▸ DENIS I. SAVELIEV, *Completeness in Infinitary Logic.*
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The Completeness Theorem, like most of theorems of the usual (finitary) logic $\mathcal{L}_{\omega,\omega}$, fails in many infinitary logics $\mathcal{L}_{\kappa,\lambda}$. E.g., Scott's undefinability theorem states that $\mathcal{L}_{\omega_1,\omega_1}$ refutes Completeness, even in a strong sense: the set of valid formulas is not definable in the set of all formulas, unlike the set of provable formulas. The same holds for any successor cardinal instead of ω_1. The natural question is to determine which logics $\mathcal{L}_{\kappa,\lambda}$ satisfy Completeness. We show that in fact Completeness is equivalent to Compactness; any consistent theory in $\mathcal{L}_{\kappa,\lambda}$ has a model if and only if κ is strongly compact, and any consistent theory in $\mathcal{L}_{\kappa,\lambda}$ using at most κ non-logical symbols has a model if and only if κ is weakly compact.