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A general framework for the realistic analysis of sorting and searching algorithms. Application to some popular algorithms

We describe a general framework for realistic analysis of sorting and searching algorithms and apply it to the average-case analysis of five basic algorithms: three sorting algorithms (*QuickSort*, *InsertionSort*, *BubbleSort*) and two selection algorithms (*QuickMin* and *SelectionMin*). Usually, the analysis deals with the mean number of key comparisons, but, here, we view keys as words produced by the same source. The "realistic" cost of the algorithm is now the total number of symbol comparisons performed by the algorithm, and, in this context, the average–case analysis aims to provide estimates for the mean number of symbol comparisons used by the algorithm.