ON FRAGMENTS OF MONADIC SECOND-ORDER THEORIES OF THE CHRONOLOGICAL ACCESSIBILITY RELATION

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Abstract. We investigate the monadic second-order theory of chronological accessibility relation of the n-dimensional rational spacetime ($n > 1$). We prove that its $\forall$-fragment is not recursively enumerable, when $n > 2$, while in the case of $n = 2$ this fragment is recursively enumerable however the $\forall\exists$-fragment is not. Further, we show that the $\forall$-fragment of the monadic second-order theory of the n-dimensional real spacetime is not recursively enumerable, for each $n > 1$.

Key words and phrases. causality, spatio-temporal logic, monadic second-order theory, universal fragment.