

Problems of Modality in CAN and MAY

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I. Introduction

The definition and description of modality has been one of the most recalcitrant problems in linguistics. It is probably because the modality is a very complex and ill-understood phenomenon, syntactically, semantically and pragmatically: modals frequently have idiosyncratic conjugational patterns and are subject to highly specialized rules; often they straddle the line between 'monosemy' and 'polysemy', or between 'categorical' and 'non-categorical'; their behaviors are apt to be determined by particular contexts in which they are correctly or appropriately used.

The syntactic difficulties will be ignored in this paper, since they are almost nothing to the semantic anomalies inherent in the concept of modality. However, both the syntactic and pragmatic approaches will unhesitatingly be tried if they are necessary to account for the thorny problems of semantics. The semantic account of modals can be divided into two approaches: 'monosemous' and 'polysemous'. The monosemous approach in which a strong emphasis has been placed on the simplicity of linguistic explanation stands in a sharp contrast to the polysemous approach in which the focus has been on the preciseness. In other words, the former approach is chiefly concerned with a 'basic meaning' for each modal whereas the latter approach with 'different categories which are assumed to be discrete'. Recent studies of modals reveal that the problems of indeterminacy in modality can be solved not by separating 'monosemy' from 'polysemy' but by combining them. Coates takes a similar view of such an ideal approach to modals:

It is not simply a case of adopting or rejecting discrete categorization, or of preferring a monosemantic or a polysemantic approach; analysis of the modals make clear that both categorical and non-categorical approaches are relevant and therefore an adequate description

of the meanings of the modals must achieve a synthesis of these two approaches.¹⁾

What I shall concern myself with largely in this paper is the semantic investigation of CAN and MAY on the basis of the problems of indeterminacy. In doing so, this paper will particularly be focused on the criticism on the Perkins' (1980) core-meaning model,²⁾ and thereby a new model will be given to account for the underlying modality of CAN and MAY.

II. Modality of CAN

The meanings of CAN have usually been discussed under the three categories: 'Ability', 'Permission' and 'Possibility'. The following are the typical examples for each category of CAN.

- (1) Our team *can* easily beat your team.
- (2) You *can* smoke in this room.
- (3) Even expert drivers *can* make mistakes.

The validity of this three-way distinction is clearly demonstrated by the interrogative use of CAN. For example, (1) would be an answer to the interrogative utterance such as *can your team beat my team?*, which questions the addressee's innate capability. Hence the category 'Ability'. For the case of (2), the interrogative utterance might be represented as *can we smoke?*, which questions the authority of the addressee, or the local rules and regulations, as to the possibility of smoking. Thus CAN of 'Permission' is a good name for the examples like (2). Interrogative example involving 'Possibility' would question the existence of enabling or disabling circumstances. This is typically the case with the examples like (3).

However, Perkins (1980) points out that the above three categories are no more than the labels for some possible environments of CAN and are not the meaning of CAN itself. Instead of labelling, he tries to find out the meaning of CAN by questioning what CAN itself actually contributes to the meaning of a sentence. Being regarded as a mediator connecting the circumstances—whatever they may be—and the event, CAN is represented as Rule (4).

- (4) K (C does not preclude X)
 - (i) K = natural law/ C = empirical circumstances
 - (ii) K = social law/ C = a deontic source
 - (iii) K(x) = x is the case relative to K

where K indicates a set of laws or principles according to which the relationship between circumstances and event can be interpreted; where C means circumstances available to the event; and where X is a variable which may represent the occurrence of an event under a dynamic or deontic interpretation. In order to understand how (4) is working on the use of CAN, let us examine (1) and (2) in terms of (4). When we utter (1), we may have in mind some set of circumstances which include, for example, a previous occasion on which our team showed its ability to beat your team, and which is certainly not such as to preclude a similar occurrence

1) J. Coates; *The Semantics of the Modal Auxiliaries*, London & Canberra: Croom Helm, 1983, p. 10.

2) M. R. Perkins; "The Core Meanings of the English Modals," *J. of Linguistics* 18, 1980, pp. 245-273.

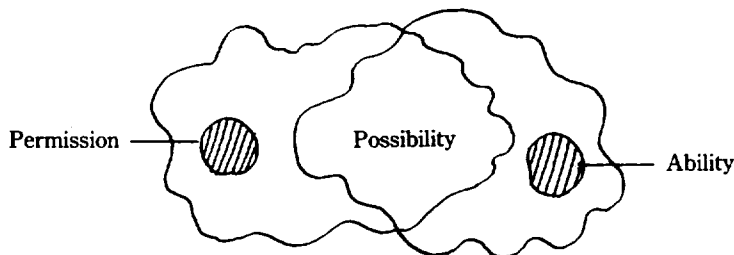
happening again, should an appropriate occasion arise. In the case of (2), C may involve a deontic source — i.e. human authority or institution which creates a permission or obligation. This authority is certainly not such as to preclude a smoking. But notice that it is not easy to associate (4) with (3), in which CAN of ‘possibility’ is used. In (3) neither the empirical circumstance nor any deontic source is involved in the occurrence of ‘making mistake’. In addition, there is no natural law or social law available to the relationship between C and X. Note further that in typical examples of CAN of ‘possibility’, particularly when it is positively used, external circumstances are not specified. In the following examples quoted in Coates³⁾

(5) Well I think there is a place where I *can* get a cheap kettle.

