On lax comma categories

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Abstract.

Lax comma categories are an essential ingredient in our study of 2-dimensional counterparts of Janelidze's Galois Theory [2]. However, in contrast with the largely studied comma categories, lax comma categories did not receive the same attention in the literature.

This insight was the starting point of a long term project – not yet completed – on the study of (co)limits, exponentiability, and descent in lax comma categories, which is the subject of this talk.

This presentation is based on joint work with F. Lucatelli Nunes, G. Janelidze, R. Prezado, and D. Hofmann, listed below.

References

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[2] M.M. Clementino, F. Lucatelli Nunes, Lax comma 2-categories and admissible 2-functors. *Theory Appl. Categ.* 40 (6) (2024), 180–226

[3] M.M. Clementino, G. Janelidze, Effective descent morphisms of filtered preorders. *Order* 42 (2025), 181–192

[4] M.M. Clementino, R. Prezado, Effective descent morphisms of ordered families. *Quaestiones Mathematicae* (2025, available online)

[5] M.M. Clementino, D. Hofmann, R. Prezado, Topological lax comma categories. arXiv 2504.12965

[6] M.M. Clementino, F. Lucatelli Nunes, TBD (in preparation).