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Weak cartesian closedness of $(\mathbb{T}, \mathsf{V})$-Cat *and equilogical* $(\mathbb{T}, \mathsf{V})$*-categories*

Aiming for the study of equilogical spaces [1] in the more general setting of $(\mathbb{T}, \mathsf{V})$-Cat [2, 3], we discuss the concept of weak cartesian closedness. From the work of Rosický [4], we recall the construction of weak exponentials in Top and present the analogous procedure to $(\mathbb{T}, \mathsf{V})$-Cat.

This property is necessary to assure the cartesian closedness of the exact completions $\mathsf{Top}_{\mathrm{ex}}$ and $(\mathbb{T}, \mathsf{V})$-$\mathsf{Cat}_{\mathrm{ex}}$, from which we obtain the categories Equ and $(\mathbb{T}, \mathsf{V})$-Equ, respectively, as full reflective subcategories; cartesian closedness of the latter categories follows then by preservation of products by the reflectors.

The first part of this talk reports on ongoing work that will appear in [5].

References:

[1] Andrej Bauer, Lars Birkedal and Dana S. Scott, Equilogical spaces, *Theoretical Computer Science* 315 (2004) 35–59.

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[3] Maria Manuel Clementino and Dirk Hofmann, Topological features of lax algebras, *Applied Categorical Structures* 11 (2003) 267–286.

[4] J. Rosický, Cartesian closed exact completions, *Journal of Pure and Applied Algebra* 142 (1999) 261–270.

[5] Maria Manuel Clementino, Dirk Hofmann and Willian Ribeiro, Cartesian closed exact completions in topology, *in preparation.*

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