the villain of the piece, as we decided he must be, it means that we're going to show him our hand.

A. Christie *Why Didn't They Ask Evans?*

My guess is that even in cases like this, the clause is doubly quoted, as in:

If he is . . . , it means that "'we're going to show him our hand'".

9) Dancyngier and Sweetser (2005: 117) also claim that what the speaker is involved in is 'neither a prediction about a conclusion to be drawn nor a description of a general relation between premise and conclusion, but a performative act of reasoning aloud.' However they do not explain how she performs such a reasoning act in uttering a epistemic conditional.

## References


Barwise, Jon (1989) *The Situation in Logic.* Stanford, Center for the Study of Language and Information.

Copi, I. M. (1972) *Introduction to Logic.* New York, The Macmillan Company.

Dancygier, Barbara (1998) *Conditionals and Prediction: Time, Knowledge, and Causation in Conditional Constructions.* Cambridge, Cambridge University Press.

Dancyngier, B. and Eve Sweetser (2005) *Mental Spaces in Grammar: Conditional Constructions.* Cambridge, Cambridge University Press.

Declerck, Renaar (1984) "'Pure Future' *Will* in *If*-clauses," *Lingua* 63, 279-312.

Declerck, Renaar and Susan Reed (2001) *Conditionals: A Comprehensive Empirical Analysis.* Berlin, Mouton de Gruyter.

von Fintel, K. and S Iatridou (2002) "If and When *If*-Clauses Can Restrict Quantifiers," Papers for the Workshop in Philosophy and Linguistics at the University of Michigan, November 8-10, 2002.

Haegeman, L. M. V. (1983) *The Semantics of* Will *in Present-day British English: A Unified Account.* Brussel, Paleis der Acadëin.

Haegeman, L. and H. Wekker (1984) "The Syntax and Interpretation of Futurate Conditionals in English," *Journal of Linguistics* 20, 45-55.

Hornby, A. S. (1975) *Guide to Patterns and Usage in English.* London, Oxford University Press.

Nakashima (2006) "Conditionals and Hybrid Uses of Language," *The Journal of Konan University, Faculty of Letters 140-English Studies-,* pp. 1-50.

_____ (2007) "Inferential Judgment and Indicative Mood," in M. Amano et al eds. (2007) *Exploring the Universe of Language: A Festschrift for Dr. Hirozo Nakano on the Occasion of His Seventieth Birthday.* Department of English Linguistics, Nagoya University. pp. 203-220.

Noh, Eun-Ju (2000) *Metarepresentation: A Relevance-Theory Approach.* Amsterdam. John Benjamins Publishing Company.

Recanati, F. (200) *Oratio Obliqua, Oratio Recta: an Essay on Metarepresentation.* Cambridge, Massachusetts, The MIT Press.

_____ (2001) "Open Quotation," *Mind,* Vol. 110, 637-687.

Sweetser, Eve (1990) *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure.* Cambridge, Cambridge University Press.

Whitehead, A. N. and B. Russell (1910) *Principia Mathematica to *56.* Cambridge, Cambridge University Press.