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**Emilie Dufresne** and **Jack Jeffries\*** (jeffries@math.utah.edu). *How many invariants are needed to separate orbits?*

The study of separating invariants is a relatively recent trend in invariant theory. For a finite group acting linearly on a vector space, a separating set is a set of invariants whose elements separate the orbits of the action. In some ways, separating sets often exhibit better behavior than generating sets for the ring of invariants. We investigate the least possible cardinality of a separating set for a given action. Our main result is a lower bound which generalizes the classical result of Serre that if the ring of invariants is polynomial, then the group action must be generated by pseudoreflections. We find these bounds to be sharp in a wide range of examples. (Received September 16, 2014)