Some categorical properties of Heyting semilattices [*]

Corentin Vienne

The goal of this talk is to present some of the results established in [1]. In that work, we investigated several categorical–algebraic aspects of the variety **HSLat** of Heyting semilattices. By analysing commutators, normal subobjects, and free objects in this context, we managed to understand whether or not certain categorical conditions are satisfied by Heyting semilattices, such as *algebraic coherence*, the *normality of Higgins commutators*, the *transitivity of normality*, and certain strengthenings of the so-called *Smith is Huq* condition, among others. If time permits, we will conclude with a few remarks on the subvariety of *equationally linear* Heyting semilattices (studied in [2]) and with some open problems.

References

[1] X. García-Martínez, J. R. A. Gray, M. A. Hoefnagel, T. Van der Linden, and C. Vienne. *Categorical algebraic aspects of Heyting semilattices*, Preprint arxiv : 2508.11250, 2025.

[2] X. García-Martínez, J. R. A. Gray, M. A. Hoefnagel, T. Van der Linden, and C. Vienne. *Observations on the variety of Equationally linear Heyting semilattices*, in preparation, 2025.

[3] C. Vienne. *Categorical-algebraic conditions in semi-abelian categories*, PhD Thesis, UCLouvain, 2025.

---

[*]Joint work with X. García-Martínez, J.R.A. Gray M.A. Hoefnagel and T. Van der Linden.