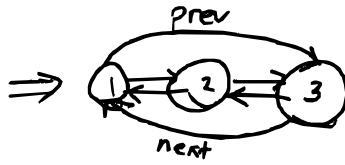
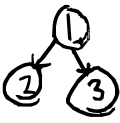


## BST to DLL:

1: 45pm

left  $\rightarrow$  prev  
right  $\rightarrow$  next



1. left/prev = 2  $\longrightarrow$  1. left/prev = 3  
1. right/next = 3  $\longrightarrow$  1. right/next = 2  
null  $\longrightarrow$  2. left/prev = 1  
null  $\longrightarrow$  2. right/next = 3  
null  $\longrightarrow$  3. left/prev = 2  
null  $\longrightarrow$  3. right/next = 1

order of DLL  
(in-order)

node + node.left + node.right

node.left  $\rightarrow$  BST to DLL (node.right)  
node.right  $\rightarrow$  BST to DLL (node.left)  
if Leaf (node):

```
def BSTtoDLL (node, first_ptr, last_ptr)  $\rightarrow$  None:
    if not node:
        return
    BSTtoDLL (node.left)
    if last_ptr.value:
        last_ptr.value.right = node
        node.right = last_ptr.value
    else:
        # no last (first elem)
        first_ptr.value = node
        last_ptr.value = node
    BSTtoDLL (node.right)
```

```
def solution (node: Node or None)  $\rightarrow$  Opt [None]:
    if not node:
        return None
    first_ptr, last_ptr = ...
    BSTtoDLL (node, ...)
    last.right = first
    first.left = last
    return first
```