

# Lie [Structure] in Logic [Wiring]

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## Abstract

The talk is about an unexpected connection between algebra and logic. I will give combinatorial interpretations for the pre-Lie and the Lie-admissible identities by means of natural isomorphisms in generalised species of structures, and show that their associated algebras respectively characterise the wiring of logical sequents as axiomatised by symmetric multicategories and symmetric polycategories.

The combinatorial content of the pre-Lie isomorphism provides a rational reconstruction of the characterisation of the pre-Lie operad by Chapoton and Livernet; the Lie-admissible isomorphism gives a combinatorial interpretation that I conjecture characterises the Lie-admissible operad.