1 Finger theorem for Splay Trees (THM 3)

Assume the keys in the tree are \(x_1 < x_2 < \ldots < x_n\). The \(m\) accesses are to keys of rank \(i_1, i_2, \ldots, i_m\).

Static Finger Theorem: For a fixed item \(x_f\) the total access time is 
\[O(n \log n + m + \sum_{j=1}^{m} \log(|i_j - f| + 1)).\]

Note: if most access are close to any given rank, than fast.