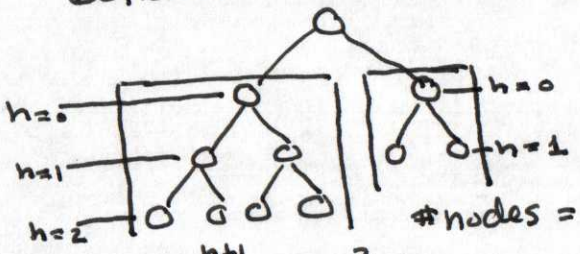
Page 155 "The children's subtrees each have size at most $2n/3$ - the worst case occurs when the bottom level of the tree is exactly half full ..."

Bottom level half full example:



$\#\text{nodes} = 2^{h+1} - 1 = 2^3 - 1 = 7$

$\#\text{nodes} = 2^{h+1} - 1 = 2^2 - 1 = 3$

$$\frac{\text{nodes in LHS tree}}{\text{all nodes in tree}} = \frac{7}{7+3+1} = \frac{7}{11} \leq \frac{2}{3}$$

(root)

The number of nodes in a complete binary tree of height h is $(2^{h+1} - 1)$

Algebra:

$$\frac{\text{nodes in LHS tree}}{\text{all nodes in tree}} = \frac{2^{h+1} - 1}{(2^{h+1} - 1) + (2^h - 1) + 1} = \frac{2 \cdot 2^h - 1}{2 \cdot 2^h + 2^h - 1} = \frac{2 \cdot 2^h - 1}{3 \cdot 2^h - 1} \leq \frac{2}{3}$$

right subtree is one level less full than the left subtree

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