

**FIRST-ORDER COMBINATORICS
AND MODEL-THEORETICAL PROPERTIES THAT
CAN BE DISTINCT FOR MUTUALLY
INTERPRETABLE THEORIES**

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The notions of finitary and infinitary combinatorics were recently introduced by the author. In the present article, we discuss these notions and the corresponding semantical layers. We suggest a definition of a model-theoretical property. By author's opinion, this definition agrees with the meaning that is generally accepted and used in model theory. We show that the similarity relation for theories over finitary and infinitary layers of model-theoretical properties is natural and important. Our arguments are based on comparing our approach with known model-theoretical ones. We find examples of pairs of mutually interpretable theories possessing distinct simple model-theoretical properties. These examples show weak points of the notion of mutual interpretability from the point of view of preservation of model-theoretical properties.

Key words and phrases: first-order logic, theory, Tarski–Lindenbaum algebra, model-theoretical property, interpretation, semantically similar theories, first-order combinatorics.

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