(6) We *can* make coffee like upstairs.

we see that neither some external authority nor some innate ability is responsible for the possibility of the action that allows such utterances to be interpreted in terms of ‘possibility’. Even though any circumstance available to CAN of ‘possibility’ does exist in some cases, there is no appropriate law or principle according to which it is connected with the event in terms of the non-preclusion of (4). It follows, therefore, that as far as CAN of ‘possibility’ is concerned there is no K and no C applicable to (4). One might suggest that we add to (4) another condition equivalent to $K = \text{nothing}/C = \text{nothing}$, what Ehrman calls ‘nihil obstat’. This condition seems too *ad-hoc* to be equally treated with the condition (i) or (ii) of (4). A further difficulty with this condition is that it is not compatible with (4) in that the application of this condition to (4) leads to “Nothing (Nothing does not preclude X)”, which means “Something does preclude X” with no regard to any law or principle. Such being the case, the non-preclusion based on (4) seems inappropriate for all used of CAN including CAN of ‘possibility’.

In his core meaning approach to CAN, Perkins regards the three categories of meaning as being clearly separated to the extent that, for example, ‘ability’ is completely different from ‘possibility’ in the context available to them. But this idea will be proved to be mistaken if we see the overlapping area of meaning between ‘ability’ and ‘possibility’, and between ‘permission’ and ‘possibility’. In fact, the corpuses show that ‘permission’ and ‘ability’ correspond to the cores of the two, largely intersecting, fuzzy sets associated with CAN, while ‘possibility’ is the meaning assigned to examples found in the overlapping peripheral area.⁴⁾ For convenience sake, the relationship between the three categories can be represented as follows:



A Fuzzy Set Diagram of CAN

3) J. Coates; *The Semantics of the Modal Auxiliaries*, London & Canberra: Croom Helm, 1983, pp. 94-95.

4) *Ibid.*, p. 86.

In this diagram, 'permission' and 'possibility' are linked through the gradient of restriction; and 'ability' and 'possibility' through the gradient of inherency. In other words, 'possibility' is the unmarked meaning with respect to both restriction and inherency whereas 'permission' is marked with respect to restriction and 'ability' with respect to inherency. Both 'permission' and 'ability' are, therefore, closely related to 'possibility' in meaning, but not independently separated.

The gradient of inherency is illustrated by the following examples quoted in Coates.⁵⁾

- (7) a. It is now getting quite difficult to find choirboys old enough to behave in church who *can* still sing treble.
- b. I *can* only type very slowly as I am quite a beginner.
- c. The plane has a built-in stereo tape recorder which *can* play for the whole four hours it will take to fly to Majorca.
- d. Every believer *can* be a faithful distributor of the gospel.
- e. These young assistants *can* give the pupils valuable practice in understanding and speaking the foreign language.
- f. All we *can* do is rake up somebody like Piers Plowman who was a literary oddity.
- g. Well, I think there is a place where I *can* get a cheap kettle.
- h. You *can't* see him because he's having lunch with a publisher.

The examples in (7) show the continuum of meaning extended from the core of 'ability' (a-b) to the periphery of 'possibility' (g-h). The examples indeterminate between the core and periphery (c-f) are linked through the gradient of inherency, and for them it is less easy to assign CAN clearly to the core.

Now let us look at the gradient of restriction. In the following examples which are also due to Coates,⁶⁾

- (8) a. You *can* start the revels now. (Personal Authority)
- b. Poppy *can't* drive her car because she hasn't got any insurance on it. (Law)
- c. There are three answers they *can* give. (Rules and regulations)
- d. We *can't* expect him to leave his customers. (Reasonableness)
- e. How, then, *can* I help other people to impose a ban in which I do not believe?
(Ethical / moral)
- f. Salts *can* easily be separated from the solid residue by dissolving them. (Natural law)

(8-f) is a typical case of 'possibility' since it is unmarked with respect to restriction, while (8a-c) are marked with respect to some forms of restriction, as indicated in the parenthesis attached to each example. Examples (8-d) and (8-e) are not unmarked, but less marked than the preceding three examples.

So far we have shown that the three meanings of CAN are not independently separated, but are closely related in terms of two types of gradient — viz. the degree of markedness with respect to inherency and restriction, respectively.

