2 Sequence Algorithm Concepts

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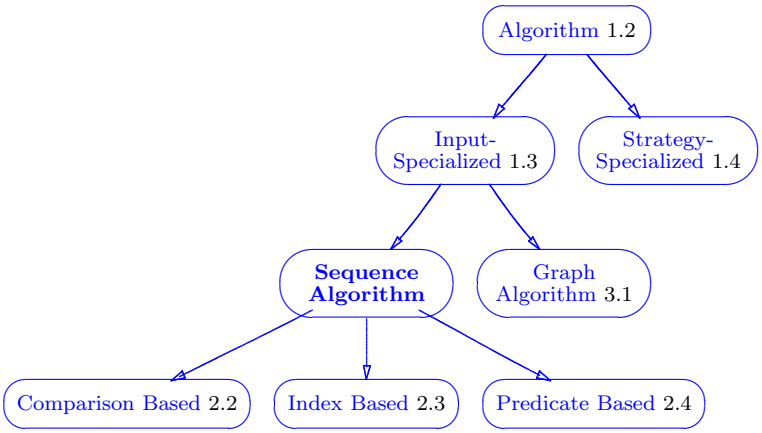
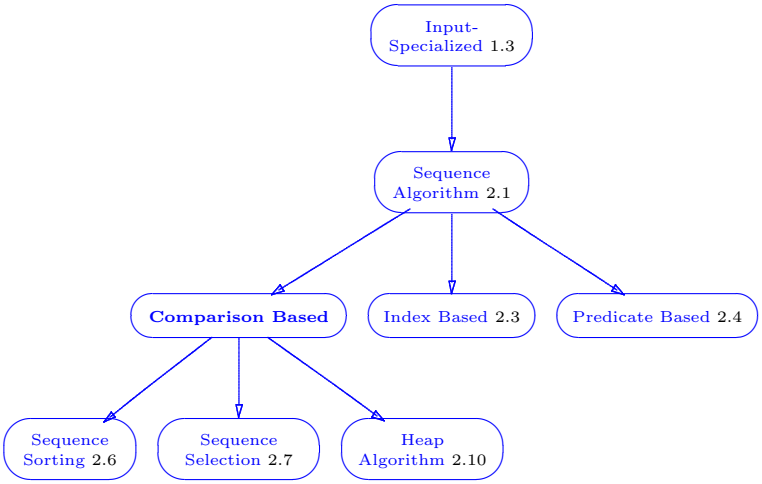
2.1 Sequence Algorithm



A *sequence algorithm* is an algorithm (§1.2) that takes one or more linear sequences as inputs.

Refinement of: Algorithm Specialized by Input (§1.3).

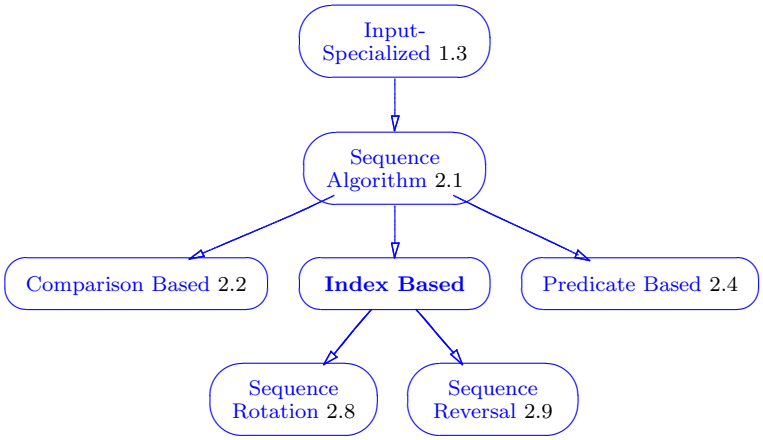
2.2 Comparison Based Sequence Algorithm



A *comparison based sequence algorithm* is a sequence algorithm (§2.1) whose computation depends on comparisons between pair of values in the sequence. Such an algorithm depends upon a *comparison operator*, one that is either previously defined as < or is passed to the algorithm. In either case the comparison operator must compute a Strict Weak Ordering (§5.1) on the value type of the sequence.

Refinement of: Sequence Algorithm (§2.1).

