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Implication and Modal Verbs

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1. Introduction

This is an attempt to classify some of the main modal verbs in English (including quasi-modals) according to Karttunen's (1971) classification of implicative, non-implicative, negative-implicative, etc. verbs. Some of the factors that influence the classification are hoped to be brought out into the light.

2. Definitions

According to Karttunen (1971), implicative verbs, non-implicative verbs, negative-implicative verbs, and one-way implicative verbs (of which we will only be dealing with the only-if verbs) are defined in the following way;

Implicative Verbs: affirmative sentence containing an implicative verb necessarily implies the truth of the content of its complement, and also the negative sentence containing an implicative verb necessarily implies the falsity of the content of its complement.

Non-implicative Verbs: no such implicational relations between the main clause containing a non-implicative verb and its complement.

Negative-implicative Verbs: affirmative sentence containing a negative-implicative verb necessarily implies the falsity of the content of its complement, and also negative sentence containing a negative-implicative verb necessarily implies the truth of the content of its complement.

Only-if Verbs: no implicational relation between the main clause containing an only-if verb and its complement in the affirmative

sentence, and also negative sentence containing an only-if verb necessarily implies the falsity of the content of its complement.

We will take these notions and apply them to modal verbs in a less strict way. The implicational relation will be between the modal verb and the main predicate / complement. We will be considering each form (except for affirmative / negative distinction) separately, rather than the lexeme as a whole. Thus, for example;

(1)　I was able to catch the eight-thirty bus this morning.

(2)　I wasn't able to catch the eight-thirty bus this morning.

(1) implies that I did catch the eight-thirty bus this morning, while (2) implies that I didn't catch the eight-thirty bus this morning. Therefore, *was able to* in these examples will be an instance of implicative modals.

Palmer (1976) talks of the ' actualization of events ' and the ' actuality of events ', by which he means the actual taking place of events. According to his definition, the event in (3) does not have actuality;

(3)　I was able to not sleep during the lecture this afternoon.

since I did not sleep. Of course, if " not sleep during the lecture this afternoon " is taken as an event as a whole in the complement, as in our definition, it could be said that the event is actual. But Palmer's definition is not clear on this point.

Coates (1983) has a section on the ' factivity ' of modals. The phenomena she deals with are roughly the same as the ones of present concern. The term ' factivity ', which she uses to refer to the properties of factive verbs of which KNOW is a classic example, does not seem to be appropriate. One of the properties of factive verbs is that the truth of the complement of the predicate stays unchanged regardless of the affirmative / negative alternation of that predicate. Therefore, it is quite misleading that she should call BE ABLE TO, for example, factive.

3.　Epistemic Modals

Epistemic modals (*may, might* [*may*+tentativeness marker], *could* [*can* +tentativeness marker], *will, have to, ought to, should,* and their forms with the past time marker *have,* and also *must*) are essentially non-

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implicative. Since epistemic modals express the speaker's present reservations about the truth of the complement, they are inevitably non-implicative, regardless of the time reference of the complements. For example;

(4) They might [*may*+tentativeness marker] put off the concert tomorrow. (' It is possible that they will put off the concert to-morrow.')

(5) He might be in his eighties now. (' It is possible that he is in his eighties now.')

(6) Jane might have [*may*+tentativeness marker+past time marker] been at home yesterday. (' It is possible that Jane was at home yesterday.')

(7) Jane might not have been at home yesterday. (' It is possible that Jane was not at home yesterday.')

As is evident from the paraphrase of (7), the negation is not attached to the modality but to the main verb in the complement, so that the affirmative / negative distinction is not relevant to the classification.

4.   Root Modals

4.1   Future Reference

Since the future is, by definition, unknown, one cannot judge the truth or the falsity of the complement which has future reference.   This is true in most cases regardless of the affirmative / negative distinction.