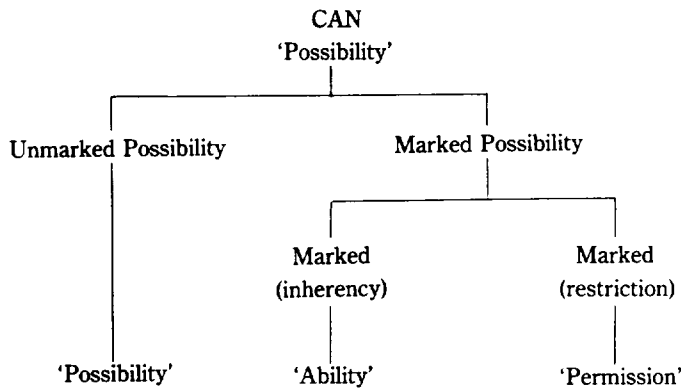
Another thing we have to mention as to the distribution of the three categories of CAN is that examples of 'possibility' outnumber those of marked 'ability' and 'permission'. That is, examples occur less frequently at the core than outside it. According to the corpuses, CAN of

5) Ibid., p. 14.

6) Ibid., pp. 88-89.

'possibility' accounts for about 65 to 70 percent of all cases of CAN in spoken language.

It is generally agreed that markedness is a special case of unmarkedness in that the former is a specially restricted form of the latter. If this is the case, we may suggest that both marked 'ability' and 'permission' are the special case of the unmarked 'possibility'; and thus 'ability' and 'permission' are the marked 'possibility'. Given this, it may be assumed that the underlying meaning of CAN is, what its category may be, 'possibility'; and this 'possibility' is realized as two different cases, or marked 'possibility' and unmarked 'possibility', depending on whether or not any factor of markedness is involved in the use of CAN. The marked 'possibility' is in turn realized as 'ability' when it is marked with respect to inherency while the marked 'possibility' is realized as 'permission' when it is marked with respect to restriction. The three categories are in a relationship indicated by this diagram.



On the basis of what we have discussed so far, we may represent the underlying meaning of CAN in terms of the following principle:

- (9) $K(C_u^m \text{ does make } X \text{ possible})$

where C symbols an enabling (or disabling) circumstance; where X is a variable representing the occurrence of an event; and where K indicates a set of laws or principles according to which the transitive relationship between C and X can be made possible. In addition, *u* and *m* attached to C, symbolizing unmarked circumstance and marked circumstance respectively, mean the degree of the markedness available to the circumstance. Given this, it seems plausibly possible to interpret the three categories of CAN in terms of (9). Examples of unmarked 'possibility' can be accounted for by realizing (9) as $K(C_u \text{ does make } X \text{ possible})$. This is typically the case of 'nihil obstat', indicating that 'nothing at all prevents X from taking place', but in our sense of (9), indicating that something unmarked is necessary to 'do make X possible'. It is indeed through such realization of (9) that utterances such as (5), (6) and (7g-h) are unmarkedly interpreted with regard to the use of CAN. In the case of 'ability', C is realized as C^m = empirical circumstance and thus the combination of C^m and K 'does make X possible' with the markedness of inherency. That is how the utterances like (7a-b) are interpreted as 'ability' of CAN. On the

other hand, when C is realized as C^m = a deontic source the combination of C^m and K makes it possible to 'do make X possible' with the markedness of restriction. As a result, in the case of (8a-c) the use of CAN can be interpreted as CAN of 'permission'. Note that by postulating principle (9), in which all categories are contextually realized from the underlying 'possibility', we can account for not only the three categories of CAN, but what can not be accounted for by Perkins' (4). Note that it is implied in (9) that the choice of C is not limited to a few cases such as (i) and (ii) of (4), but is free from something unmarked through various degrees of indeterminateness to markedness of inherency or restriction, as indicated in C^m of (9). With (9), therefore, even examples indeterminate between 'ability' and 'possibility' or between 'permission' and 'possibility' can naturally be accounted for. Now let us consider the following examples quoted in Leech & Coates, in which different points on the degree of the markedness are illustrated.

- (10) a. You *can't* do that — I forbid. (most restricted)
 b. You *can't* do that — it's against the rules.
 c. You *can't* do that — it would be breaking the law.
 d. You *can't* do that — everyone would think you were mad.
 (i.e. a breach of conventions of acceptable behavior)
 e. You *can't* do that — it wouldn't be reasonable.
 f. You *can't* do that — it wouldn't be right.
 g. You *can't* do that — it's contrary to the law of gravity.
 (least restricted)

Now that principle (9) is given it is not likely to face any difficulty accounting for the different meanings of CAN in (10). The degree of restriction from (10-a) to (10-g) is determined by the degree of markedness inherent to C in (9). In (10-a) where the imposition of human constraint is absolutely clear and direct, the degree of restriction is determined by the extremely marked C; in (10b-c), however, by less marked C; in (10d-f), in turn, by much less marked and much possible-like C; and in (10-g), by unmarked C.

III. Modality of MAY

The meanings of MAY have usually been discussed under the three major categories: Epistemic Possibility, Root Possibility and Permission. The following are the typical examples for each category.

