

θ 4.K

栈与队列

Steap + Queap

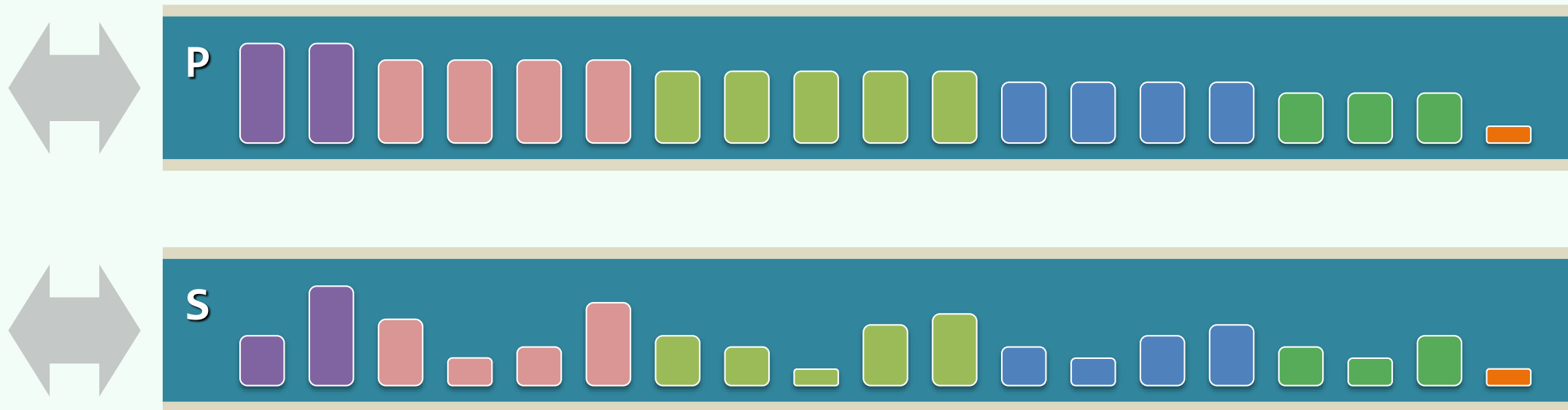
A hero is born among a hundred, a wise man is found among a thousand, but an accomplished one might not be found even among a hundred thousand men.

