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1-2 Brother Trees or AVL Trees Revisited FREE

T. Ottmann, D. Wood

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Abstract

1-2 brother trees are binary search trees which have similarities to both height balanced search trees and 2-3 trees. Firstly, $O(\log_2 n)$ insertion and deletion algorithms are demonstrated and their similarities with those for brother trees are noted. Secondly, it is proved that the space utilisation of (random) 1-2 brother trees is much better than that for (random) 2-3 trees. Thirdly, the close relationship between 1-2 brother trees and height balanced trees is demonstrated, and as this also holds for their right-sided counterparts it leads to $O(\log_2 n)$ insertion and deletion algorithms for right-sided height balanced trees. Finally, this demonstrates that the insertion and deletion algorithms for right-sided height balanced trees were already available, but hidden, in the corresponding algorithms for right brother trees.

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