- (11) I *may* be a few minutes late. (but I am not sure)
 (12) I am afraid this is the bank's final word. I tell you this so that you *may* make arrangements elsewhere if you are able to.
 (13) No vehicle *may* be left in the University grounds during vacations.

In (11) MAY implies the speaker's lack of confidence in the truth of proposition, 'I am a few minutes late', as indicated by the harmonic speech enclosed by the parenthesis. The assessment of possibilities is approximately fifty-fifty. Hence the 'epistemic' possibility. Semantically speaking, therefore, MAY of 'epistemic' possibility is likely to be followed by *or may not* and the utterance (11) is equivalent in meaning to 'I may *or may not* be a few minutes late', clearly indicating 50/50 possibility. Note also that 'epistemic' possibility can be found with negation (i.e. MAY NOT) and yet the negative MAY of 'epistemic' possibility is logically the same as the

positive 'epistemic' possibility. There is another point that may be made as to the 'epistemic' possibility. MAY of 'epistemic' possibility can be paraphrased with 'It is possible that ...' and thus the utterance (11) is rewritten as 'It is possible that I am a few minutes late'. It should be noted, however, that MAY of 'epistemic' possibility can not be substituted for CAN. On the basis of what we have observed so far, (11) can be semantically realized as one of the following:

- (14) a. I *may or may not* be a few minutes late.
 b. I *may not* be a few minutes late.
 c. *It is possible that* I am a few minutes late.
 d. I *may/*can* be a few minutes late.

The utterance (12) is typical of the 'root' possibility, where no deontic source can be identified, or where 'enabling circumstances' are mentioned in context. Unlike the case of 'epistemic' possibility, MAY of 'root' possibility can not be found with negation nor can it be followed by *or may not*. However, it can be paraphrased with 'It is possible for ...' instead of 'It is possible that ...'. A further characteristic of MAY of 'root' possibility is that it can be substituted for CAN whereas MAY of 'epistemic' possibility can not. With the above observations, we can account for the following examples:

- (15) a. *I am afraid this is the bank's final word. I tell you this so that you *may not* make arrangements elsewhere if you are able to.
 b. *I am afraid this is the bank's final word. I tell you this so that you *may or may not* make arrangements elsewhere if you are able to.
 c. I am afraid this is the bank's final word. I tell you this so that *it is possible for you to* make arrangements elsewhere if you are able to.
 d. I am afraid this is the bank's final word. I tell you this so that you *may/can* make arrangements elsewhere if you are able to.

Next is MAY of 'permission'. As is the case with CAN, MAY can also be interpreted as 'permission' when it is associated with any sort of deontic source. The utterance (13) is typical of MAY of 'permission'. Note that in this case MAY can be paraphrased with '*be allowed to*' and thus (13) can be rewritten as 'No vehicle *is allowed to* be left in the University grounds during vacations'.

So far we have examined some, if not all, characteristics of each use of MAY, on the basis of the polysemantic approach in which the meaning of MAY is regarded as being largely dependent upon a specific context of use. In contrast to such an approach, Perkins proposes that MAY, as is the case with CAN, can be accounted for by his simple rule based on the non-preclusion of modality. His rule for the meaning of MAY states:

- (16) K (C does not preclude X)
 (i) K = rational laws/C = evidence
 (ii) K = social laws/C = a deontic source
 (iii) K = natural laws/C = empirical circumstances

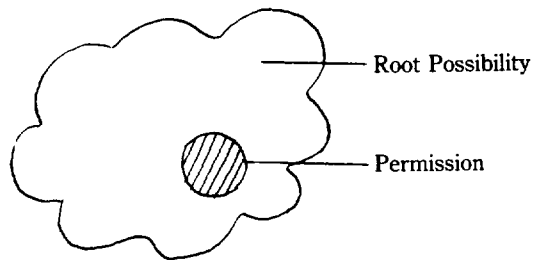
For Perkins the three categories of MAY discussed above are regarded not as the meaning of MAY itself, but as no more than the title for a particular context in which each category is used.

Scrutinizing (16) for a moment, however, we find out that any law or circumstance is given to the rule to account for the cases of 'root' possibility of MAY in terms of which (12) is interpreted. Furthermore, his core meaning approach implicitly dissociates itself from the fact

that 'root' possibility is closely related to 'permission' through the gradient and that for this reason (12) is not separable from (13). To illustrate this consider the following examples due to Coates.⁷⁾

- (17) a. If you want to recall the doctor you *may* do so.
- b. No student *may* postpone or withdraw registration or entry for any examination without the consent of the Dean.
- c. It is subject to the final prerogative of mercy of the Home Secretary who *may* recommend a reprieve.
- d. But assuming that the distinction is maintained one *may* ask which is to be analytically prior.
- e. To save money any scrap *may* be used, and if this is nailed glued together strongly, it *may* be marked and cut to shape later.