邓俊辉

deng@tsinghua.edu.cn

Steap = Stack + Heap = push + pop + getMax

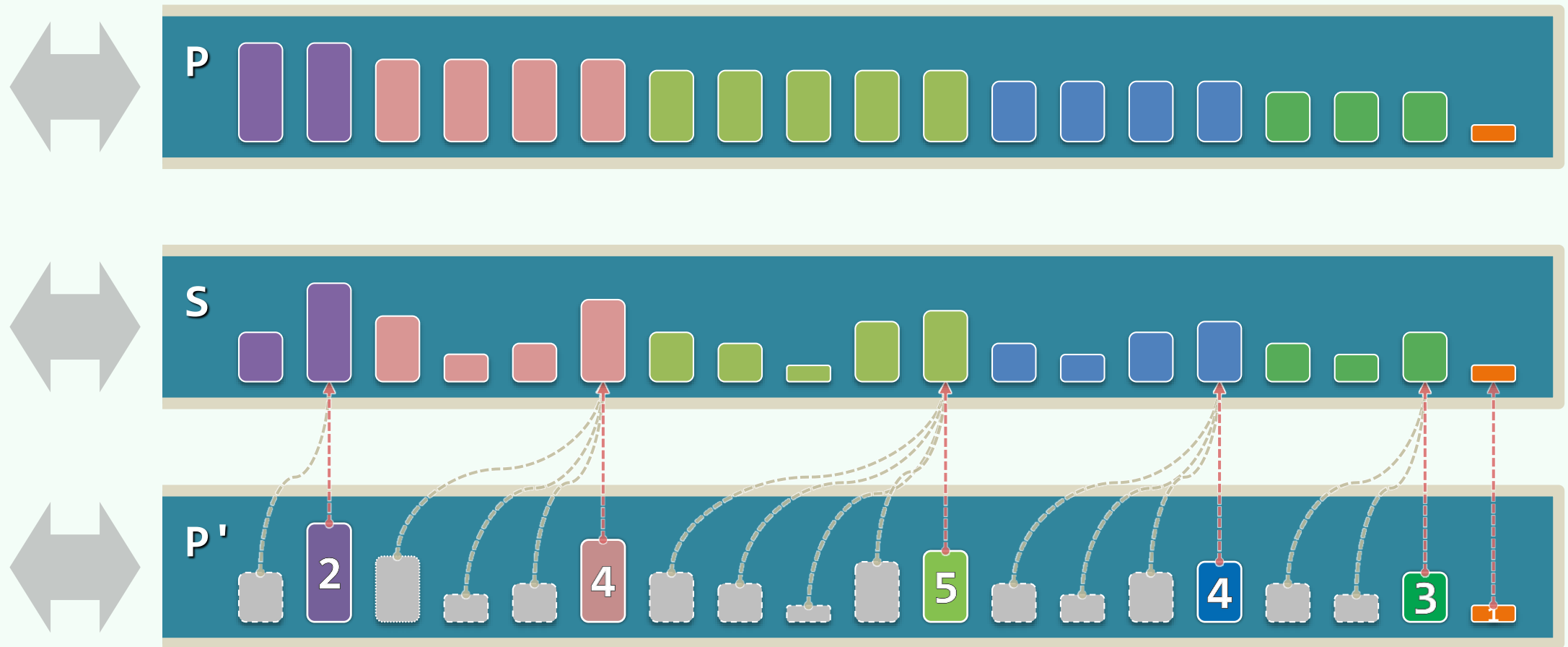
❖ P中每个元素，都是S中对应**后缀里的最大者** : `Steap::getMax() { return P.top(); }`



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

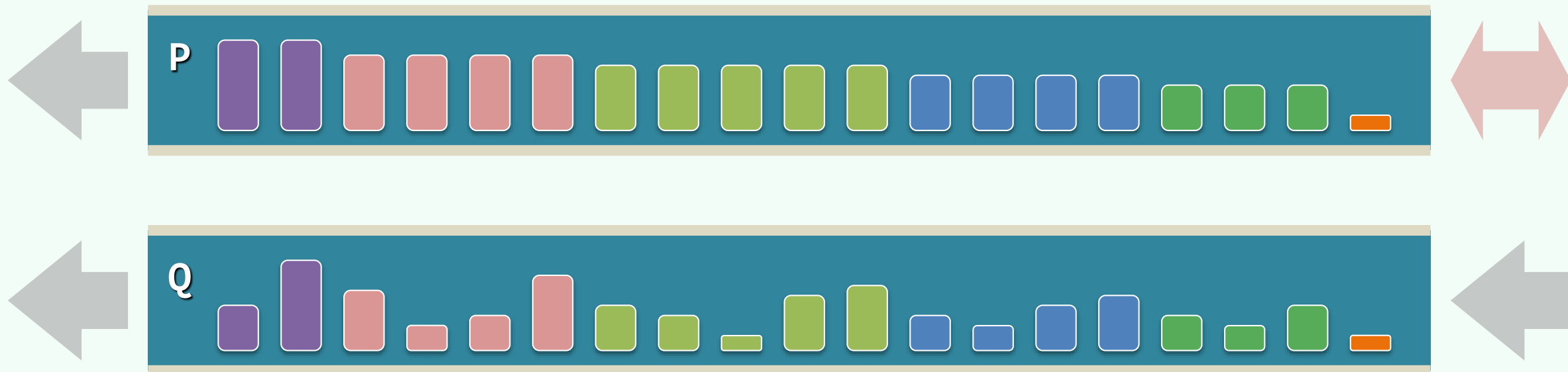
❖ `Steap::push(e)` { `P.push(max(e, P.top()))`; `S.push(e)`; } *//O(1)*

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

