



## On Heterogeneity and Formalization of Ortholattices within Mizar

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Integrity and flexibility are main issues of computer managed mathematical knowledge repositories which conflict sometimes. The computer can serve here as a kind of Kerberos which will not accept badly formulated, illogical notions (compare [1]) for keeping integrity. Hence users of a library are (consequentially) forced to use a particular notion or approach against personal preferences. Hence some will dismiss such services due to lack of user-friendliness. Heterogeneity could be important for achieving a desired flexibility.

Here issues on heterogeneity will be discussed by means of ortholattices. The formalization is based on lattice theory and partial order notions in the Mizar Mathematical Library (MML, see <http://www.mizar.org>). An alternative approach and its similarity are accomplished within one of the largest libraries of (proven) mathematical facts[2].

Mizar is a language designed by A. Trybulec (Bialystok, Poland) in the early seventies in order to represent mathematical text and proof suitable for automated processing. It is the fundament for the proof checker with the same name. Its declarative style benefits human approaches. On one hand it is flexible enough for different approaches, yet on the other hand rigorosity (needed for integrity) does not automatically allow arbitrary interchange between different approaches.

[1] Buchberger B.: *Mathematical Knowledge Management in Theorema*, Buchberger B., Caprotti O.(eds.), Proceedings of MKM 2001, Linz, Austria, 2001.

[2] Rudnicki P., Trybulec A.: *Mathematical Knowledge Management in Mizar*, Buchberger B., Caprotti O.(eds.), Proceedings of MKM 2001, Linz, Austria, 2001.

[3] Grabowski A., Moschner M.: *Managing Heterogeneous Theories Within a Mathematical Knowledge Repository*, in: Asperti A., Bancerek G., Trybulec A.(eds.), Proceedings of MKM 2004, Bialowieza, Poland



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