In (17a-b) the permitting factor is clearly either personal authority or rules sanctioned by society, while the permitting factor in (17e) is external, and much possible-like. On the other hand, it is indeterminate in (17c-d). This observation is also supported by the possibility of different paraphrases for each of the above utterances. That is, in (17a-b) MAY can be substituted for 'be allowed to' whereas in (17e) for 'It is possible to'. In the case of (17c-d), however, MAY can be substituted for either of them. This leads to the conclusion that there does exist a continuum of permissibility between 'root' possibility of MAY and 'permission', and that the two categories are never separated in meaning, but closely connected in terms of the gradient to the extent that there is no clear dividing line between them. As is the case with CAN, therefore, the meaning of MAY of 'permission' and MAY of 'root' possibility might be represented as the following fuzzy set diagram.



A Fuzzy Set Diagram of MAY

Given the above diagram, it follows that 'permission' is a special case of 'root' possibility in that the former is specifically restricted form of the latter. In other words, it is assumed that 'root' possibility is the case of possibility unmarked with respect to any circumstance — any law or principle, while 'permission' is the case of possibility marked with respect to some factors of deontic source. To put it in another way, possibility is realized as two different interpretations, or 'permission' and 'root' possibility, depending on whether or not the circumstances available to the occurrence of event are marked. On the other hand, possibility can be indeterminate if the markedness is in the borderline between the two extremes.

On the basis of what we have observed and discussed so far, I propose the following

7) Ibid., pp. 142-143.

principle applicable to both 'permission' and 'root' possibility of MAY at the same time.

(18) $K(C_u^m)$ does make X possible

For convenience sake, I would not repeat here again any comment on the notation. The interpretation of the notations (= K, C and X) in (18) is exactly the same as that employed in (9). In (18), if K is applied to C^m in relation to X the meaning of MAY is understood as 'permission'. Both (13) and (17a-b) are typical of the case in which X is made possible by applying K to C^m . On the other hand, if K is applied to C_u in relation to X the meaning of MAY is understood as 'root' possibility. In (12) and (17e), X is made possible by applying K to C_u . If K is applied to any point between C^m and C_u in relation to X, however, then the meaning of MAY is indeterminate between 'permission' and 'root' possibility. Note that (17c) and (17d) are in the borderline.

Now consider the case of 'epistemic' possibility of MAY in relation to Perkins' rule (16). As discussed above, the meaning of 'epistemic' possibility is a hedge—speaker's lack of confidence in the truth of the proposition. It follows then that there does not exist any evidence equivalent to C of his rule, let alone the presence or absence of the markedness. If it is really the case, his rule is interpreted as K (Nothing = No evidence does not preclude X), meaning K (something does preclude X), which is clearly contradictory to the 'epistemic' sense as it stands. As far as the 'epistemic' possibility is concerned, C of (16) is not likely to be an object of non-preclusion.

Note in passing that there are some evidences to show the distinction between the 'epistemic' and 'non-epistemic' possibility. It has been pointed out by the generative transformational linguists that the 'epistemic' interpretation of MAY can not be in harmony with the 'deontic' interpretation in the 'transitivity' of possibility. That is, the 'epistemic' MAY is classified as being 'intransitive' while the 'deontic' MAY as being 'transitive'. The so-called 'intransitive' MAY would have a nominalized sentential subject whereas the 'transitive' MAY would have a deontic subject and a nominalized sentential object. This contrast is illustrated by the two possible paraphrases of (19) cited by Lyons.⁸⁾

(19) John *may* come in.

When (19) is interpreted as an 'epistemic' sense, it can be paraphrased with 'That John will come in is possible', which can also be transformed into 'It is possible that John will come in'. In a deontic interpretation, however, (19) can be paraphrased with 'I make it possible that John will come in'. Hence the 'transitivity' of a deontic use of MAY vs. the 'intransitivity' of an 'epistemic' use of MAY.

Here is another point that may be made in relation to the distinction of 'epistemic/non-epistemic' sense of MAY. It was mentioned in our discussion of (18) that both the 'deontic' (= permission) and 'root' possibility of MAY are in fact associated with the gradient. Such is not the case with the 'epistemic' possibility in which the speaker's lack of confidence in the truth of the proposition leads to only a 'hedge' possibility. Hence the gradience of 'non-epistemic' sense of MAY vs. no gradience of 'epistemic' sense of MAY.

A further argument for the existence of categorical distinction between the 'epistemic' and 'non-epistemic' senses is demonstrated by the existence of merger in the meaning. Now consider the following examples cited by Leech and Coates.

8) J. Lyons; *Semantics*, Cambridge: Cambridge Univ. Press, 1977, cf. 17.6.

- (20) I *may* not get back there today — it depends on the work here. (epistemic)
 (21) There are many theories about the balance of these forces in a perfect society, and many reasons for believing that X's party, class or nation *may* be trusted with them where Y's cannot. (root)
 (22) With tone, individual differences *may* be greater than the linguistic contrasts which are superimposed on them. (epistemic and root)

Note that while (20) and (21) are the cases of the 'epistemic' and 'non-epistemic' (i.e. root) possibility respectively, (22) can be interpreted as both 'epistemic' and 'non-epistemic'. In (22), in fact, *may* can be followed by *or may not* for the 'epistemic' interpretation and can also be substituted for *can* for the 'non-epistemic' interpretation. Thus the existence of merger, a semantic neutralization, implies the existence of the two distinct categories.

