1056-47-1853 **Mark Stankus*** (mstankus@calpoly.edu), 1 Grand Avenue, Department of Mathematics, San Luis Obispo, CA 93407. *n-symmetric Linear Transformations and von Neumann algebras.* Preliminary report.

Helton generalized the concept of self-adjoint map to that of an n-symmetric operator for natural numbers n. A bounded linear transformation T of a complex Hilbert space is called n-symmetric if $\sum_{k=0}^{n}(-1)^k \left(\begin{array}{c} n \\ k \end{array} \right) (T^*)^{n-k} T^k = 0$. When classifying solutions to this equation, it suffices to consider solutions T where the smallest von Neumann algebra containing T is a factor. We show that if T is an n-symmetric operator and the smallest von Neumann algebra containing T is a factor, then the set of eigenvalues of T^* is an interval in the real line. A combination of Rosenblum's Theorem, resolvent inequalities and the existence of maximal invariant subspaces is used. The techniques apply to a large class of hereditary roots. No knowledge of von Neumann algebras is required. (Received September 22, 2009)