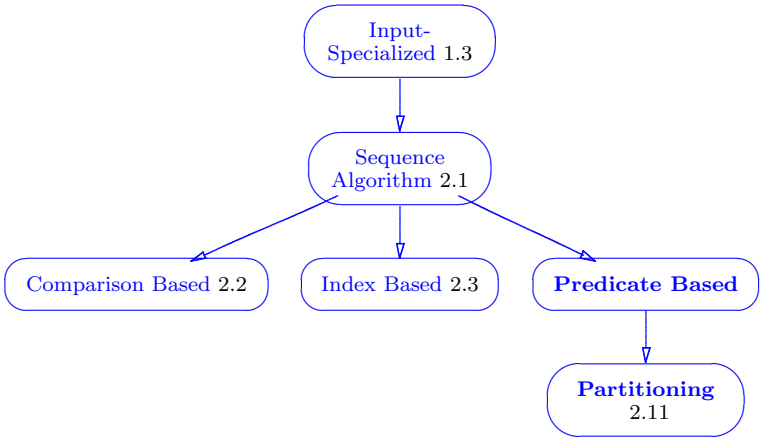
2.3 Index Based Sequence Algorithm



An *index based sequence algorithm* is a sequence algorithm (§2.1) that operates only on the positions within the sequence, independently of the values stored.

Refinement of: Sequence Algorithm (§2.1).

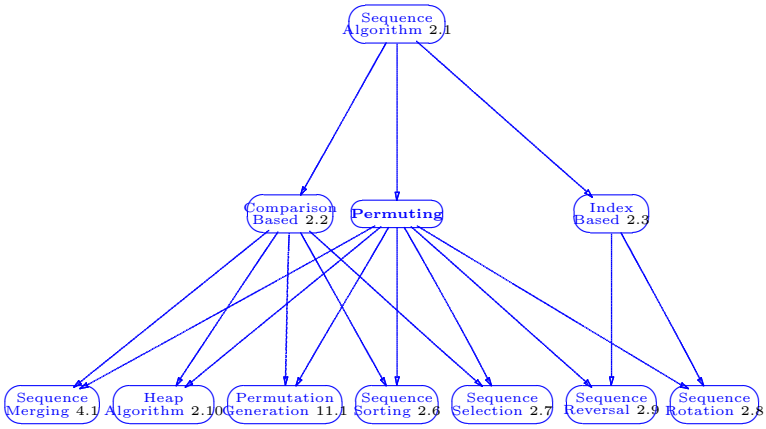
2.4 Predicate Based Sequence Algorithm



A *predicate based sequence algorithm* is a sequence algorithm (§2.1) whose computation depends on the results of applying a given predicate to values in the sequence.

Refinement of: Sequence Algorithm (§2.1).

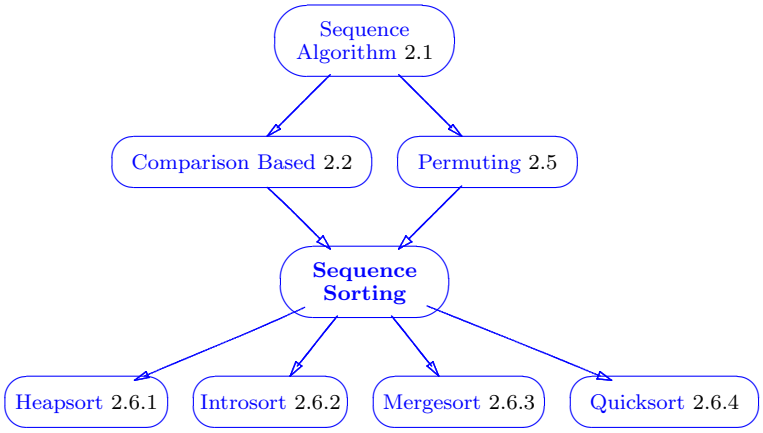
2.5 Sequence Permuting Algorithm



A *sequence permuting algorithm* is a sequence algorithm (§2.1) whose output is a permutation of its input.

Refinement of: Sequence Algorithm (§2.1).

2.6 Sequence Sorting Algorithm



Refinement of: Comparison Based (§2.2), Permuting (§2.5), Sequence Algorithm (§2.1).