So far we have pointed out that Perkins' non-preclusion based rule of (16) is not appropriate for the 'epistemic' possibility by exemplifying some crucial evidences to show that the 'epistemic' possibility is semantically distinctive from the 'non-epistemic' possibility.

In what follows, however, it will be shown that the so-called intransitive 'epistemic' possibility can semantically be incorporated in the transitive 'non-epistemic' possibility and that our principle (18) is appropriate for all uses of MAY including its 'epistemic' sense.

First of all, it is assumed that the speaker's lack of confidence in the truth of X (= proposition) can be represented as a combination of 'making' X possible and 'not making' X possible; and thus the semantically offset entity results in 'being' X possible with no trace of 'making-transitivity', which is to lead to the speaker's hedge. Granted that the 'intransitivity' (= being-value) of the epistemic possibility derives from the underlying 'transitivity' (= making-value), the question now arises how we should account for the non-epistemic/epistemic distinction in terms of (18). Before discussing this question, however, it seems necessary to modify (18) to include the cases of 'epistemic' interpretation of MAY. It should be noted that the circumstance for the 'epistemic' use of MAY is characterized by a 'hedge' which is assumed to result from the coexistence of presence and absence of the unmarked C. Let us now suppose that the 'epistemic' circumstance is marked as $C_{u(\pm)}$, indicating a combination of positively unmarked circumstance and negatively unmarked circumstance. Given this supposition, our (18) would include $C_{u(\pm)}$ and it may be modified to

- (23) $K(C_{u(\pm)}^m)$ does make X possible)

When used in the 'epistemic' sense, K is regarded as being applied to $C_{u(\pm)}$ in relation to the possibility of making X. In (23) the 'epistemic' circumstance $C_{u(\pm)}$ may be assumed to be realized as follows:

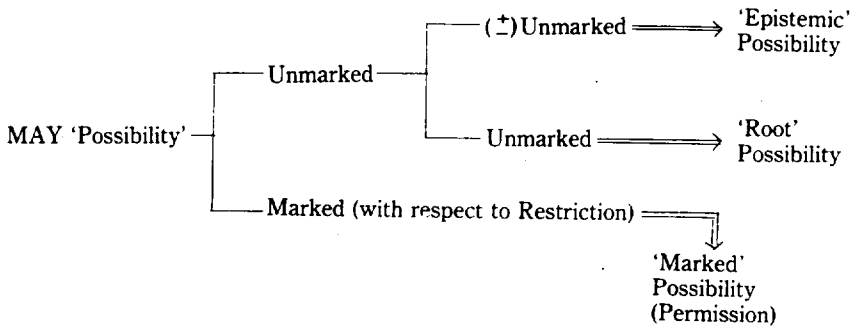
- (24) (C_{u+}) does make X possible)
 (25) (C_{u-}) does make X possible)

(24) and (25) are in turn assumed to be rephrased respectively as

- (26) (C_u) does make X possible)
 (27) (C_u) does not make X possible)

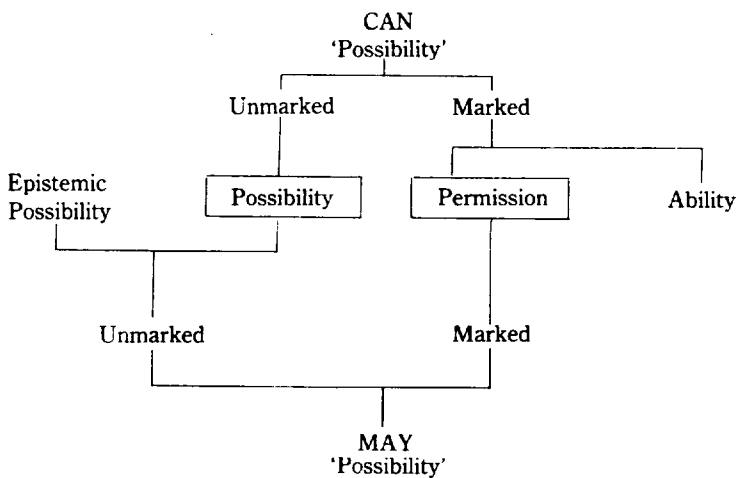
By combining (26) with (27), the speaker is to lead simultaneously to 'making' X possible and 'not making' X possible; and by offsetting the former by the latter he is to lead to 'being' X possible.

So far we have shown that even the 'epistemic' sense of MAY can be accounted for in terms of (23) and thereby the apparently different three categories of MAY are semantically converged on the underlying 'possibility'. The three categories of MAY are therefore in a relationship indicated by the following diagram.



