Design and Analysis
of Algorithms I
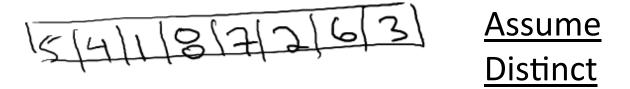
Introduction

Merge Sort (Overview)

Why Study Merge Sort?

- Good introduction to divide & conquer
  - Improves over Selection, Insertion, Bubble sorts
- Calibrate your preparation
- Motivates guiding principles for algorithm analysis (worst-case and asymptotic analysis)
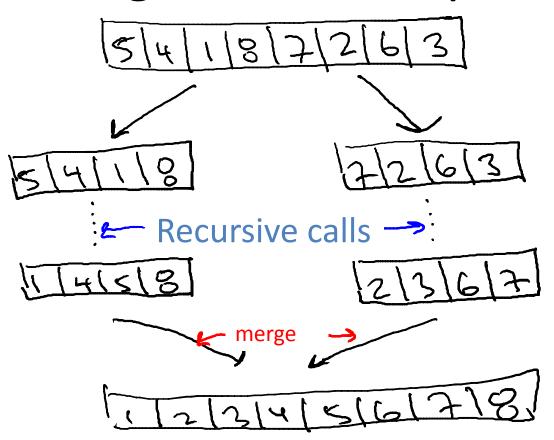- Analysis generalizes to "Master Method"

Tim Roughgarden

The Sorting Problem

Input : array of n numbers, unsorted.

| 5 | 4 | 1 | 8 | 7 | 2 | 6 | 3 |

Assume
Distinct

Output : Same numbers, sorted in increasing order

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Tim Roughgarden

Merge Sort: Example

Recursive calls

merge

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