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**Dynamic order algebras as an axiomatization of modal and tense logics.** (English)

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Summary: The aim of the paper is to introduce and describe tense operators in every propositional logic which is axiomatized by means of an algebra whose underlying structure is a bounded poset or even a lattice. We introduce the operators  $G$ ,  $H$ ,  $P$  and  $F$  without regard what propositional connectives the logic includes. For this we use the axiomatization of universal quantifiers as a starting point and we modify these axioms for our reasons. At first, we show that the operators can be recognized as modal operators and we study the pairs  $(P, G)$  as the so-called dynamic order pairs. Further, we get constructions of these operators in the corresponding algebra provided a time frame is given. Moreover, we solve the problem of finding a time frame in the case when the tense operators are given. In particular, any tense algebra is representable in its Dedekind-MacNeille completion. Our approach is fully general, we do not rely on the logic under consideration and hence it is applicable in all the up to now known cases.

**MSC:**

**81P10** Logical foundations of quantum mechanics; quantum logic (quantum-theoretic aspects)

Cited in **5** Documents

**Keywords:**

propositional logic; modal logic; bounded poset; tense logic; tense operators; dynamic order algebra

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