The root modals of the deontic type are typically non-implicative when they occur with complements with future reference;

(8)   He $\begin{Bmatrix} \text{can} \\ \text{has to} \\ \text{should} \\ \text{ought to} \end{Bmatrix}$ go out tomorrow— $\begin{cases} \text{so he will} \\ \text{but he won't.} \end{cases}$

(9)   He $\begin{Bmatrix} \text{can't} \\ \text{doesn't have to} \\ \text{shouldn't} \\ \text{oughtn't to} \end{Bmatrix}$ go out tomorrow— $\begin{cases} \text{but he will.} \\ \text{so he won't.} \end{cases}$

The exceptions are *must* and *may*. The deontic sources (the speakers)

of these modals in typical cases have authority over the subjects, so that usually they will not allow for non-events;

(10) He must go out— $\begin{cases} \text{so he will.} \\ \text{?but he won't.} \end{cases}$

(11) He mustn't go out— $\begin{cases} \text{?but he will.} \\ \text{so he won't.} \end{cases}$

(12) He may go out— $\begin{cases} \text{so he will.} \\ \text{but he won't.} \end{cases}$

(13) He may not go out— $\begin{cases} \text{?but he will.} \\ \text{so he won't.} \end{cases}$

While *may* in the affirmative expresses a permission of which one may choose to take advantage or not as in (12), *may not* becomes a strong prohibition which cannot be neglected. *May*, therefore, is an only-if modal. *Must* is implicative.

The rest of the root modals may vary in their categorization. The ' root possibility ' *can* (c.f. Coates: 1983) is an only-if modal;

(14) I can visit him tomorrow— $\begin{cases} \text{so I will.} \\ \text{but I won't.} \end{cases}$
(' It is possible for me to visit him tomorrow.')

(15) I can't visit him tomorrow— $\begin{cases} \text{*but I will.} \\ \text{so I won't.} \end{cases}$
(' It is not possible for me to visit him tomorrow.')

With root modals, the negative form usually expresses negative modality, so that while one can choose or not choose to do what is possible for him to do, there is no choice to do what is impossible for him.

Will and *shall* of ' volition ' are implicative.

(16) I'll (' volition ') write it down for you—*but I won't (' future ').

(17) I won't (' volition ') hurt you any more—*but I will (' future ').

These modals, especially when co-occurring with first person subjects as in (16) and (17), may be used to make a promise, which, by definition, counts as an undertaking to put oneself under obligation to do a certain thing. Then, the categorization of *must* (' strong obligation ') and *will/shall* (' volition ') both as implicative modals seems reasonable.

4. 2   Present Reference

Not many root modals occur with complements of present reference. *Can* and *be able to* of 'ability' are only-if modals, while the so-called 'aspectual use' of *can* as in (22) and (23) is implicative.

(18)   She can ('ability') swim—$\begin{cases}\text{so she does.}\\\text{but she doesn't.}\end{cases}$

(19)   She can't ('ability') swim—$\begin{cases}\text{*but she does.}\\\text{so she doesn't.}\end{cases}$

(20)   She is able to ('ability') speak French—$\begin{cases}\text{so she does.}\\\text{but she doesn't.}\end{cases}$

(21)   She is not able to speak French—$\begin{cases}\text{*but she does.}\\\text{so she doesn't.}\end{cases}$

(22)   I can see the daylight—$\begin{cases}=\text{I see the daylight.}\\\text{*but I don't.}\end{cases}$

(23)   I can't see the daylight—$\begin{cases}\text{*but I do.}\\=\text{I don't see the daylight.}\end{cases}$

To say that one has the ability does not mean that the person will in fact exercise that ability. One can choose or not choose to do what one has the ability to do. Therefore, although the abilities in (18) and (20) are known to be true in the present time, the complements cannot be judged to be true or false. It is just in such cases that many of the modals are used, since if one knew the act to be occurring in the present, one would simply use the present progressive form and make a categorical assertion.

Should and *ought to*, unlike *must* and *have to*, can take complements with present reference;

(24)   *I $\begin{cases}\text{must}\\\text{have to}\end{cases}$ be in London this very moment.

