

GENERALIZED COMPUTABILITY AND MODEL THEORY FOR LINGUISTIC STRUCTURES

A. I. STUKACHEV

There is a remarkable list of mathematicians who contributed to both generalized computability theory and mathematical linguistics, including R. Montague, J. Barwise and Y. Moschovakis. In this talk, we discuss results of Yu.L. Ershov on approximation spaces and finite type functionals, which allow to construct generalized computable models for formal semantics (also known as Montague semantics) of natural languages, unifying generalized computability with mathematical linguistics. We survey our results from [4, 1, 2, 3] and discuss some open questions.

REFERENCES

- [1] Burnistov, A.S., Stukachev, A.I.: Generalized computable models and Montague semantics. *Studies in Computational Intelligence* **1081**, 107–124 (2023)
- [2] Burnistov, A.S., Stukachev, A.I.: Computable functionals of finite types in Montague semantics. *Siberian Electronic Mathematical Reports* **21**, 1460–1472 (2024)
- [3] Penzina, U., Stukachev, A.: Skolem functions and generalized quantifiers for negative polarity items semantics. *Lecture Notes in Networks and Systems* **1198**, 123–132 (2025)
- [4] Stukachev, A.I.: Interval extensions of orders and temporal approximation spaces. *Siberian Mathematical Journal* **62**(4), 730–741 (2021)

SOBOLEV INSTITUTE OF MATHEMATICS, NOVOSIBIRSK STATE UNIVERSITY, NOVOSIBIRSK (RUSSIA)
Email address: `aistu@math.nsc.ru`