1047-08-146 **Jonathan D.H. Smith*** (jdhsmith@math.iastate.edu), Department of Mathematics, 396 Carver Hall, Iowa State University, Ames, IA 50011-2064. *Comparing the complexity of hyperequivalent operations.* Preliminary report.

Let A be an algebra. Let S be a set of operations on A. Suppose that S forms a single orbit under a group of hypersubstitutions. How large is the variation in the complexity of the operations from S on A? Examples taken from hyperquasigroups exhibit variation from polynomial to rational and from rational to algebraic. For unary hyperquasigroups, variation over complexity classes would demand a one-way function. Other examples of significant variation are provided by (complete) lattices such as subalgebra lattices, where (according to the algebra structure) there is variation between the meet and join. (Received January 26, 2009)