

03-C1

列表

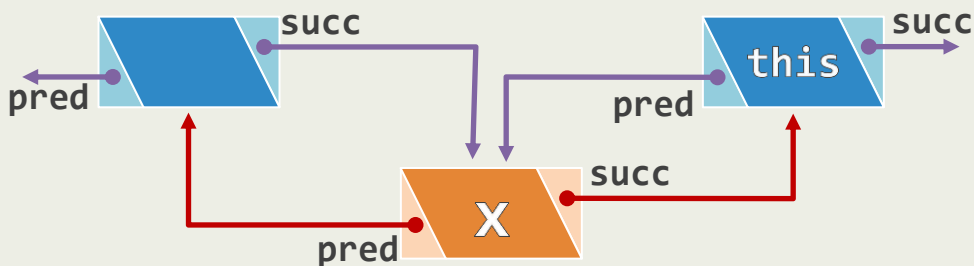
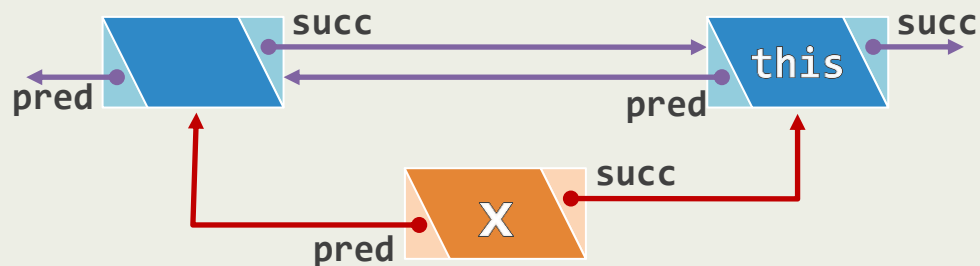
无序列表：插入与删除

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## 插入：思路 + 过程

```
❖ template <typename T> Posi(T) List<T>::insertB( Posi(T) p, T const & e )  
{  _size++; return p->insertAsPred( e ); } //e当作p的前驱插入 ( Before )
```



# 插入：实现

❖ template <typename T> //前插入算法（后插入算法完全对称）

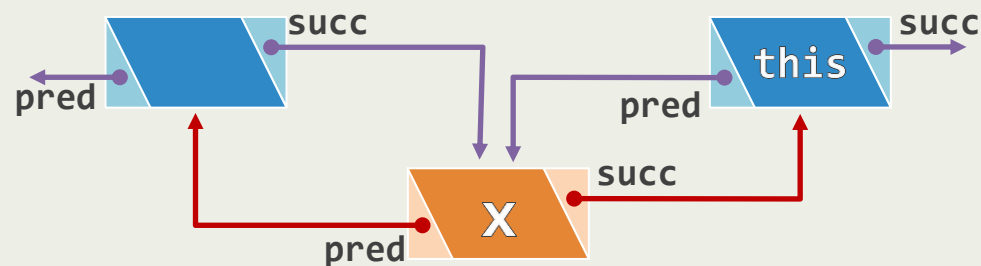
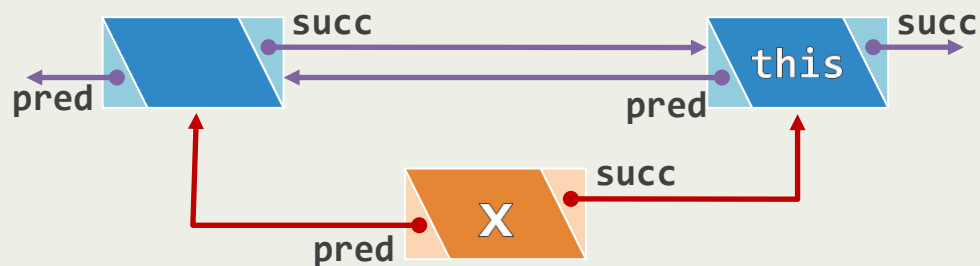
```
Posi(T) ListNode<T>::insertAsPred( T const & e ) { //O(1)
```

```
    Posi(T) x = new ListNode( e, pred, this ); //创建（耗时100倍）
```

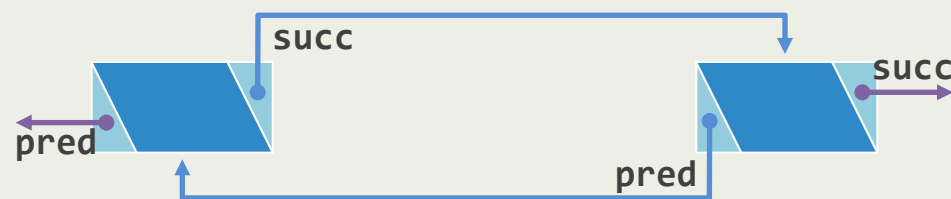
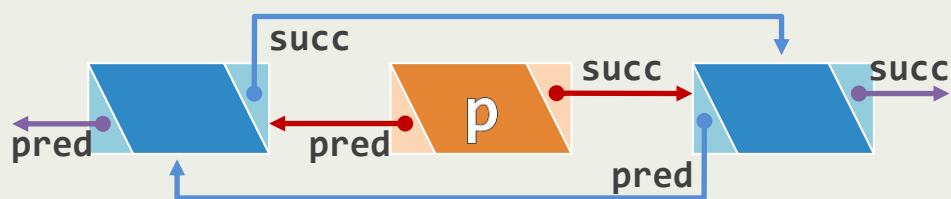
```
    pred->succ = x; pred = x; //次序不可颠倒
```

```
    return x; //建立链接，返回新节点的位置
```

```
} //得益于哨兵，即便this为首节点亦不必特殊处理——此时等效于insertAsFirst(e)
```



## 删除：思路 + 过程



# 删除：实现

❖ template <typename T> //删除合法位置p处节点，返回其数值

```
T List<T>::remove( Posi(T) p ) { //O(1)
```

```
    T e = p->data; //备份待删除节点数值（设类型T可直接赋值）
```

```
    p->pred->succ = p->succ;
```

```
    p->succ->pred = p->pred;
```

```
    delete p; _size--; return e; //返回备份数值
```

```
}
```

