A CATEGORICAL CHARACTERISATION OF LIE ALGEBRAS

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In this talk we will describe varieties of Lie algebras via algebraic exponentiation, a concept introduced by Gray in his Ph.D. thesis [3]. In particular, we will prove that for a field of characteristic zero $\mathbb{K}$, the variety of Lie algebras over $\mathbb{K}$ is the only non-abelian variety of non-associative $\mathbb{K}$-algebras which is locally algebraically cartesian closed (LACC). This result became the first computer assisted proof in categorical algebra.

REFERENCES:

1. X. García-Martínez and T. Van der Linden, *A characterisation of Lie algebras via algebraic exponentiation*, preprint arXiv:1711.00689, 2017.

2. X. García-Martínez and T. Van der Linden, *A characterisation of Lie algebras amongst alternating algebras*, preprint arXiv:1701.05493, 2017.

3. J. Gray, *Algebraic exponentiation in general categories*, Ph.D. thesis, University of Cape Town.