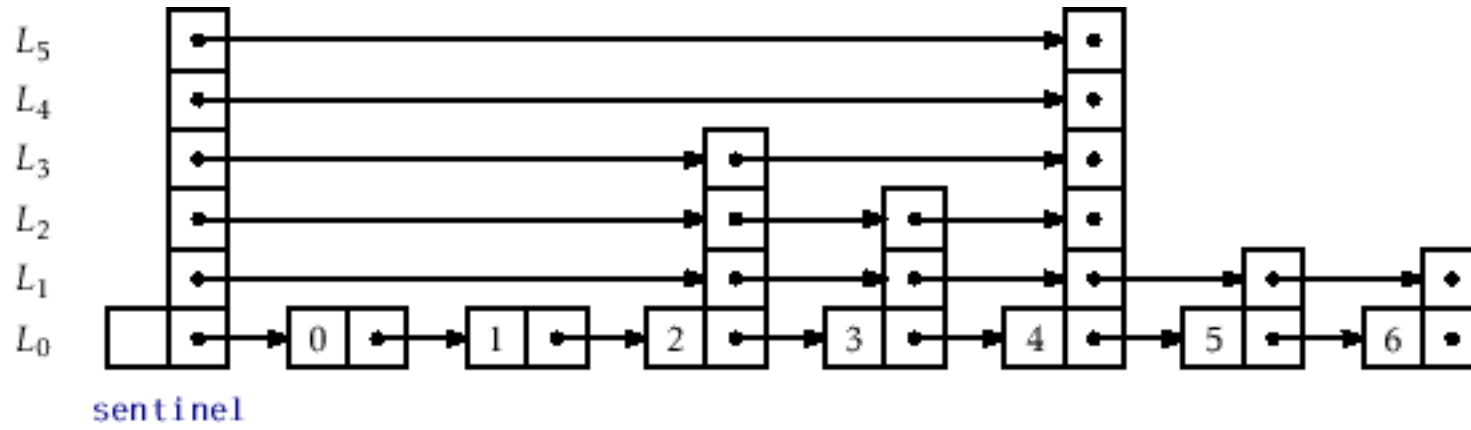
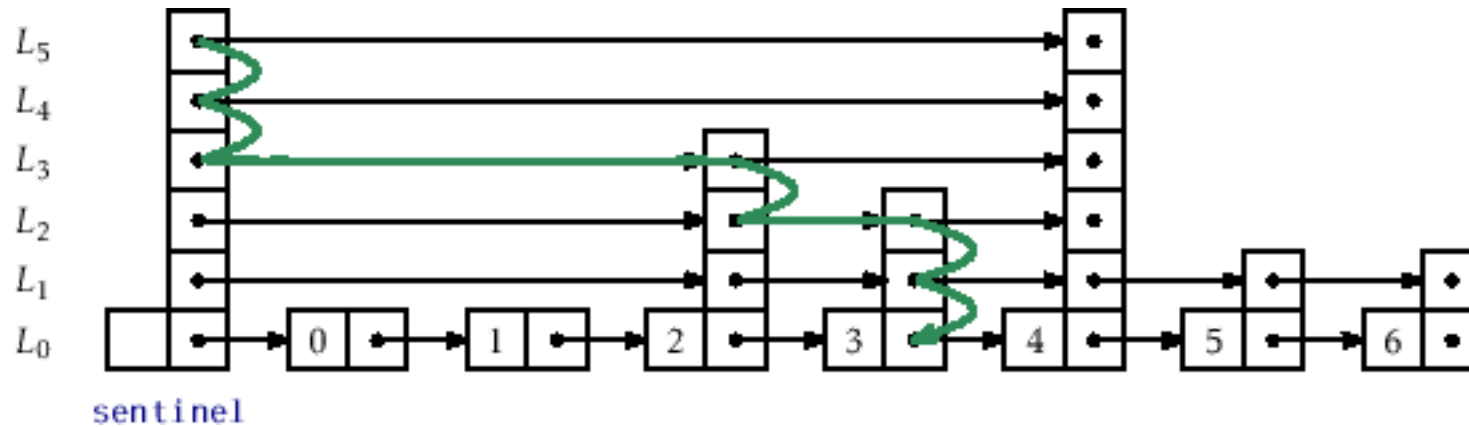


Skiplist

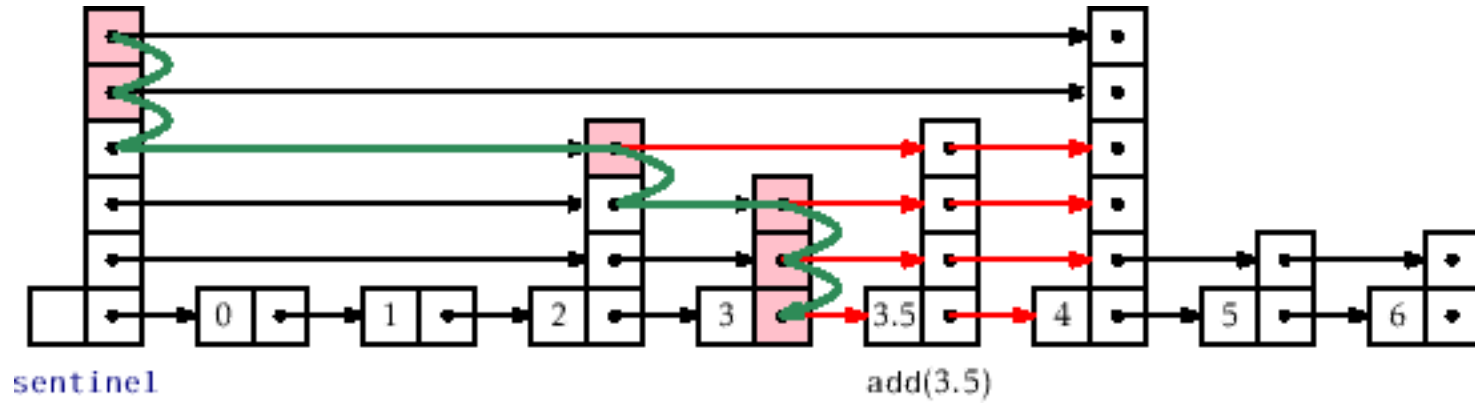


Skiplist: find



```
findPredNode(x): // find node with largest value < x
    u = sentinel
    r = height; // height of sentinel
    while r >= 0:
        while u.next[r] && u.next[r].value < x:
            u = u.next[r]; // move right on r-th level
        r--
    return u
```

Skiplist: $\text{add}(x)$



Treap (tree+heap)

