Assignment 2 - Question 3

due Monday, January 31, 2022

(from Er) Consider the following simpler alternative to splaying:

\[
\text{MoveToRoot}(v):
\text{ while parent}(v) \neq \text{null}
\text{ single rotate at v}
\]

Prove that the amortized cost of MoveToRoot in an \( n \)-node binary tree can be \( \Omega(n) \). That is, prove that for any integer \( k \), there is a sequence of \( k \) MoveToRoot operations that require \( \Omega(kn) \) time to execute.