IV. Note on CAN and MAY

In the previous sections, we have found out that both CAN and MAY have the underlying 'possibility' in common, as indicated by (9) for CAN and (23) for MAY. Despite the semantically underlying similarity between the two modals, however, their semantic diagrams show that they are not the same in their realizations of meaning. That is, CAN is approximately realized (1) Unmarked Possibility (2) Marked Possibility of Permission and (3) Marked Possibility of Ability while MAY is realized as (1) Unmarked Possibility (2) Marked Possibility of Permission and (3) Epistemic Possibility. Thus, the relationship of meaning between CAN and MAY is roughly indicated by the following diagram.



In our interpretation of the above diagram, it should be noted that CAN is most commonly used to express 'unmarked' possibility and MAY is most commonly used to express 'epistemic' possibility. As a result, in everyday usage CAN and MAY have very little overlap in meaning, and where there is overlap they are not in free variation. Although both CAN and MAY are understood as 'unmarked' possibility, they are distinct in terms of formality. CAN is usually available in informal contexts and MAY is in formal contexts. The same is true for the use of 'permission'. Note that the distinction between CAN and MAY in their interpretations of 'permission' and 'unmarked' possibility is more than that in formality. The 'unmarked' possibility of CAN is not always substituted for MAY since CAN is found with negation while MAY is not. This is clearly illustrated by the following examples.

- (28) a. You *can't* see him because he's having lunch with a publisher.
 b. * You *may not* see him because he's having lunch with a publisher.

On the other hand, the corpuses show that 'permission' of MAY can not be substituted for CAN in such fixed phrases as 'if I may'. Consider the following contrast.

- (29) a. But I will wander along to your loo $\left\{ \begin{array}{l} \text{if I } \textit{may}. \\ * \text{if I } \textit{can}. \end{array} \right.$
 b. But Mr. Nabarro this is $\left\{ \begin{array}{l} \text{if I } \textit{may} \\ * \text{if I } \textit{can} \end{array} \right.$ say so begging the question.

As shown in (29), CAN and MAY are not interchangeable even in their 'permission' sense. Now consider the following:

- (30) I *may* come tomorrow (but I'm not sure yet)
 (31) I *may* come tomorrow (everything's arranged)

In (30), MAY is used as an epistemic sense and it implies neither that the speaker will nor that he won't come. As discussed in the previous section, it may be the case that the assessment of possibilities is roughly 50/50. Uttering (30), the speaker would not know whether or not he would come tomorrow. For this reason, he is not responsible for coming or not coming tomorrow. However, such is not the case in the interpretation of (31), where the use of MAY implies the speaker will come. Therefore, the use of the 'unmarked' possibility is certainly responsible for the truth of the proposition. Note further that the 'unmarked' MAY in (31) can be replaced by CAN, while such replacement is impossible in (30). It follows then that the 'epistemic' interpretation cannot be compatible in meaning with the 'non-epistemic unmarked' interpretation of MAY.

Another point that may be argued against is the view that the inroads are made by CAN into MAY's 'epistemic' territory. In an example of the progressive aspectual use of CAN, there are contexts in which the use of CAN permeates into the 'epistemic' MAY to make claims about the current verifiability of the proposition. Now consider the following sentences:

- (32) I *can* hear music.
 (33) I *can* see the moon.

In (32), the circumstance which does make possible the occurrence of my hearing music is presumably the fact of my actually hearing music. If this is the case, the proposition 'I hear music' is currently true. Exactly the same is true for the meaning of CAN in (33). It is the very fact of my actually seeing the moon that is to lead to the truth of the proposition. Considering that in the above sentences CAN cannot be substituted for MAY, however, it is not such that

the 'epistemic' territory is superseded by the so-called 'epistemic' interpretation of CAN followed by a verb of sensation such as 'see', 'fear' and 'feel'. As mentioned earlier, the use of 'epistemic' MAY is characterized by a hedge — speaker is not concerned about the truth of the proposition. Hence the impossibility of coexistence in meaning between the 'epistemic' MAY and the so-called 'epistemic' interpretation of CAN.

Here is another example, which is due to Robin Lakoff,⁹ to show that the 'epistemic' MAY cannot be replaced by CAN. Consider the following:

- (34) Football players *may* be sex maniacs.
 (35) Football players *can* be sex maniacs.

(34) and (35) are not exactly the same in meaning to the extent that MAY and CAN are not easily interchangeable. The contexts in which the use of MAY is appropriate are not identical with those in which the use of CAN is appropriate. As pointed out by Robin Lakoff, (34) might be used 'in case I really didn't know whether or not the statement *football players are sex maniacs* was true'. Therefore, it follows that even if it is later conclusively demonstrated that no football player ever was a sex maniac, (34) is not thereby proved false. On the other hand, (35) can only be used 'in case I knew positively of at least one instance in which at least one football player had acted like a sex maniac'. Such being the case, my statement would be falsified if it is later proved that there was no sex maniac among the football players. Note further that the difference between (34) and (35) is also accounted for in terms of what White¹⁰ calls the 'problematic' possibility and the 'existential' possibility. The former indicates the 'possible existence of an actuality' and it is possible to paraphrase with 'it is possible that X Vs, while the latter indicates the 'actual existence of possibility' and it is possible to paraphrase with 'it is possible for X to V'. Following White's distinction of the above two possibilities, it seems that the former can be represented by the use of MAY and the latter by the use of CAN, and thus (34) and (35) can be paraphrased respectively as follows:

- (36) It is possible that football players are sex maniacs.
 (37) It is possible for football players to be sex maniacs.

