# Divide-and-Conquer Disposition

Name: Peter Debes Christensen                     KU-name: qpl983@alumni.ku.dk

What is Divide and Conquer

1. A paradigm where problems are solved recursively by applying three steps

    (a) Divide intro related subproblems of smaller size
    (b) Conquer the subproblems by solving them recursively
    (c) Combine subproblem solutions into solution for original problem

Why is it usefull

1. Solve recurrence equations eg. $T(n) = aT(n/b) + f(n)$

How to determine asymptotic bounds, three methods, will only go into one.

1. Recursion tree method

2. Substitution method

3. Master method

Draw a recursion tree for Merge-Sort, guess a upper bound from the drawing and show by substitution method that it is correct.