

Supervisor's Report on Master's Thesis

Martin Boroš: Symmetric terms

The thesis contributes to the theory of Taylor algebras in two ways. First, it proves that certain sufficiently symmetric relations compatible with Taylor algebras contain constant tuples. This extends a similar result for fully symmetric relations. The problem is reduced to studying sufficiently symmetric affine subspaces of finite vector spaces, a problem of independent interest. Second, as a consequence, it is shown that every Taylor algebra has a so-called 2-weak near unanimity operation (2-WNU).

Some of the results about symmetric relations were already known (not published), but the approach in the thesis is completely new and promising for further research. The application to 2-WNUs uses a known technique, but details needed to be worked out. The results are publishable in an impacted journal.

On the other hand, the thesis has numerous shortcomings.

- Close to no background is given. For example, the weak near unanimity (WNU) operations, of which 2-WNUs are variants, are not even mentioned in the thesis.
- The thesis should have contained a lot more material. It even does not contain all the important partial results that we were able to achieve (e.g., a complete description of symmetric affine subspaces for the special case $k = 2$). The available alternative proofs should have been included as well.
- The thesis is not easy to read. It is a sequence of definitions and theorems with almost no commentary. Some proofs are hard to read, e.g. the proof of Proposition 35, some statements are unnecessarily convoluted, e.g. Proposition 43.

Despite these shortcomings I recommend the thesis be accepted.



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