

Weak ω -Categories as ω -Hypergraphs

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Hypergraphs are explored in the area of rewriting as an generalization of terms and graphs. Firstly, we introduce a higher-dimensional analogue of hypergraphs, namely ω -hypergraphs. This notion is thoroughly flexible because that, different from ordinary hypergraphs, an n -cell has many sources and targets. Moreover cells have polarity, and pasting is defined through it. Then we specify an special type of ω -hypergraph of cells with orientation. Finally, we construct on them an ω -dimensional version of (a variation of) weak n -categories given in [1]. This is like the way of regarding categories as special graphs with composition and identity.

REFERENCES

- [1] J. Baez and J. Dolan, *Higher-Dimensional Algebra III: n -Categories and the Algebra of Opetopes*, Adv. Math. 135 (1998), 145-206.

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