

Exercise 2.2.22: 3-way mergesort. Suppose instead of dividing in half at each step, you divide into thirds, sort each third, and combine using a 3-way merge. What is the order of growth of the overall running time of this algorithm?

Solution: Recall that 2-way mergesort is $n\log_2 n$ as it halves each recursive call. Therefore, for 3-way mergesort, it is $n\log_3 n$. So uses \log base 3 instead of 2.