

The Necessity of the Past and Modal-Tense Logic Incompleteness

MICHAEL J. WHITE*

The idea that there is a variety of necessity, i.e., the necessity of unpreventability, unalterability, or irrevocability, for which it is true to say that the past is necessary is a notion of great antiquity¹ which still possesses considerable intuitive appeal. However, this idea proves difficult to express adequately in a modal propositional logic that possesses both tense and alethic modal operators. The obvious candidate for a thesis expressing the necessity of the past, and the one normally so employed (see [7], p. 117), is

A1 $Pp \supset LPp$.

In this paper I explore several problems connected with the use of Thesis A1 to express the concept of the necessity of the past in a mixed modal-tense logic. Section 1 consists of a brief rehearsal of a "philosophical" difficulty encountered in employing A1 to express the necessity of the past: it proves difficult to isolate this necessity from the remainder of time, i.e., to avoid a form of fatalism. This problem with A1 has been previously recognized. In Sections 2 and 3, I discuss several more strictly logical problems with A1. Section 2 pertains to Arthur Prior's use of A1 in his modal-tense logical reconstruction of the famous "Master" argument of Diodorus Cronus. It is shown that Prior's modal-tense logical version of the conclusion of the Master can be

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