

PROPOSITIONAL GÖDEL LOGIC, DELANNOY PATHS, AND ORDERED PARTITIONS

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Gödel propositional logic is the logic of the minimum t-norm, and can be axiomatised as propositional intuitionistic logic augmented by the prelinearity axiom $(\alpha \rightarrow \beta) \vee (\beta \rightarrow \alpha)$. Thus, its Tarski-Lindenbaum algebras are Heyting algebras satisfying prelinearity; we shall call them *Gödel algebras*. A *Delannoy path* is a lattice path in \mathbb{Z}^2 that only uses northward, westward, and northwestward steps. We give a representation theorem for n -generated free Gödel algebras based upon the boolean unit n -cube $\{0, 1\}^n$ enriched by families of Delannoy paths (more precisely, their straightforward multidimensional generalisation). If time allows, we report on work in progress that, using ordered partitions of finite sets, aims at building a new combinatorial semantics for Gödel propositional logic.

Parts of this talk are joint work with O. M. D'Antona and V. Marra.

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