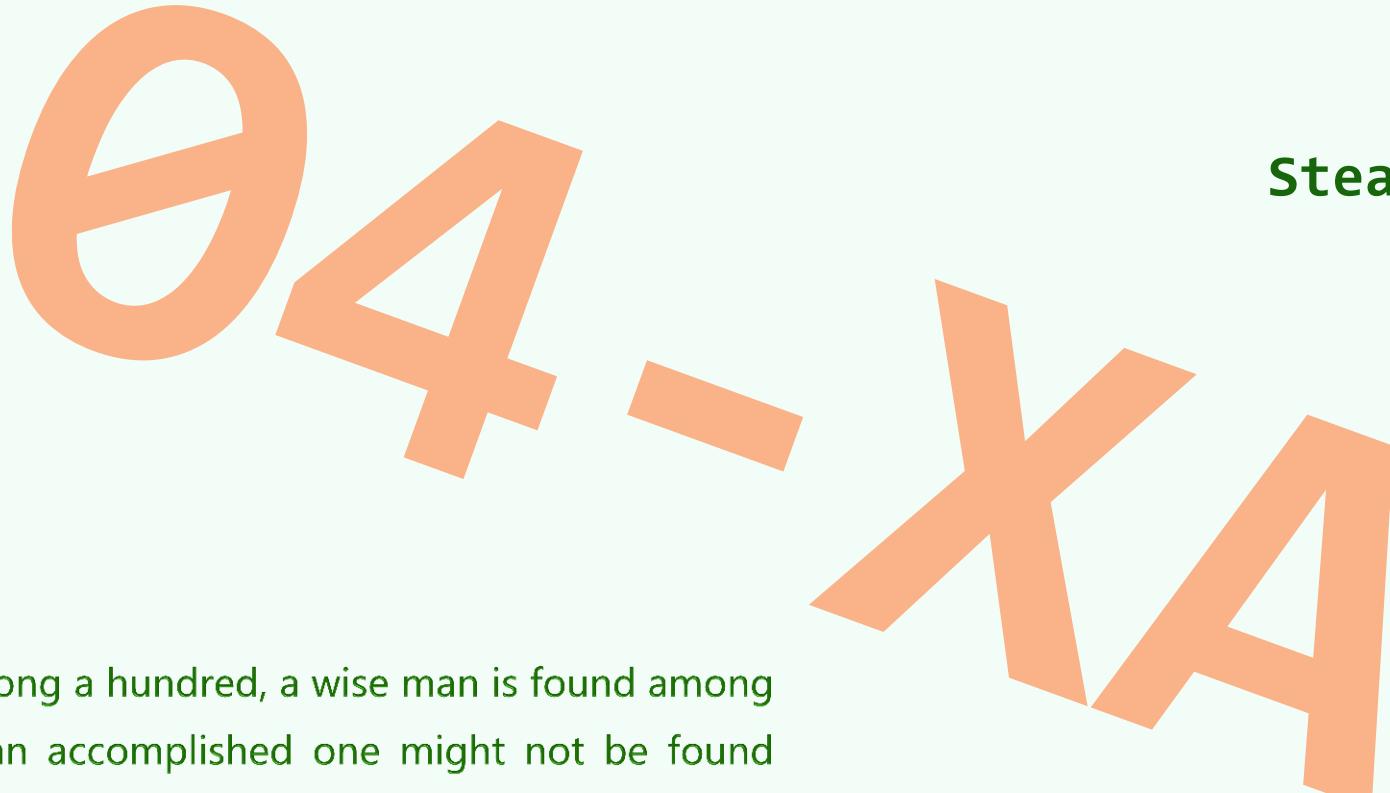


栈与队列

Stead + Queap

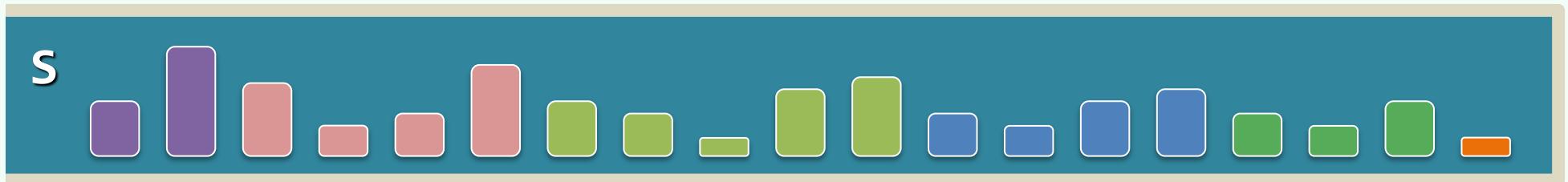
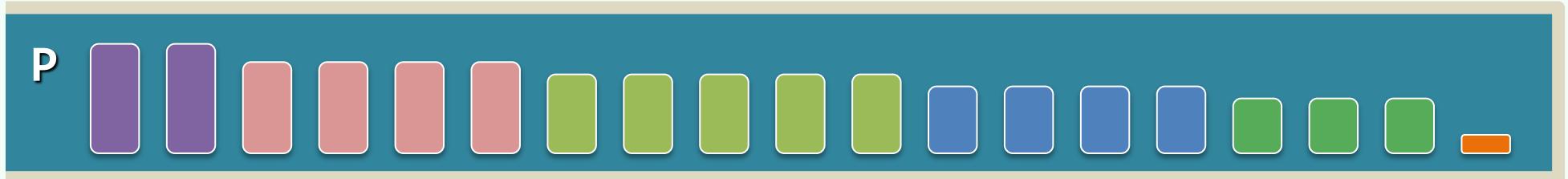


A hero is born among a hundred, a wise man is found among a thousand, but an accomplished one might not be found even among a hundred thousand men.

