1113-05-294 **István Heckenberger**, **John Shareshian*** (`shareshi@math.wustl.edu`) and **Volkmar Welker**. *Subrack lattices of conjugation racks.*

Let G be a finite group. The conjugation rack $R(G)$ has underlying set G and binary operation given by $a.b := a^{-1}ba$. We call the collection of subsets of G that are closed under this operation, partially ordered by inclusion, the subrack lattice of G. We show that if G is solvable and the subrack lattice of H is isomorphic to that of G, then H is also solvable. The same result holds if we replace "solvable" with "abelian", "nilpotent" or "simple". We show also that the order complex of the (reduced) subrack lattice has the homotopy type of a sphere. One can also investigate the order complexes of various subposets of the subrack lattice. I will present some results and questions arising from such investigations. (Received August 25, 2015)