

**Chagrov, A. V.**

**Decidable modal logic with undecidable admissibility problem.** (English. Russian original)

Zbl 0782.03005

*Algebra Logic* 31, No. 1, 53-61 (1992); translation from *Algebra Logika* 31, No. 1, 83-93 (1992).

The admissibility problem for a given logic  $L$  is to determine whether an arbitrary given inference rule  $A_1(p_1, \dots, p_n), \dots, A_m(p_1, \dots, p_n)/B(p_1, \dots, p_n)$  is admissible in  $L$ , i.e., for all formulas  $C_1, \dots, C_n$ ,  $B(C_1, \dots, C_n) \in L$  whenever  $A_1(C_1, \dots, C_n) \in L, \dots, A_m(C_1, \dots, C_n) \in L$ .

As is known, V. Rybakov proved the decidability of the admissibility problem for a number of intermediate and modal logics.

In this paper, the author constructs a decidable normal modal logic for which the admissibility problem is undecidable. The logic is an extension of K4 of width 3 and has infinitely many axioms.

Reviewer: M.Zakharyashev (Moskva)

**MSC:**

03B45 Modal logic (including the logic of norms)

03B25 Decidability of theories and sets of sentences

Cited in 5 Documents

**Keywords:**

[inference rule](#); [admissible rule](#); [decidability](#); [normal modal logic](#)

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**References:**

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