Zbl 263.05108
Entringer, Roger C.; Erdős, Paul; Harner, C.C.
Some extremal properties concerning transitivity in graphs. (In English)
Period. Math. Hung. 3, 275-279 (1973). [0031-5303]

A directed graph D is transitive iff arc ac is in D whenever arcs ab and bc are in D. We show that for all tournaments T_n on n points, with $0\left(2^{\binom{n}{2}}\right)$ exceptions, the largest transitive subgraph of T_n contains fewer than $\frac{1}{4}\binom{n}{2} + cn^{3/2}$ arcs for a suitable constant c. Results concerning the size of bipartite subgraphs of tournaments and transitive graphs are also obtained.

Classification:
05C20 Directed graphs (digraphs)
05C35 Extremal problems (graph theory)