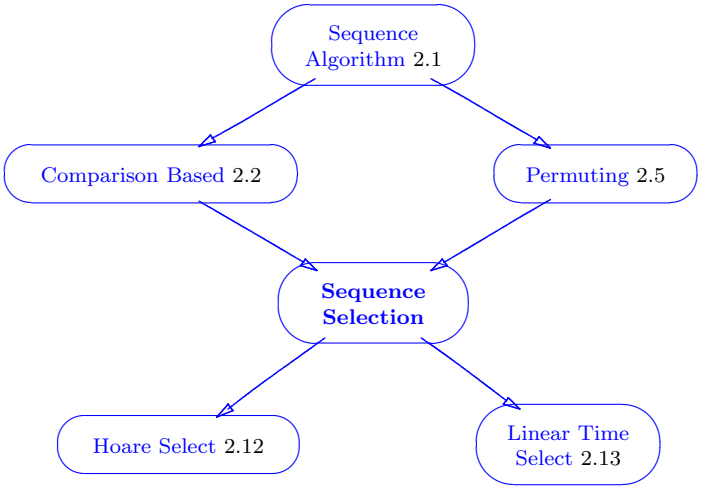
Input: Iterators `first` and `last` delimiting a range of elements `[first, last)`, and optionally a comparison operator (§2.2) `comp`.

Output: A modified sequence of elements in the same range.

Effects:

- After execution, the elements in `[first, last)` are a permutation (§2.5) of the input.
- After execution, the elements in `[first, last)` are in nondecreasing order according to the comparison operator defined on the value type of the sequence or passed to the algorithm as parameter `comp`.

2.7 Sequence Selection Algorithm



Refinement of: Comparison Based (§2.2), Permuting (§2.5), Sequence Algorithm (§2.1).

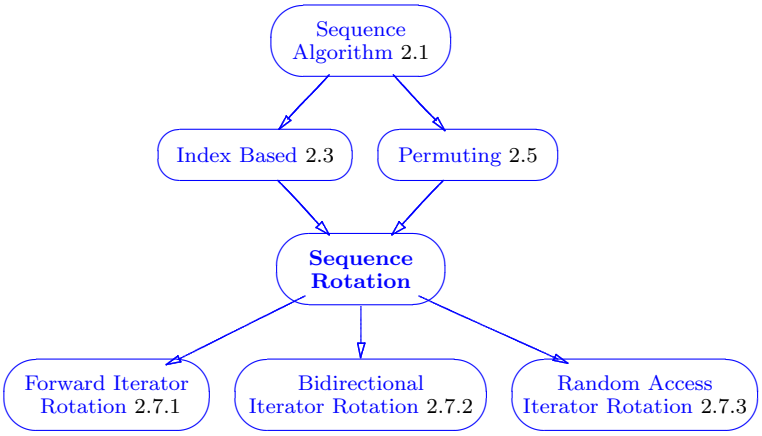
Input: Iterators `first`, `nth` and `last` such that `nth` is in the range `[first, last)`, and optionally a comparison operator (§2.2) `comp`.

Output: A modified sequence of elements in the same range.

Effects:

- After execution, the elements in `[first, last)` are a permutation (§2.5) of the input.
- After execution, the element pointed to by the iterator `nth` is the same as the element that would be in that position if the entire range `[first, last)` had been sorted, and none of the elements in `[nth, last)` are less than any of the elements in the range `first, nth)`.
- The reordering is done according to the comparison operator defined on the value type of the sequence or passed to the algorithm as parameter `comp`.

2.8 Sequence Rotation Algorithm



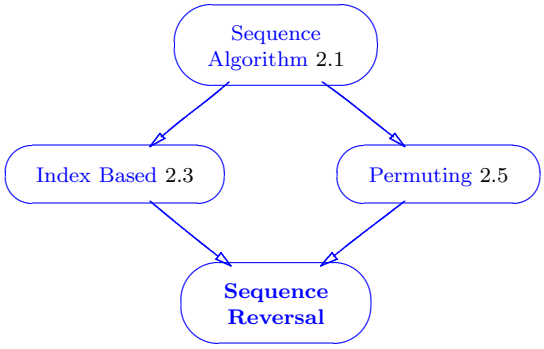
Refinement of: Index Based (§2.3), Permuting (§2.5), Sequence Algorithm (§2.1).

Input: Iterators `first`, `middle`, and `last` such that `first` and `last` delimit a range of elements `[first, last)` and the range `[first, middle)` is a prefix of `[first, last)`.

Output: A modified sequence of elements in the range `[first, last)`.

Effects: After execution, the elements in `[first, last)` are those that were in `[middle, last)` in the input, followed by those that were in `[first, middle)` in the input.

2.9 Sequence Reversal Algorithm



Refinement of: Index Based (§2.3), Permuting (§2.5), Sequence Algorithm (§2.1).

Input: A sequence of elements in a range [first, last).

Output: A modified sequence of elements in the same range.

Effects: After execution, the elements in [first, last) are the same as those in the input, but in the reverse order.