1077-05-1694   **Elizabeth Moseman*** (`lizz.moseman@gmail.com`). *Improving the Computational Efficiency of the Blitzstein–Diaconis algorithm for Generating Graphs of Prescribed Degree.*

When generating a random graph, if more structure is desired then is given in the popular Erdős–Renyi model, one method is to generate a degree sequence first then create a graph with this degree sequence. Blitzstein and Diaconis (among others) developed a sequential algorithm to create a random graph from a degree sequence. This algorithm is assured to always terminate in a graph with the degree sequence; unfortunately, it is slow. This work focusses on the subroutine of the previous algorithm which determines the candidate edges, improving the runtime of the overall algorithm from $O(mn^2)$ to $O(mn)$. (Received September 20, 2011)