Feedback Vertex Sets in Tournaments

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For a tournament T, a feedback vertex set is a subset of vertices intersecting every directed cycle of T. We prove that every tournament on n vertices has at most 1.6740^n minimal feedback vertex sets, and some tournaments have 1.5448^n minimal feedback vertex sets. This improves an old result by Moon from 1971. Moreover, we give the first polynomial-space polynomial-delay algorithm for enumerating all minimal feedback vertex sets. As corollary, we derive the fastest exponential-time algorithm for finding a feedback vertex set of minimum size.