

A Different Approach to Deontic Logic: Deontic Logic Viewed as a Variant of Dynamic Logic

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1 Introduction This article proposes a new setting for deontic logic, the logic of obligation, prohibition, and permissibility. Surveys of the several deontic logics that were devised in the past can be found in [12], [6], [1], [3]. For those familiar with the Dutch language, Soeteman's thesis [18] is also certainly worthwhile reading because of its well-considered comparative study of the various deontic systems in the literature. In our paper, deontic logic is reduced to a variant of so-called dynamic logic (e.g., [8], [9], [17]). The latter can be considered as a very weak modal logic resembling system K with additional axioms for the behavior of the various actions, which are, by the way, strictly separated from assertions in the system. It will appear that this last property of the syntax will prevent us from asserting and proving in this logic many paradoxical and counterintuitive propositions that often crop up in the literature (see, e.g., [6], [10], [11], [18]). The philosophical idea behind separating actions and assertions is the simple observation that only assertions can be asserted and only actions can be acted or performed. So it is meaningless to state the obligation $O\phi$ of some proposition ϕ , such as $OO\alpha$, where ϕ is taken to be the assertion stating that the action α is obligatory. Furthermore, of crucial importance is the consideration that an action may change the current situation (world) and an assertion does not. Furthermore, the fact that actions change situations implies some notion of passing of time. This obvious remark has, of course, been observed by other authors as well. Van Eck, for example, has given a deontic system in [19] where time is a central notion. However, there it is used in an entirely dif-

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