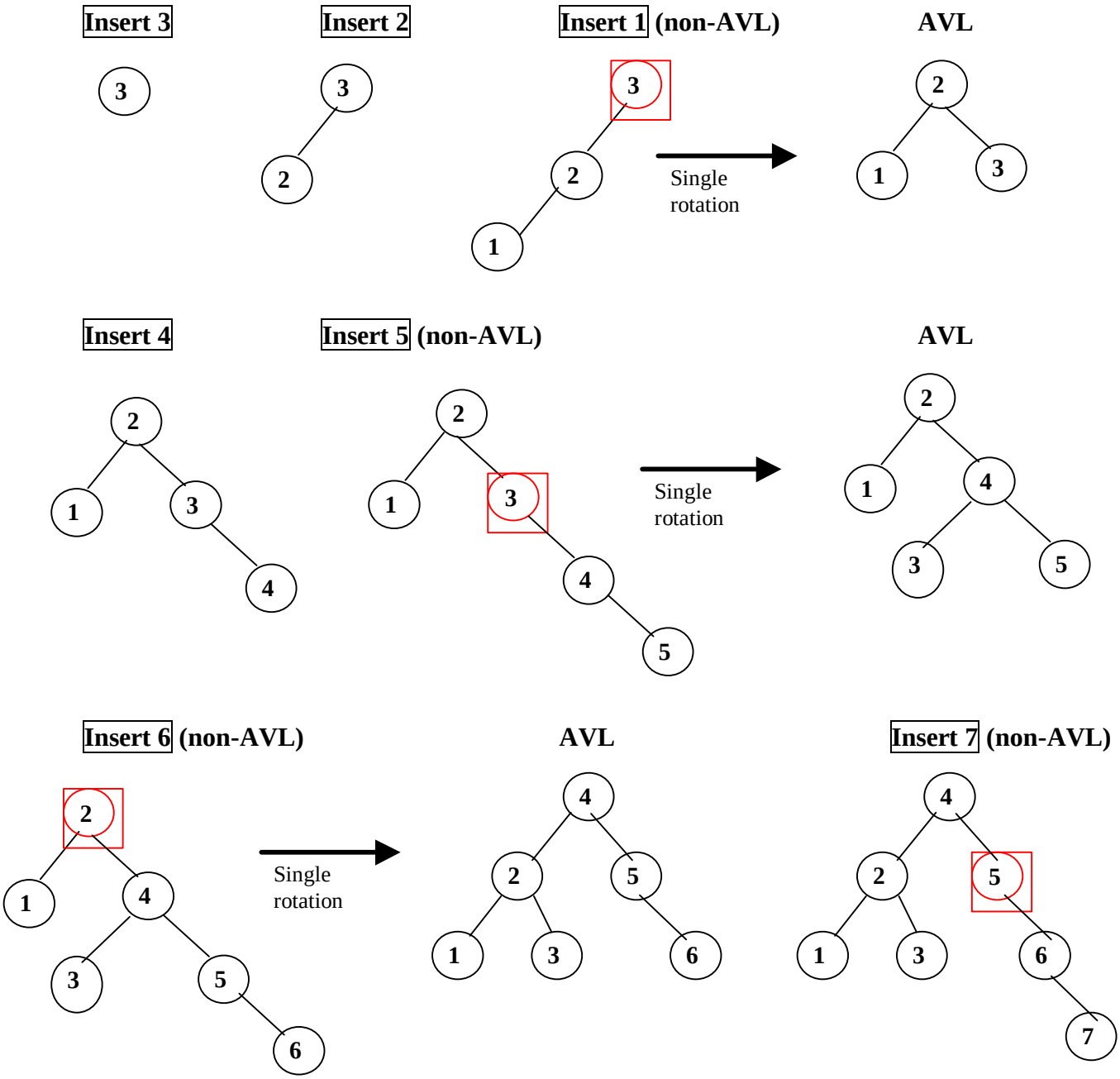
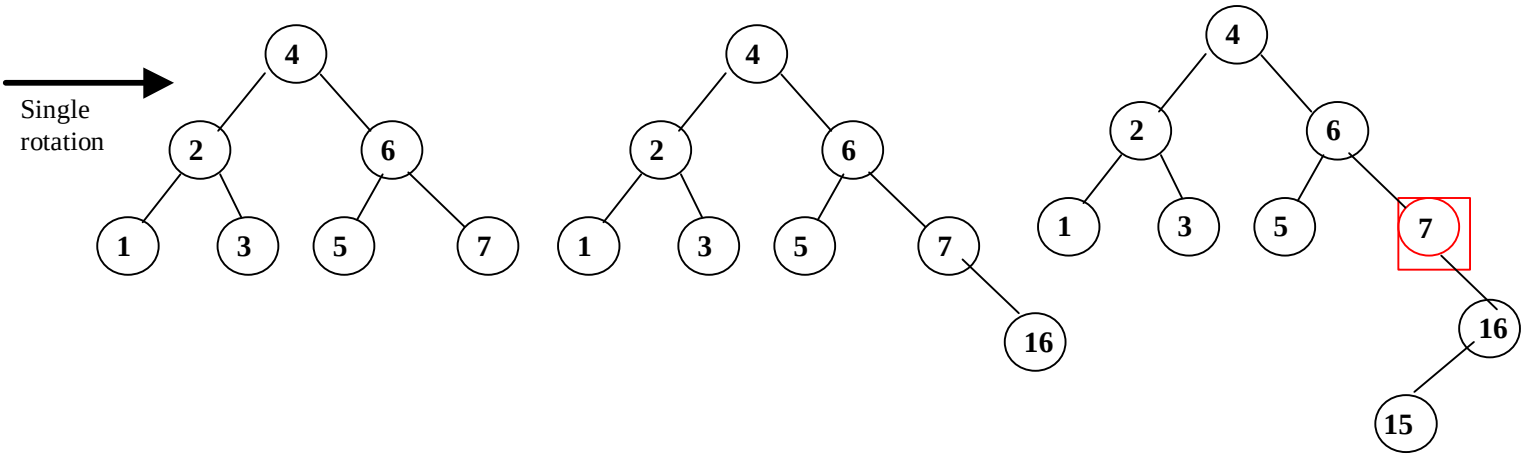
