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Barry Monson*, PO Box 4400, Fredericton, NB E3B 5A3, Canada. *Abstract Uniform Polytopes*. Preliminary report.

In the classical setting, a convex d -polytope \mathcal{P} is said to be uniform if its facets are uniform and its symmetry group is transitive on vertices. To start this inductive definition in a pleasant way, we agree that uniform polygons should be regular. (Notice that the 1-skeleton of \mathcal{P} will be a symmetric k -valent graph.)

The same definition can be transferred to the abstract (i.e. combinatorial) setting, where all polygons happen to be regular. Thus, the abstract uniform polytopes \mathcal{P} form a huge, perhaps untamable, class of mostly unfamiliar objects, but certainly including all abstract regular polytopes, which are ‘maximally’ symmetric.

Here we discuss recent work by myself and others concerning the construction of uniform polytopes and their regular covers. (Received July 28, 2010)