ON TRANSITIVE MODAL LOGICS THAT REQUIRE LARGE FRAMES

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For every Kripke complete logic L its Kuznetsov index is the least cardinal κ such that every refutable formula of this logic is already refutable in an L-frame of the cardinality less than κ. A. V. Kuznetsov had raised a question of characterization of all Kuznetsov indexes for superintuitonistic logics and for extensions of S4. M. Kracht had proved a theorem that says that under some conditions on κ a cardinal κ is a Kuznetsov index of a Kripke complete modal logic iff it is a (likewise defined) index of some Π_1^1-theory with countable signature. The talk will be devoted to the case of logics with transitive frames. We establish that Π_1^1-theories with countable signatures could be simulated in extensions of S4 with nominals, i.e. with propositional variables that correspond to individual worlds of a Kripke frame. From this result it follows that an analogues of Kracht theorem (without conditions on κ) for extensions of the logic S4 with nominals holds.

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