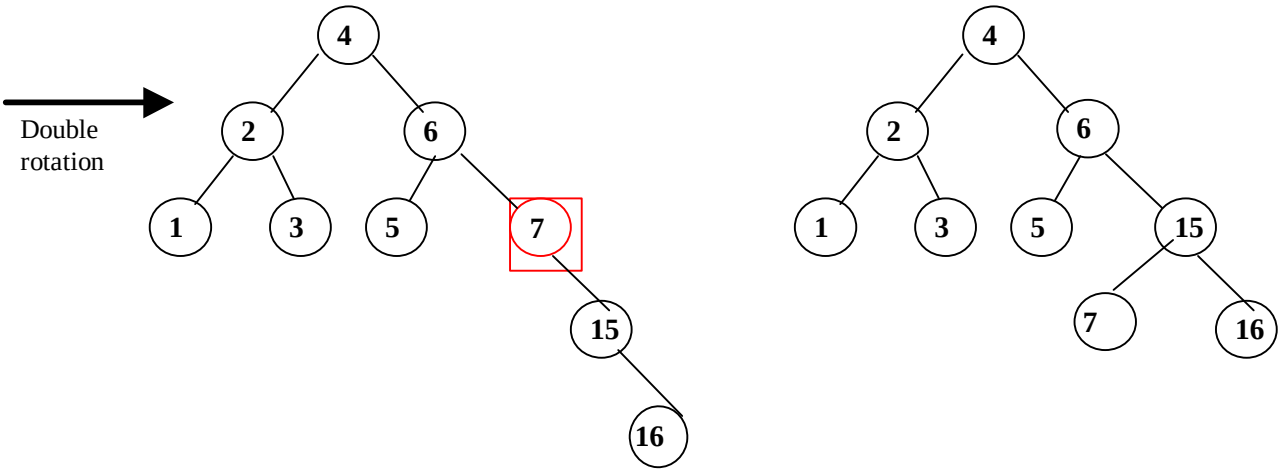
# AVL Trees Example



