1154-05-1580 **J. W. Moon** and **Laura L.M. Yang*** (`laura.yang@ucf.edu`), Department of Mathematics, University of Central Florida, Orlando, FL 32816. *Asymptotic Results on Weighted Ordered Trees.* Preliminary report.

Binomial trees are defined as a sub-family of simply-generated trees, which have been studied by Meir and Moon and others. The paper is to investigate four statistics on simply-generated families: leaves, non-rightmost leaves, proper edges and proper vertices. We use Darboux's theorem to obtain asymptotic results on their expectations $\mu_i(n)$ and variances, where n denotes the number of vertices in the trees being considered. For any constant $0 < c < 1$ (for proper edges, $0 \leq c \leq 1/2$), we prove that there exists a simply-generated family such that $\mu_i(n)/n$ tends to c when $n \to \infty$. For binomial trees, we derive explicit expressions for $\mu_i(n)$. Using Lyapunov's condition, we prove the the distribution of the number of proper vertices is asymptotically normal. (Received September 16, 2019)