

We will continue online on Thursday, **June 10th, at 13.00 CEST** on [ZOOM](#) platform (for information how to access seminar and next programme visit

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) by the talk:

Noam Zeilberger

Skew monoidal categories and the proof-theoretic anatomy of associativity (and unitality)

Abstract:

Based on joint work with Tarmo Uustalu and Niccolò Veltri.

The talk will survey a recent line of work, which takes a proof-theoretic approach to solving the coherence problem(s) for skew monoidal categories and related structures. I will begin by discussing the so-called Tamari order on fully-bracketed words induced by a semi-associative law $(AB)C \leq A(BC)$, and explain how a simple sequent calculus may account for some of its fascinating properties, such as the fact that the set of fully-bracketed words on $n+1$ letters forms a lattice Y_n under this order, as well as a remarkable formula counting the number of intervals in Y_n .

Then I will recall the definition of skew monoidal categories, and explain how a more refined sequent calculus may be used to solve two related coherence problems: deciding equality of maps and enumerating homsets in free skew monoidal categories. Closely related to recent work by Bourke and Lack, this sequent calculus may be considered as a canonical construction of the free left representable skew multicategory over a set of atoms.

Finally, I will briefly discuss variations of the sequent calculus capturing "partially skew" monoidal categories with different normality conditions.

References:

[1] <https://arxiv.org/abs/1803.10080>

[2] <https://arxiv.org/abs/2003.05213>

[3] <https://arxiv.org/abs/2101.10487>