(25)   I $\begin{cases}\text{should}\\\text{ought to}\end{cases}$ be in London this very moment—$\begin{cases}\text{*so I am.}\\\text{but I'm not.}\end{cases}$

(26)   I $\begin{cases}\text{shouldn't}\\\text{oughtn't to}\end{cases}$ be in London this very moment—$\begin{cases}\text{but I am.}\\\text{*so I'm not.}\end{cases}$

Should and *ought to* are often negative-implicative when they have complements with present reference. They are usually paraphrased as 'it is reasonable for X to Y' or 'it is advisable for X to Y', as compared

with the paraphrase for *must* and *have* to, which is ' it is obligatory for X to Y ' (with a somewhat weaker version for *have to*). The force of obligation is weak with *should* and *ought to*, so that they function merely as advice on what would be a more rational / reasonable action / state than the present one. The present may be either known or unknown, but usually people will only give advice when the present " unfavourable " state is known, with a belief that the advice will benefit the advisee. Therefore, *should* and *ought to* with complements of present reference become negative-implicative.

It is possible, however, to give advice even when the present state is unknown. But in such cases, it is usually under supposition (as by the *if*-clause in (27)) that the advisee is not in the favourable (advisable) state, yet to be recommended by the advisor;

(27)   I don't know whether he's there or not, but if he isn't, he certainly ought to be.

Must, on the other hand, has stong obligatory force and in certain cases comes close to an imperative. Since one can only lay orders for future actions (including the bringing about of states), the non-occurence of *must* and *have to* with complements of present reference is reasonable.

4. 3   Past Reference

Could [*can*+past time marker] is the only pure root modal that can occur with complements with past reference. (Reported speech forms have been excluded in this study). The reason that other pure modals cannot be used or are rare may be due to the fact that while such quasi-modals as *be able to* are capable of expressing dynamic aspect in the past, the essential characteristic of pure modals is to express only the state of probability. Since the past may be known, it would be uninformative to use pure modals with complements referring to a single action in the past which is known to have or not to have occurred.

Could, however, has specialized meanings (' ability ', ' permission ', etc.) as well, and that having helped in retaining the form, it can be used in its ' root possibility ' meaning provided that the complement does not refer to a single action in the past;

(28)   We could (' root possibility ') swim in this river when we were

young—$\begin{cases}\text{so we often did.}\\\text{but we never did.}\end{cases}$

(29) We couldn't swim in this river when we were young—

$\begin{cases}\text{*but we often did.}\\\text{so we never did.}\end{cases}$

Could (' root possibility ') is one-way implicative, and the pattern is the same for *could* of ' ability ' and ' permission '. The so-called ' aspectual use ' of *could* is implicative as with complements with present reference. [*be able to*+past time marker] also follows the same pattern except for when occurring with complements that refer to a single event in the past. The appropriate paraphrase ' manage to ' shows that [*be able to*+past time marker] in this use is implicative;

(30) She closed her eyes tightly, and was able to jump down—

$\begin{cases}=\text{She managed to jump down.}\\\text{*but she didn't.}\end{cases}$

(31) She closed her eyes tightly, but was not able to jump down—

$\begin{cases}\text{*but she did.}\\=\text{She didn't manage to jump down.}\end{cases}$

Had to [*have to*+past time marker] and *should have* [*should*+past time marker] / *ought to have* [*ought to*+past time marker] differ in their cate- gorization. *Had to*, with normal stress, is non-implicative, while *should have* and *ought to* are negative-implicative;

(32) He had to walk home last night—$\begin{cases}\text{so he did.}\\\text{but he didn't.}\end{cases}$

(33) He didn't have to walk home last night—$\begin{cases}\text{but he did.}\\\text{so he didn't.}\end{cases}$

(34) He $\begin{cases}\text{should have}\\\text{ought to have}\end{cases}$ walked home last night—$\begin{cases}\text{*so he did.}\\\text{but he didn't.}\end{cases}$

(35) He $\begin{cases}\text{shouldn't have}\\\text{oughtn't to have}\end{cases}$ walked home last night—$\begin{cases}\text{but he did.}\\\text{*so he didn't.}\end{cases}$

Had to in the affirmative sometimes implies the truth of the comple- ment, so that the paraphrase will be something like ' X was forced to do Y.' These cases happen when the deontic source in the past was too strong to be controlled. But *had to* itself merely expresses the existence

of obligation / necessity in the past.