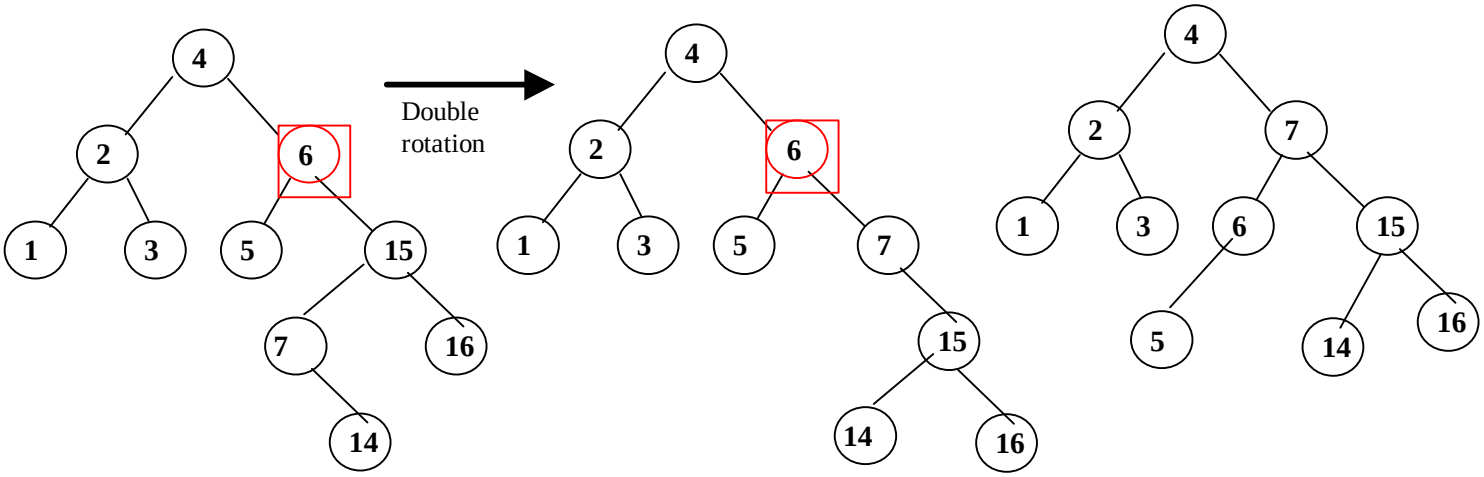
**AVL** **Insert 16** **Insert 15 (non-AVL)**



