▶ TINKO TINCHEV, *Universal fragments of some region-based theories of space*.
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Let $\mathbb{T} = (T, \tau)$ be a topological space. It is well known that the regular closed subsets of $\mathbb{T}$ form a Boolean algebra, $RC(\mathbb{T})$, under inclusion with top element $1 = T$ and bottom element $0 = \emptyset$. A number of predicates in $RC(\mathbb{T})$ have a natural geometrical meaning, for example, the predicates *k-contact*, $k \geq 2$, defined by $C_k(a_1, \ldots, a_k)$ iff $a_1 \cap \cdots \cap a_k \neq \emptyset$. So, the structure $\mathfrak{A}_{\mathbb{T}} = \langle RC(\mathbb{T}), \{C_k\}_{k<\omega} \rangle$ is a model for the first-order language $\mathfrak{L}$ extending the language of the Boolean algebras with the predicates symbols C_k, $k \geq 2$. In this way any class K of topological spaces determines a theory Γ_K. We give an axiomatization of the universal fragment of Γ_K in the cases K is the class of all topological spaces, the class of all connected topological spaces and the singletons $\mathbb{R}^n$, $n \geq 1$. We treat these universal fragments as modal logics and prove the completeness theorems with respect to the finite Kripke structures and show that they are not strong complete.