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PREFACE

As far as is known, all languages have ways of expressing modality, i.e., notions of possibility, necessity, contingency, etc. But this pervasive phenomenon has so far been the object of little systematic linguistic analysis. In fact, investigators do not even agree on the scope of the term modality. Very roughly speaking, two kinds of modality have been distinguished, namely epistemic and deontic. The former involves the speaker's judgment as to the degree of certainty of an event or state of affairs being referred to. Deontic modality, on the other hand, has to do with such notions as obligation, permissability and necessity. However, as useful as this distinction is, little is known so far concerning the linguistic patterns which express those ideas. It is clear that the modality systems of a great many languages will need to be thoroughly scrutinized and compared before any conclusions can be drawn as to their place in 'universal grammar.'

The papers included in this volume of the Kansas Working Papers in Linguistics were written by graduate students at the University of Kansas for a seminar on modality taught by Professor Choon-Kyu Oh in the spring of 1979. They deal with a variety of topics bearing on modality and with a variety of languages and language families. It is our hope that these papers will stimulate comments from colleagues at other institutions.

The Editors

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A NOTE ON CAN AND MAY

Choon-Kyu Oh and
Charles Seibel

Abstract: This paper is an attempt to characterize the meaning difference between can and may as epistemic modals. Based on some interesting differences of these modals in their syntactic behavior, negation and past formation, the paper claims that the crucial difference lies in the interpretation bases. Only when the base set denotes the speaker's knowledge set may may be used. There is no such restriction for can.

Introduction

What may be or even can be the difference between the meanings of can and may? In a majority of cases where one can be used, the other also may be used. Still native speakers seem to feel distinctly the difference. In this paper, we will argue on the basis of evidence presented in Section 2 that the only semantic difference lies in the subjectivity associated with may but not with can. We will argue that can denotes a mere potentiality. The senses of the terms subjectivity and potentiality we are using here are defined in the following section.

Definitions

The following definitions are deemed helpful in presenting our arguments, the first five of which we borrow from Kratzer (1977) with some inessential modifications. For the purpose of this paper, understand a proposition to be a set of possible worlds in which it is true. If W is the set of all possible worlds, the set of all propositions will be the power-set of W.

Definition 1. A proposition p is true in $w \in W$, iff $w \in p$. Otherwise p is false in w.

Definition 2. A set A of propositions is consistent iff in at least one possible world all its members are true.

Definition 3. A proposition p is compatible with a set A of propositions iff $A \cup \{p\}$ is consistent.

Definition 4. A proposition p follows from a set A of propositions iff there is no possible world where all members of A are true but p is false.

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Definition 5. The meaning of 'possible in view of' is that function ζ, such that

i) each member of its domain is a couple (f,p), where f is a function which assigns a set of propositions to every $w \in W$ and p a proposition,

ii) if (f,p) is in the domain of ζ, $\zeta(f,p)$ is that proposition which is true in exactly those $w \in W$ where p is compatible with f(w).

Definition 6. A base set for a modal interpretation, or simply a base set, is the set of propositions that f picks out for a given $w \in W$.

Definition 7. A subjective modal is a modal for whose interpretation the base set coincides with the set of propositions that represent the speaker's current knowledge about the actual world.

Definition 8. A proposition p is potential iff there is a base set compatible with p.

Definition 9. A modal sentence is a sentence which contains a modal expression in its matrix component.

Definition 10. A demodalized sentence is the sentence which remains after the modal expression is removed from the corresponding modal sentence. And the proposition denoted by a demodalized sentence is a demodalized proposition.

Characterization of Differences

Now we are ready to discuss the differences between can and may. Only when the base set denotes the speaker's knowledge set or the set of propositions that collectively represent the speaker's knowledge, we may use may. In contrast, can can be used with any consistent base set.

Argument A: First, notice that can may be used in an interrogative sentence while may cannot in its non-deontic reading.

1) a. Could it be raining in Chicago?
   b. *Might it be raining in Chicago?

According to our proposal, what the speaker does in using (1b) is to ask whether the proposition that it be raining in Chicago is compatible with his knowledge base. But this is a rather unreasonable move to make in view of the fact that the speaker himself is the best authority on what his knowledge base consists of. Notice that (1b) is not syntactically ungrammatical. The sentence sounds perfectly acceptable in a self-directed, monologuous reading.

Argument C: The third and last argument involves the fact that when a modal sentence with the non-deontic may is syntactically negated it does not represent its semantic contradiction. The scope relation between a negative word and the modal expression differs, as is shown by the accompanying logical representations (cf. 6) or the compatibility (cf. 7) illustrated below:

6) a. John cannot be sick. (-(◇sick (John)))
   b. John may not be sick. (◇(-sick (John)))
7) a. *John can be sick but then John cannot be sick.
   b. John may be sick but then John may not be sick.

According to our definition of subjective possibility expressed by a modal sentence with may, the negation of 'John may be sick' is the proposition that it is not compatible with the speaker's knowledge base that John be sick. But exactly when will a proposition be incompatible with the speaker's knowledge base? Obviously a proposition and its negation can be compatible simultaneously with the speaker's knowledge set (cf. 7b). A quick perusal of the definitions given above should convince the reader that a proposition is incompatible with the speaker's knowledge base only when its negation follows from it. The negation of (6b) is (6b'), not (6b"):

6) b'. John must be sick. (□(sick (John)))
   b". John may be sick. (◇(sick (John)))

Notice that can does not have a corresponding necessity modal. The modal must is not such a necessity modal as is demonstrated by the compatibility of (8a):

8) a. John could be sick but he must not be.
   b. *John might be sick but he must not be.

To put differently what is revealed by the sentences (6)-(8), the domain of possible worlds that are considered in interpreting may and must includes only those worlds which are compatible with the speaker's knowledge, whereas the selection of the domain for can is not constrained except that it be consistent.

Footnotes

1. Notice that the sentence 'John can/could not be sick' does not denote that John's being sick is a logical impossibility in the normal sense of the word.

References

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Kratzer, Angelika. 1977 What 'must' and 'can' must and can mean. Linguistics and Philosophy 1/3. 337 - 355.