1145-05-390 **Mojtaba Moniri*** (mojtaba.moniri@normandale.edu). *Binary subtrees with fewest labeled paths; simulations and illustrations.*

Complete ternary trees T of depth $n \geq 1$ with $\{0,1\}$-labeled edges, and their complete binary subtrees of that depth which have as few path labels as possible were considered by Downey-Greenberg-Jockusch-Milans in their 2011 paper. For such an edge-labeled tree T, its weight $f(T)$ was defined as the minimum number of path labels possible for such a binary subtree. For a fixed depth n, the maximum of the weight of T over all its 0-1 edge-labelings was denoted $f(n)$. Their main results were bounds on f and certain consequences in computability theory. In the introductory parts they showed that for $n \leq 4$, $f(n) = n$. They also announced $f(5) = 8$; their proof is presented here and a similar method is used to show $f(6) \geq 10$. Milans asked what the expected value of $f(T)$ (with T of a fixed depth n) is. We deal with cases of the first few n. E.g., among the 2^{39} trees of depth 3 it is $\frac{31033}{16384}$. For such small depths, we run simulations on random samples and observe close means. For depth 4, our simulations indicate weight 1-4 trees to constitute $\approx 0.4^{-}\%, 36\%, 56^{+}\%$, and 7%, respectively, of the 2^{120} depth-4 trees. We present examples and provide analysis for each of the possible values of $f(T)$ for such small n. (Received September 05, 2018)