In modern research into modal logic, modal terms are usually semantically interpreted in terms of the model of possible worlds:

- necessary (N) = df true in all possible worlds
- impossible (¬M) = df false in all possible worlds
- possible (M) = df true in at least one possible world
- contingent (K) = df true in at least one possible world and false in at least one possible world.

Now philosophers have thought about modal terms, modal propositions and modal syllogisms long before the notion of possible worlds was entertained. The question what interpretative model they used is a relevant one today. Jaako Hintikka and the circle of pupils and colleagues connected with him, in particular Simo Knuuttila, have tried to answer this question. They advance the following thesis¹: underlying the modal analysis proposed by Aristotle and the scholastic

* The following paper was first read at the Symposium on the History of Logic which took place in May 1981 under the direction of Professor Ignatio Angelelli in Pamplona. I should like to thank those who took part in discussing the paper, especially Professor Mario Mignucci, for valuable comments which I have wherever possible included in this version. I am also most grateful to Professor Simo Knuuttila, who very kindly sent me some comments on the paper at a later date; these have helped me to clarify my views at various points. I should also like to thank Dr. Ricca Edmondson-Wörner for her translation of the paper into English.

¹ This thesis was first advanced by Jaako Hintikka in 1957, and then in a series of further papers which were collected in 1973 in the volume *Time and Necessity, Studies in Aristotle’s Theory of Modality* (Oxford). (In what follows I shall refer to this volume as ‘Hintikka”). The same line of interpretation was followed in *Aristotle on Modality and Determinism* in: Acta Philosophica Fennica, 29, 1 (Amsterdam 1977) by Jaako Hintikka, Unto Remes and Simo Knuuttila. (This I shall refer to as ‘Hintikka—Remes—Knuuttila”). Hintikka’s pupil and colleague, Knuuttila, has in a work edited in 1981 (*Reforging the Great Chain of Being*, Dordrecht) tried to show that the scholastics until the end of the 13th century almost all took this view of time and modality; vid. *Time and Modality in Scholasticism*, op. cit. 163-257 (referred to in the following as ‘Knuuttila”).
writers there appears, at least in central sources\(^2\), a model of modality in which the modal terms are semantically interpreted like this:

\[
\begin{align*}
N & \text{ = df always the case (or: always true)} \\
\neg M & \text{ = df never the case (or: always false)} \\
M & \text{ = df sometimes the case (or: sometimes true)} \\
K & \text{ = df sometimes the case and sometimes not the case (or: sometimes true and sometimes false).}
\end{align*}
\]

According to this, the modal terms are interpreted by reference to periods of time in the history of this one real world. In contrast to the semantics of possible worlds, this interpretation would be reductionist. In the reference to alternative worlds the modal term 'possible' reappears; it counts as an irreducible basic term, and the definitions only set out the relations of the other modal terms to the notion of possibility. Against this, when reference is made to time periods in this one actual world the modal terms are removed from the *definiens*. Thus in this theory "modal notions are in the last analysis reducible to extensional terms"\(^3\).

A reductionist theory of quantification over time periods is not, strictly speaking, a modal theory at all. Anyone systematically interested in modal logic and analysis could therefore, if Hintikka and Knuuttila were right, leave Aristotle and the scholastics unread; according to them these writers offer only attempts to abandon the problem of modalities altogether.

I dispute the correctness of the thesis which Hintikka and Knuuttila advance. In my opinion we can learn a great deal about the problems of modality from Aristotle, Boethius and in particular Peter Abelard, William of Shyreswood and Thomas Aquinas. The scholastics' analyses pertain to the question what is meant when, in both everyday and scientific language, we describe something as in the real sense possible, impossible, necessary or contingent\(^4\). One of their main themes is precise reflection on the difference between intensional and

\(^2\) At various points the authors remark that this was not the only model propounded by Aristotle and the scholastics; cf. Hintikka—Remes—Knuuttila 14; Knuuttila 165, 199, 203. These remarks are however of a marginal nature, and the central significance of the statistical paradigm is repeatedly emphasised.

\(^3\) Knuuttila 235; cf. VII-IX and passim; Hintikka 113 and passim; Hintikka—Remes—Knuuttila 13 and passim.