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**Ronald Solomon\*** ([solomon@math.ohio-state.edu](mailto:solomon@math.ohio-state.edu)), Department of Mathematics, The Ohio State University, Columbus, OH 43210. *A recognition theorem for the generic simple groups.*

This is a report on joint work with Richard Lyons directed towards an identification of the alternating groups of degree at least 13 and (most of) the finite simple groups of Lie type of Lie rank at least 4, starting from data concerning the centralizer of a (semisimple) element of prime order and certain of its so-called neighbors. I will explain the role of this theorem in the general classification theorem for the finite simple groups, and I will describe some of the key ideas of the proof. (Received August 16, 2010)