On bigroupoids in 2-dimensional homotopical algebra

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The concept of a 2-groupoid, i.e. a 2-category in which all 1-cells and 2-cells are (strictly) invertible, is well known and has been exploited by MOERDIJK and SVENSSON [3] to classify equivariant homotopy 2-types.

The laxer notion of a bigroupoid, i.e. a bicategory in the sense of BÉNABOU [1] in which the 2-cells are strictly invertible and the 1-cells are invertible up to coherent isomorphism, does not seem to be documented in the literature.

The authors have used this notion in [2] to give a new categorical framework for the study of 2-dimensional homotopy theory. In this talk this framework is clarified and new results are presented.

REFERENCES

[1] Bénabou, J.: Introduction to bicategories, in Lecture Notes in Math. 47, Springer-Verlag, Berlin, 1967, 1–77.

[2] Hardie, K.A., Kamps, K.H. and Kieboom, R.W.: A homotopy bigroupoid of a topological space, to appear in Applied Categorical Structures.

[3] Moerdijk, I. and Svensson, J.-A.: Algebraic classification of equivariant homotopy 2-types, I, J. Pure Appl. Algebra, 89 (1993), 187–216.

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