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Title: A generalization of the Łos-Tarski preservation theorem over classes of finite structures

Abstract: We present a logic-based combinatorial property of classes of finite structures that allows an effective generalization of the Łos-Tarski preservation theorem over classes satisfying the property. The well-studied classes of words and trees, and structures of bounded tree-depth are shown to satisfy the property. We also show that starting with classes satisfying this property, the classes generated by applying composition operations like disjoint union, Cartesian and tensor products, inherit the property. We finally show that all classes of structures that are well-quasi-ordered under the embedding relation satisfy a natural generalization of our property.