

Stability for pseudomonoids

Nick Gurski

The Stabilization Hypothesis of Baez and Dolan [1] states, amongst other things, that the sequence of structures

$(n + k + 1)$ -dimensional categories with a single 0-, 1-, \dots , k -cell

eventually stabilizes. When $k = 0$, the objects in question should be monoidal n -categories, and as k grows larger they should become more and more commutative. At the heart of the Stabilization Hypothesis lies a higher dimensional version of the Eckman-Hilton argument. We will discuss a 2-dimensional version of this kind of stability result as well as 2-dimensional analogues of the Eckman-Hilton argument. More specifically, we will give the statement “symmetric pseudomonoids internal to a symmetric monoidal bicategory are stable” a precise meaning while recovering some familiar theorems along the way.

REFERENCES

- [1] John Baez and James Dolan, *Higher-dimensional algebra and topological quantum field theory*, Jour. Math. Phys. 36 (1995) 6073-6105.