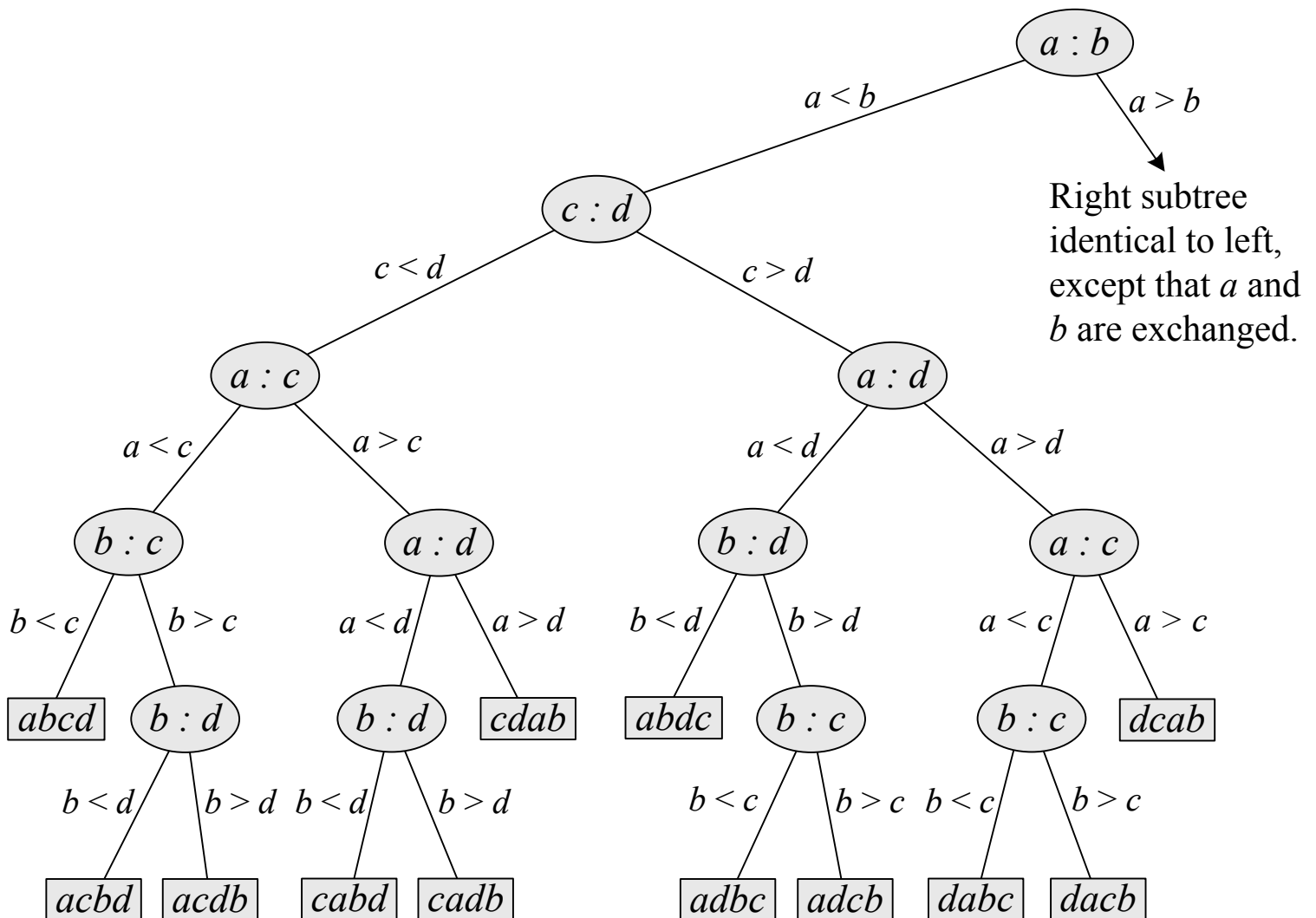


A Decision Tree for Mergesort with $n = 4$

The list being sorted is **abcd**.

The root and left subtree of the decision tree are shown. The right subtree is identical to the left, except that a and b are interchanged.



For mergesort,

$$C_{\max}(4) = \text{height of decision tree} = 5,$$

$$C_{\text{ave}}(4) = \text{mean leaf depth in decision tree} = 8 \times 4 + 16 \times 5 = 4.667.$$