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*Binary subtrees with few labeled paths*

Call a finite rooted tree complete if all of its leaves are at the same depth. We prove several quantitative Ramseyan results involving complete ternary rooted trees with 0, 1-labeled edges, where we attempt to find a complete binary subtree of the same depth with as few labels as possible along its edges. These are applied to compare the difficulty of diagonalization with that of constructing random sets. Specifically, we show that the class of weakly 1-random sets is not strongly reducible to  $DNR_3$ .

(This is joint work with Rod Downey, Noam Greenberg, and Kevin Milans.)