

N-tuple categories and their degeneracies

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Abstract. After defining internalization of categories, we will review the process of iterated internalization and conclude that the categories of strict n-tuple categories are naturally enriched over their objects. We will show how understanding the weak case in its integrality requires further investigation of the notion of commutative n-cubes, for different kind of “filling” cells. Once understood, it will recover other higher weak categorical structures found in litterature as degeneracies such as monoidal bicategories, weak triple categories or J.Morton’s double bicategories, to cite a few.