



# Analyzing merge sort

	$T(n)$		<b>MERGE-SORT</b> $A[1 \dots n]$
	$\Theta(1)$		1. If $n = 1$ , done.
<i>Abuse</i> ↗	$2T(n/2)$		2. Recursively sort $A[1 \dots \lceil n/2 \rceil]$ and $A[\lceil n/2 \rceil + 1 \dots n]$ .
	$\Theta(n)$		3. “ <i>Merge</i> ” the 2 sorted lists

**Sloppiness:** Should be  $T(\lceil n/2 \rceil) + T(\lfloor n/2 \rfloor)$ ,  
but it turns out not to matter asymptotically.