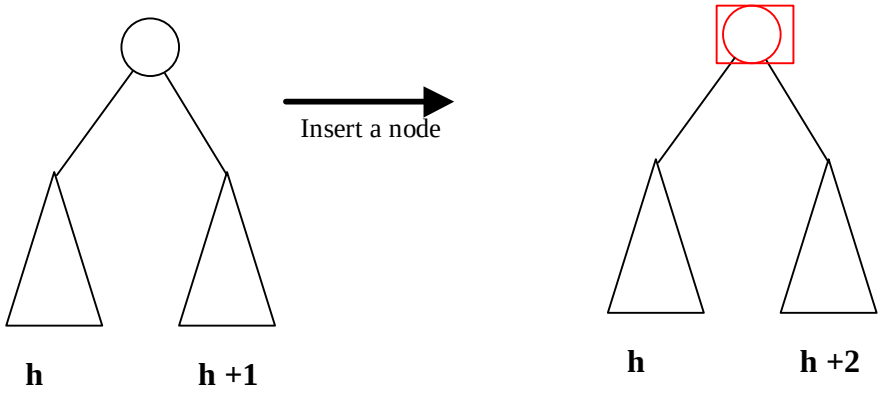

**Step 1: Rotate child and grandchild** **Step 2: Rotate node and new child (AVL)**



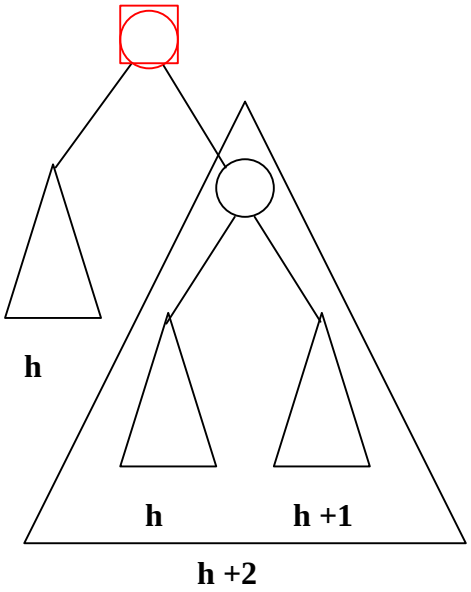

**Insert 14 (non-AVL)** **Step 1: Rotate child and grandchild** **Step 2: Rotate node and new child (AVL)**



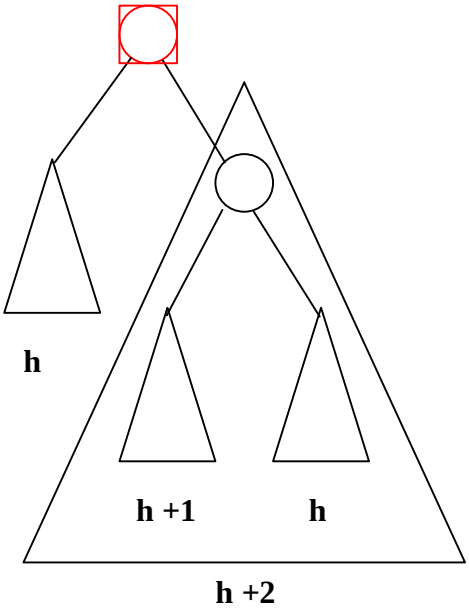
**AVL Tree** **No longer AVL, must rebalance**




