

04-XA

栈与队列

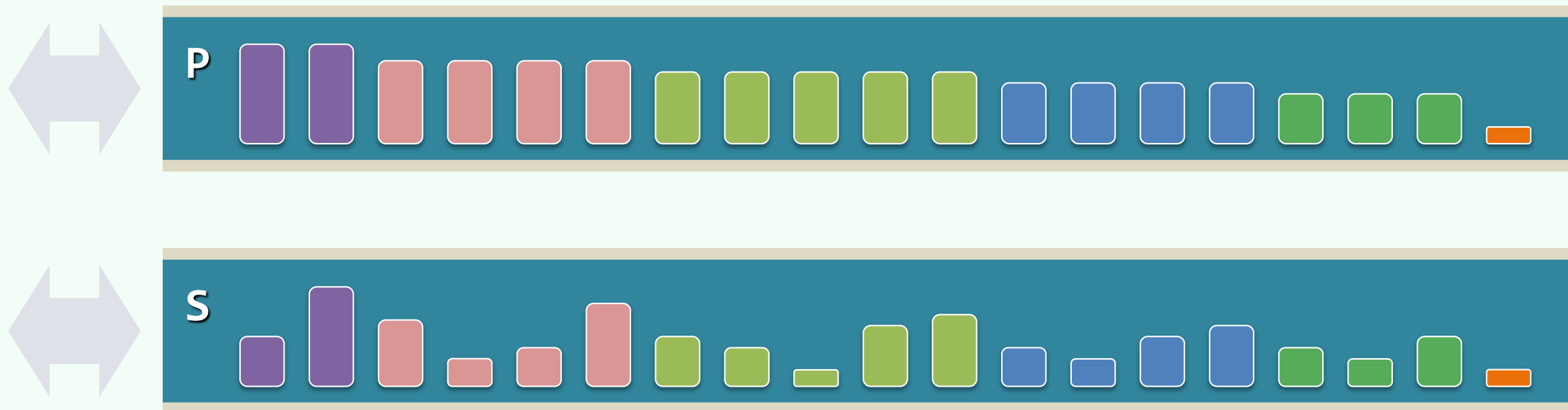
Steap + Queap

A hero is born among a hundred, a wise man is found among a thousand, but an accomplished one might not be found even among a hundred thousand men.

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Steap = Stack + Heap = push + pop + getMax