邓俊辉

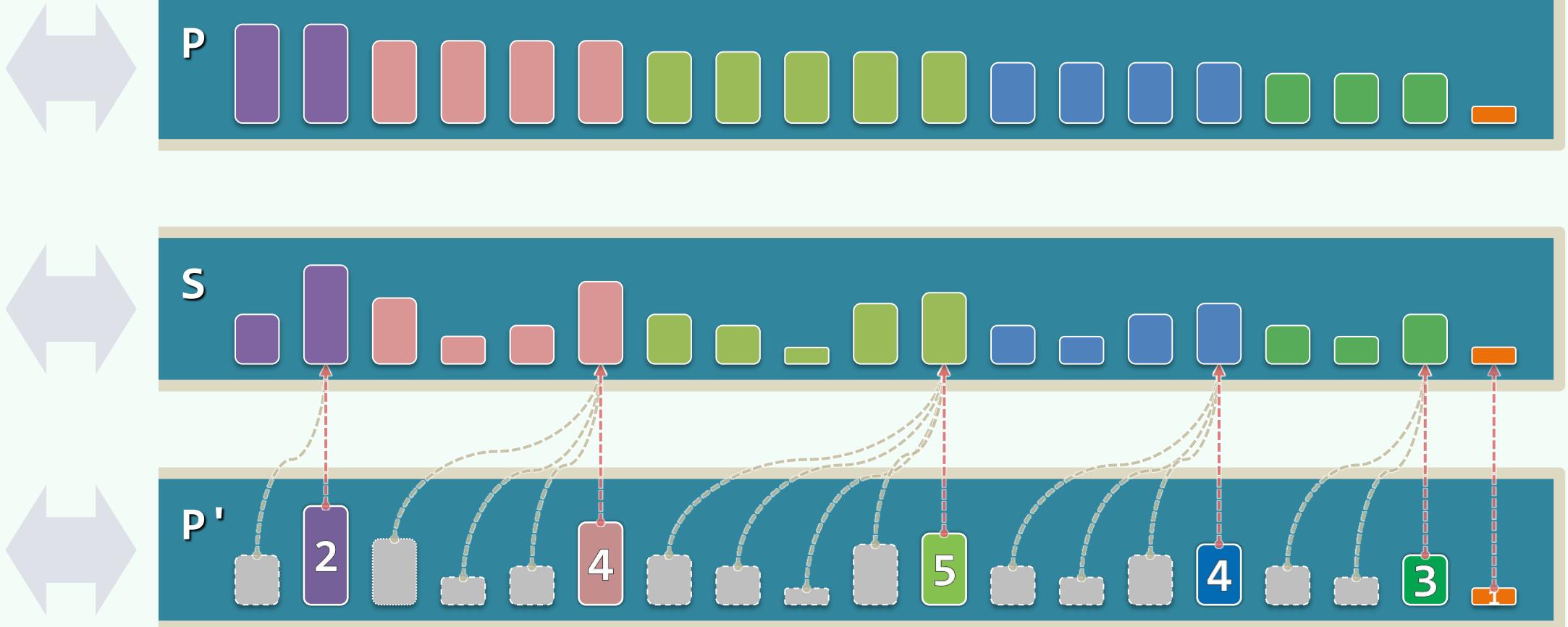
deng@tsinghua.edu.cn

Steap = Stack + Heap = push + pop + getMax

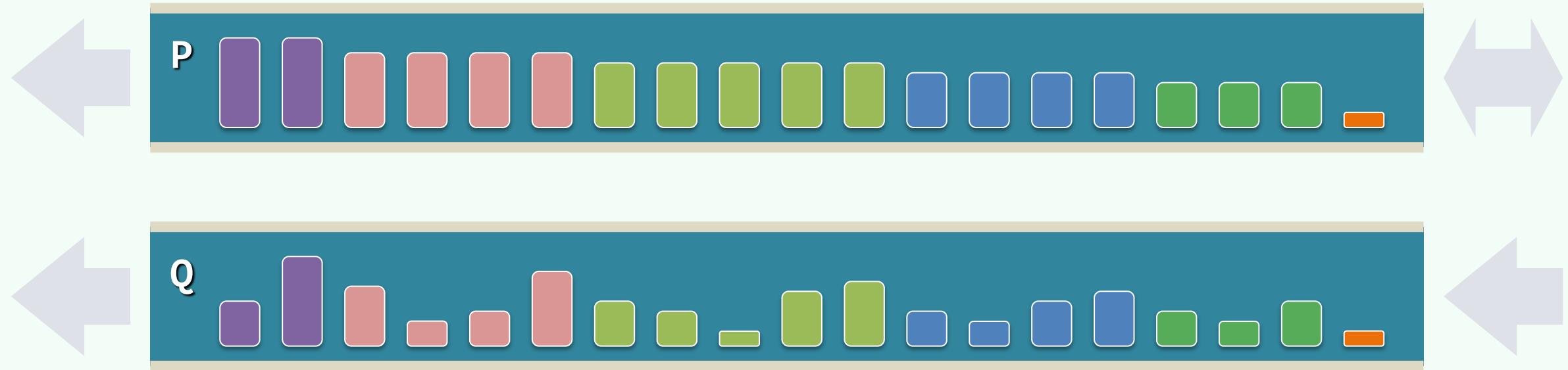


- ❖ P中每个元素，都是S中对应后缀里的最大者：`Steap::getMax() { return P.top(); }`
- ❖ `Steap::pop() { P.pop(); return S.pop(); } //O(1)`
- ❖ `Steap::push(e) { P.push(max(e, P.top())); S.push(e); } //O(1)`

Steady = 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