Thus far we have argued that the 'epistemic' MAY is not compatible with CAN semantically as well as pragmatically. Added to this is that it is even in syntactic behaviors that the two epistemic modalities are not consonant with each other. Consider the following sentences:

- (38) John *may* be a sex maniac.
 (39) Mary *can* be a sex maniac.

We see that just as (34) is different from (35), so (38) is different from (39), semantically and pragmatically. We see also that (38) can not be conjoined with (39) to make either of the following sentences.

- (40) *They (= John and Mary) *may* be sex maniacs.
 (41) *They (= John and Mary) *can* be sex maniacs.

The fact that neither (40) nor (41) is the combination of (38) and (39) indicates that the epistemic MAY cannot be syntactically conjoined with the epistemic CAN. It appears from the discussion

9) R. Lakoff; "The Pragmatics of Modality," *CLS* 8, 1972, pp. 229-246.

10) A. R. White; *Modal Thinking*, Cornwall Univ. Press, Ithaca, New York, 1975, p. 6.

in this section that CAN and MAY are differently realized save for the cases of the 'marked' possibility of Permission and 'unmarked' possibility, even though they have the underlying 'possibility' in common.

V. Conclusion

In this paper we have examined the semantic characteristics of CAN and MAY on the basis of indeterminacy of modality. It was shown that for both CAN and MAY the underlying meaning is converged on 'possibility', which is to lead to (9) and (23) respectively.

(9) $K(C_u^m)$ does make X possible

(23) $K(C_{u(\pm)}^m)$ does make X possible

Note here that (9) and (23) are not completely different, but actually identical with each other. The only difference between them is that in (23) the parenthesis notation (\pm) is attached to C_u . But note further that in (23) this parenthesis notation indicates either C_u or $C_{u\pm}$, representing 'Unmarked Circumstance' for Unmarked Possibility and ' \pm ' (= positively and negatively) Unmarked Circumstance' for Epistemic Possibility, respectively. Such being the case, (9) can be incorporated to (23) to form a more generalized rule

(42) $K(C_{u(\pm)}^m)$ does make X possible

for both CAN and MAY.

In the case of CAN, (42) is realized as (1) Unmarked Possibility (2) Marked Possibility of Permission and (3) Marked Possibility of Ability, depending upon which C is applied to K to make X possible. In the case of MAY, on the other hand, (42) is realized as (1) Unmarked Possibility (2) Marked Possibility of Permission and (3) Epistemic Possibility in terms of different C's applicable to K.

In section IV, however, we have observed that despite the underlying similarity of possibility between CAN and MAY they do have little overlap in meaning. Even in the cases of Unmarked Possibility and Marked Possibility of Permission, in which CAN AND MAY are closely linked, the two are not always interchangeable. It was also pointed out that the epistemic MAY can be by no means substituted for CAN.

국 문 초 록

CAN 과 MAY 의 Modality 문제

李 基 錫

이 논문에서는 영어의 CAN과 MAY가 갖는 Modality의 특성을 규명하는데 역점을 두었다. 크게 보아 Modality의 문제는 'monosemous' approach와 'polysemous' approach로 나뉘어 설명되어 왔지만 그 어느 경우도 설득력있는 해답을 주지 못했음은 주지의 사실이다. 이와는 달리 본 논문에서는 CAN과 MAY의 의미속에 존재하는 Indeterminacy를 토대로 해서 그 심층의 의미가 어느 경우이나 'possibility'임을 밝혀내고 다음과 같은 의미규칙을 만들어 냈다.

$$K(C_m \text{ does make } X \text{ possible})$$

이 규칙에서 C가 K에 어떻게 작용하느냐에 따라 CAN의 경우는 (1) Unmarked Possibility (2) Marked Possibility of Permission (3) Marked Possibility of Ability로 그 의미가 구분되고, MAY의 경우는 (1) Unmarked Possibility (2) Marked Possibility of Permission (3) Epistemic Possibility로 구분됨을 설명했다.

한편 CAN과 MAY가 'possibility'라는 심층의미를 갖고 있으며, 위의 (1) Unmarked Possibility과 (2) Marked Possibility of Permission에서는 공통의 의미를 갖고 있지만 이 두 조동사가 항상 서로 대신해서 사용될 수 있는 것은 아님을 설명했다. 특히 Epistemic MAY는 CAN과 서로 교환될 수 없음을 강조해서 지적했다.