1030-60-370 **Hosam M. Mahmoud** (hosam@gwu.edu), Department of Statistics, The George Washington University, Washington, DC 20052, and **Mark Daniel Ward*** (mdw@purdue.edu), Department of Statistics, Purdue University, 150 North University Street, West Lafayette, IN 47907-2067. *On the Number of k-Cousins in Tries and Suffix Trees.*

Consider a tree structure built on n keys. We enumerate the number $X_{n,k}$ of subtrees on the fringe that each contain k keys. A subtree with k keys is "on the fringe" if it has no proper subtree that also has k keys. For instance, when $k = 2$, then $X_{n,2}$ is the number of pairs of siblings (i.e., 2-cousins); siblings are keys that differ only in the last symbol. For $k = 3$, then $X_{n,3}$ is the number of families containing a pair of siblings and a nearest cousin; we refer to the two siblings and their nearest cousin collectively as a set of 3-cousins. In general, $X_{n,k}$ denotes the number of k-cousins.

We consider the expected value and the variance of $X_{n,k}$ in tries (retrieval trees, constructed from independent strings) and in suffix trees (tries constructed from the suffixes of a common string). Our analysis uses generating functions, Poissonization and depoissonization, the Mellin transform, and singularity analysis. Additionally, our analysis of suffix trees utilizes combinatorics on words and autocorrelation, i.e., the degree to which a word overlaps with itself. (Received August 07, 2007)