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Harlan Kadish* (hmkadish@umich.edu), Department of Mathematics, 2074 East Hall, 530 Church St, Ann Arbor, MI 48109. *Counting Generating Invariants for Representations of Semisimple Groups.*

Although degree bounds for the generators of various invariant rings have been known for almost a century, little is said about the cardinality of minimal generating sets. Estimates of such would provide lower bounds for the complexity of algorithms that compute invariants. For a semisimple group G , choose an irreducible representation of highest weight λ , and consider the irreducible representations of highest weight $n\lambda$. As n goes to infinity, we show that the cardinality of a minimal set of generating invariants grows faster than any polynomial in n . When SL_2 acts on the binary forms of degree d , we show that the minimal set grows faster than any polynomial in d , and we provide combinatorial evidence that the growth is likely sub-exponential. (Received September 14, 2010)