1077-05-754   **Caroline Shapcott*** (`cshapcott@drexel.edu`). *Part Products of Random S-Restricted Compositions.*

If S is a cofinite set of positive integers, an *S-restricted composition of n* is a sequence of elements of S whose sum is n. We have proved that, for uniform random S-restricted compositions, the product of the part sizes is asymptotically lognormal. In the case of unrestricted compositions (S^c empty), this is an easy consequence of known techniques based on stopped sequences of independent geometric random variables. For the case of 1-free compositions ($S^c = \{1\}$), the techniques are not directly applicable. Nevertheless, I proved asymptotic lognormality, with a relatively sharp error term, by embedding the probability space in an auxiliary space in which the techniques *can* be applied. In the more general case of cofinite sets S, Eric Schmutz and I proved asymptotic lognormality with a slightly weaker error term. The proof involves a completely different technique of decomposing a composition into a sequence of smaller compositions. We believe that the cofiniteness assumption can be relaxed and that the method can be applied to other random variables. (Received September 12, 2011)