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Complexity of admissible rules. (English) Zbl 1115.03010
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An inference rule is admissible in a logic L if the set of theorems of L is closed under the rule. V. Rybakov proved decidability of the problem of admissibility for many modal and superintuitionistic logics. The author provides complexity estimates for this problem which are optimal or close to optimal. Admissibility in “typical” extensions of K4 and superintuitionistic logics is co-NEXP-complete while derivability is P-SPACE-complete or even NP-complete. A co-NEXP decision procedure is given for admissibility in a class of logics including K4, GL, S4, S4Grz and Int. Admissibility is proved to be co-NEXP-hard in all superintuitionistic logics L such that every depth-3 tree is an L -frame and in similar normal modal extensions of K4.

Reviewer: [G. E. Mints \(Stanford\)](#)

MSC:

- [03B45](#) Modal logic (including the logic of norms)
- [03B55](#) Intermediate logics
- [03D15](#) Complexity of computation (including implicit computational complexity)
- [68Q17](#) Computational difficulty of problems (lower bounds, completeness, difficulty of approximation, etc.)

Cited in **16** Documents

Keywords:

[admissible rules](#); [complexity](#); [modal logic](#); [intermediate logic](#)

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