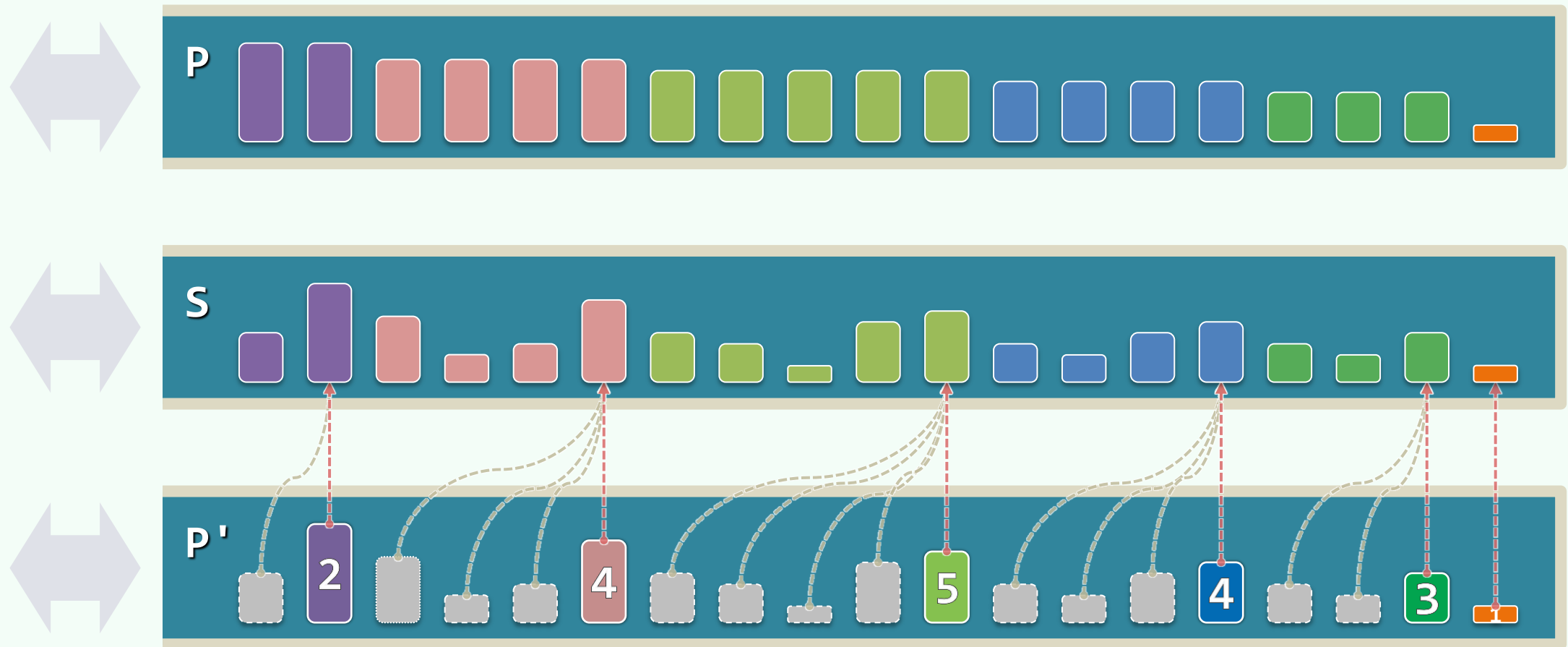


❖ P中每个元素，都是S中对应后缀里的最大者：Steap::getMax() { return P.top(); }

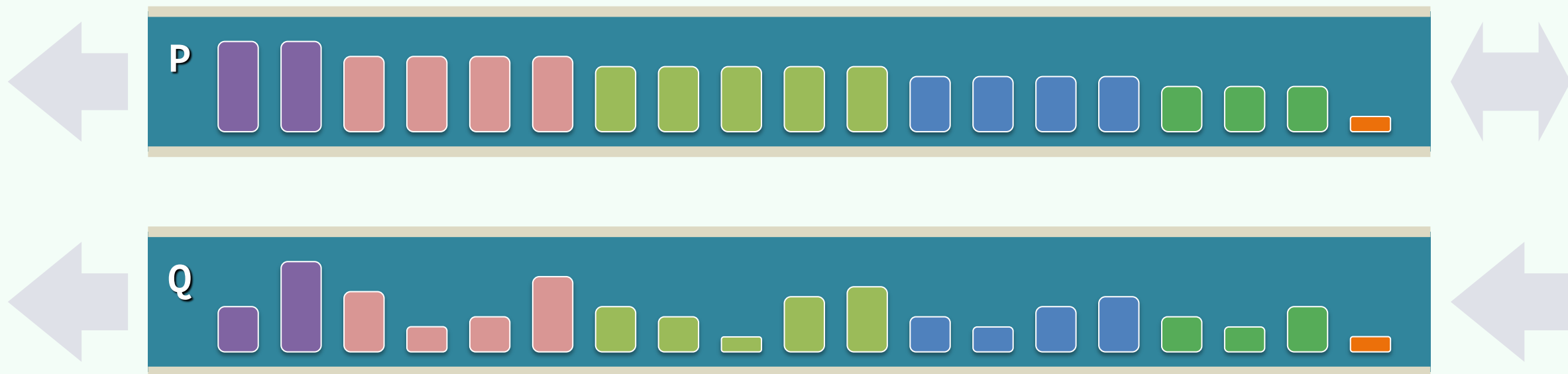
❖ Steap::pop() { P.pop(); return S.pop(); } *//O(1)*

❖ Steap::push(e) { P.push(max(e, P.top())); S.push(e); } *//O(1)*

Steap = Stack + Heap = push + pop + getMax



Queap = Queue + Heap = enqueue + dequeue + getMax



❖ `Queap::dequeue()` { `P.dequeue()`; `return Q.dequeue()`; } *//O(1)*

❖ `Queap::enqueue(e)` {

`Q.enqueue(e)`; `P.enqueue(e)`;

 for (`x = P.rear()`; `x && (x->key <= e)`; `x = x->pred`) *//最坏情况O(n)*

`x->key = e`;

}

Queap = Queue + Heap = enqueue + dequeue + getMax

