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John D. Wiltshire-Gordon* (johnwg@umich.edu), Department of Mathematics, University of Michigan, 530 Church Street, Ann Arbor, MI 48109. *Representation theory of combinatorial categories.*

Given an interesting sequence of objects X_0, X_1, X_2, \dots , it's fun to ponder: is that subscript just a natural number, or is it hiding deeper structure? Maybe these objects ought to be indexed by finite sets, or finite dimensional vector spaces, or finite total orders, or whatever makes sense. The point is, a map relating two of the indexing gadgets should induce a map on the objects themselves. We use this method of argument to give new results on the cohomology of configuration spaces. Next, we give a characterization of indexing categories wherein finitely generated representations are finite length. Finally, we show how computations with these representations can be made effective. Part of this talk is joint work with Jordan Ellenberg. (Received August 11, 2015)