Merge sort algorithm:

1. Recursively divide elements into halves until the number of elements in one of the halves is one.
2. Recursively merge sort halves until all elements are sorted.

Example:

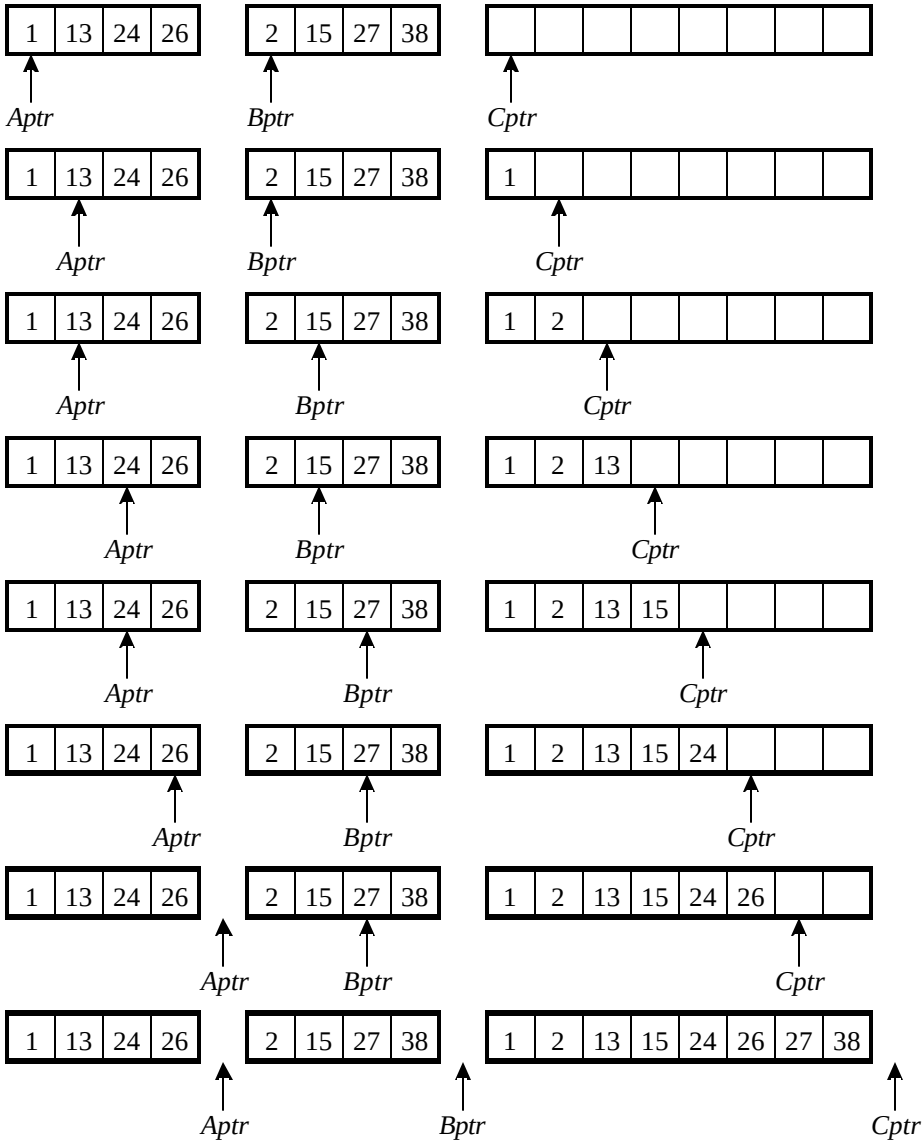

Figure 1. Merge sort

Merge sort analysis:

1. Each merge requires at most *N* operations.
2. There are $\log_2 N$ merges
1. Hence merge sort is $O(N \log_2 N)$