Should have and *ought to have* are often paraphrased as ' It was advisable / necessary for X to do Y.' But this is not accurate since the judgement of the preference / necessity of some act in the past is made at the moment of the utterance—' X is in an unfavourable situation now because he did not do Y in the past. Therefore I judge that it would have been preferable / necessary for X to do Y.' This is not the same as a mere report of a necessity in the past, which has no relation to the present, and which would not give the negative implication. Note also the tone of unrealness expressed by *would have been* in the gloss.

5. Unreal Conditional Main Clauses

Modals are either negative-implicative or implicative in the main clause of unreal conditional construction. This is true regardless of the epistemic / root and present / past distinctions. We will only consider the root modals;

(36) If you were here, I could [*can*+hypo(thetical marker)] do it.
     (You are not here, so I can't do it.)   present

(37) If you had been here, I could have [*can*+hypo+past (marker)] done it.
     (You were not here, so I couldn't do it.)   past

(38) If you were here, I couldn't do it.
     (You are not here, so I can do it.)   present

(39) If you had been here, I couldn't have done it.
     (You were not here, so I was able to do it.)   past

In all of these examples, *could / could have* are negative-implicative. The present, however, compared with the past, leaves room for change. If the condition in the subordinate clause changes, the complement in the main clause may become true. In this sense, present hypothetical modals are not strictly negative-implicative in these examples, so that when the main clause appears without the subordinate clause, the hypothetical meaning gets weakened to little more than tentativeness (in which case, they would become implicative). The past, in contrast, is unchangeable, so the past hypothetical modals in the examples are

strictly non-implicative.

However, the problem is not so simple. In (36) and (37), where the modals are in the affirmative in the main clauses, the unreal situations expressed by the complements are taken as more favourable than the real situations. In (38) and (39), the modals are in the negative, and the unreal situations are taken as less favourable than the real ones. The situation becomes more complicated when the subordinate clause is the *even-if* clause;

(40) Even if you were here, I could do it.

(41) Even if you had been here, I could have done it.

(42) Even if you were here, I couldn't do it.

(43) Even if you had been here, I couldn't have done it.

The modals in these examples are implicative. In (40) and (41), the unreal situations in the subordinate clauses are taken as less favourable than the real situations. In (42) and (43), the unreal situations are taken as more favourable than the real ones. The overall picture is given in figure 1;

Subordinate Clause	Main Clause	Implication
If + more favourable	Affirmative	Negative
If + less favourable	Negative	Affirmative
Even if + less favourable	Affirmative	Affirmative
Even if + more favourable	Negative	Negative

Figure 1.

Combinations other than the above are impossible. The hypothetical modals in the main clauses of unreal conditional structure, then, are negative-implicative when the subordinate clause is an *if*-clause, and implicative when the subordinate clause is an *even-if*-clause. It may be added that since people are always apt to be hoping for the better, unreal *if*-clauses occuring on their own (as imcomplete unreal conditional structures) are usually taken as expressing hopes for the better. Consequently, past hypothetical modals in main clauses occuring on their own (also as incomplete unreal conditional structures) are usually taken as negative-implicative.

It may be significant that all the negative-implicative modals are of the same form; {[primary modal+hypo] (expressed by secondary modal) +past (expressed by *have*)} in past hypothetical modals, and [*should* / *ought to* (secondary modals historically derived from primary modals)+ past (expressed by *have*)].

6. Conclusion

Through the classification of English modal verbs into implicative, non-implicative, negative-implicative, and one-way implicative modals, we have considered some of the aspects that influence the classification; the essential characteristics of modals (epistemic modals are essentially non-implicative, while pure root modals are essentially only-if modals), time reference of complements, aspect, strength of deontic source, and the nature of subordinate clause in unreal conditional structure.

References

Coates, J. (1983), *The Semantics of the Modal Auxiliaries*. London: Croom Helm.
Karttunen, L. (1971), " Implicative Verbs ". *Language* 47, pp. 340–58.
Lyons, J. (1977), *Semantics*. Cambridge: Cambridge University Press.
Palmer, F. R. (1979), *Modality and the English Modals*. London: Longman.
Perkins, M. R. (1983), *Modal Expressions in English*. London: Frances Pinter.