

1135-03-2050

**Michael Pinsker\*** ([marula@gmx.at](mailto:marula@gmx.at)). *Canonical functions and the Ramsey property, revisited.*

A function from one first-order structure into another first-order structure is called *canonical* if it sends tuples of the same type in the first structure to tuples of the same type in the second structure. This regularity notion for functions has found numerous applications in model theory, universal algebra, and theoretical computer science since its invention 7 years ago. In particular, it facilitates the understanding of self-embeddings, endomorphisms, and polymorphisms of structures, and has been applied, for example, in the classification of reducts of structures and in the study of certain computational problems related to them.

Any function between two countable structures gives rise to canonical functions in a natural way, provided its domain structure has the Ramsey property, and its goal structure is  $\omega$ -categorical. We outline a new proof of this fact using the framework of topological dynamics, and present the recent discovery that under certain conditions also the converse holds, i.e., the possibility of obtaining canonical functions in that way implies the Ramsey property for the domain. We moreover outline the main applications mentioned above, and the most important open problems connected to canonical functions. (Received September 26, 2017)