**Two ways to expand subtree of height h+2:**



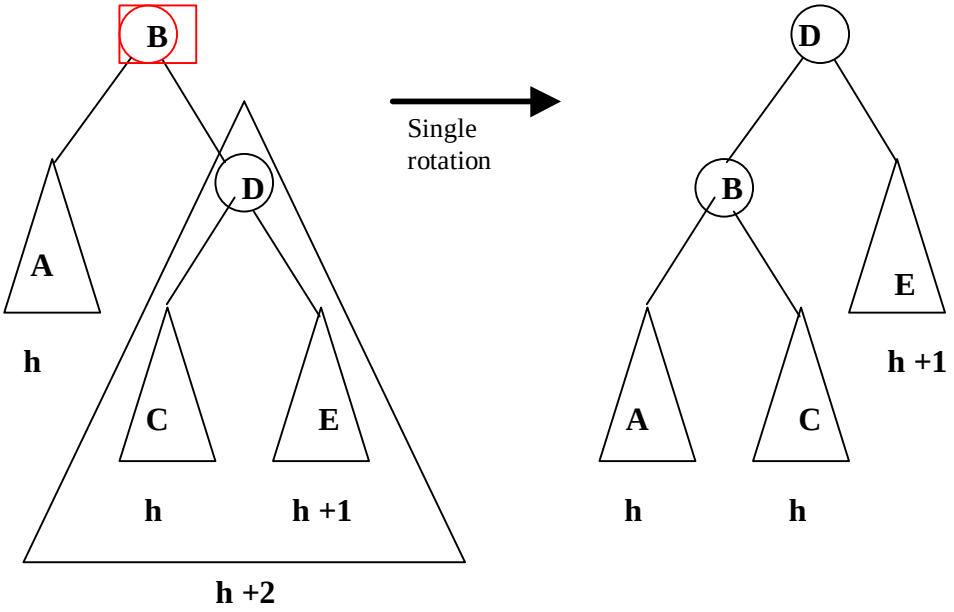

**Apply a <u>Single</u> Rotation**

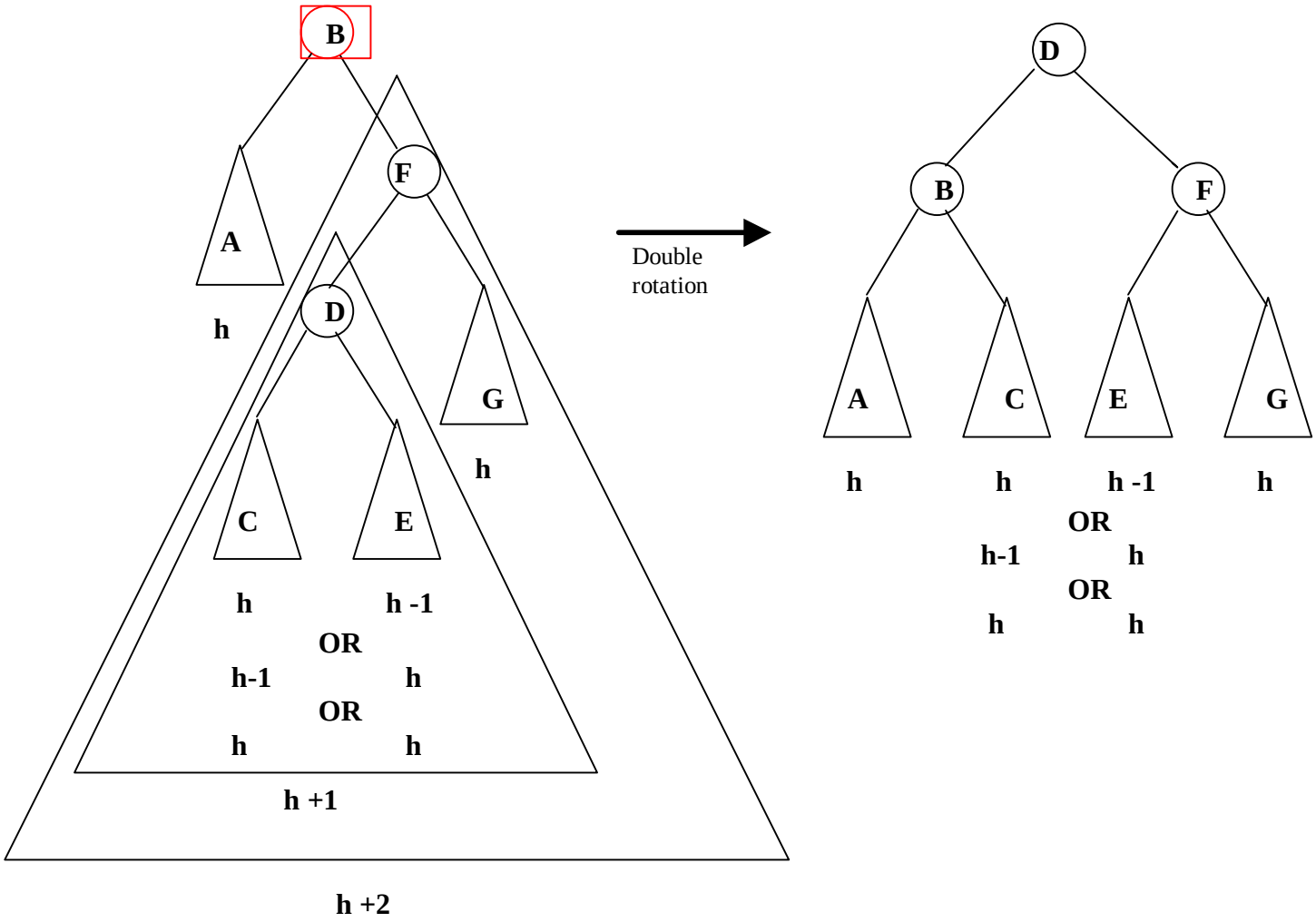



**Apply a <u>Double</u> Rotation**

**<u>Note</u>: the symmetrical case is handled identically (i.e. mirror image)**

**Single Rotation:**




**Double Rotation:**