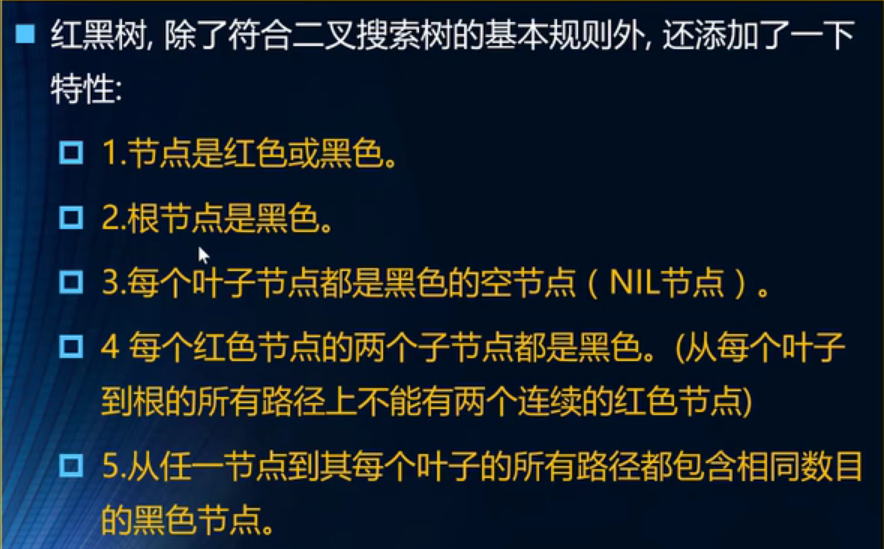
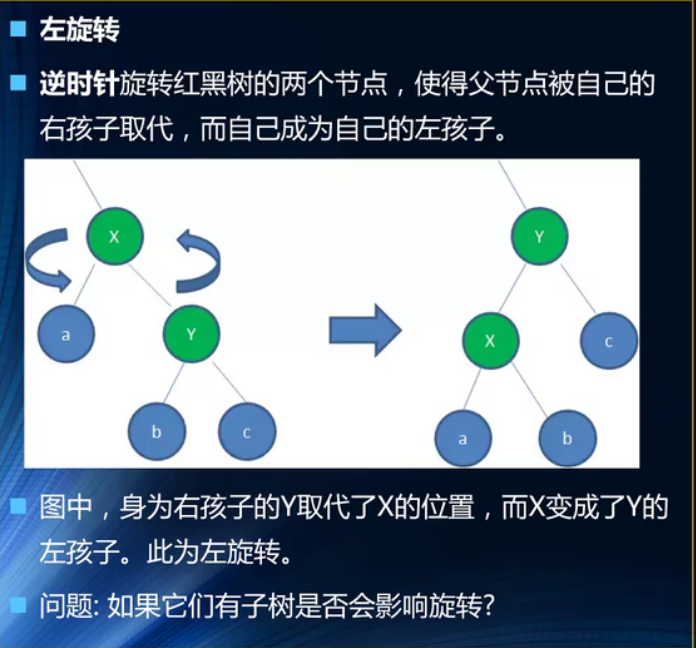


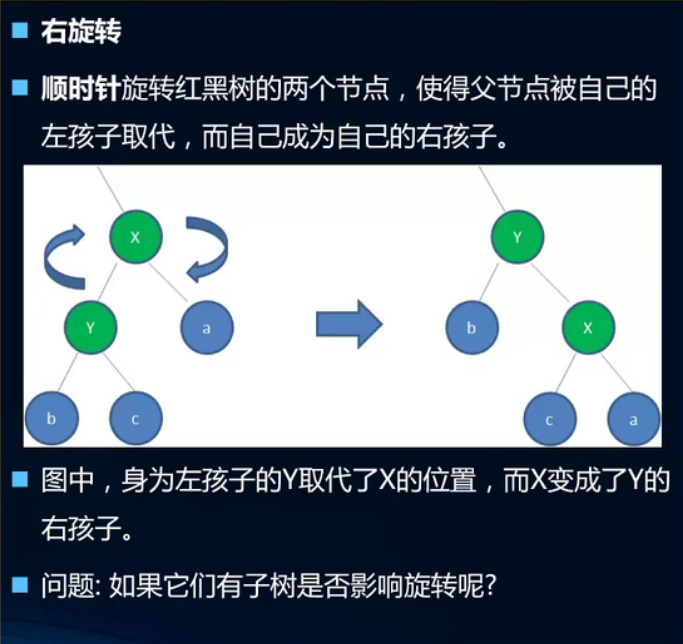
**红黑树规则**

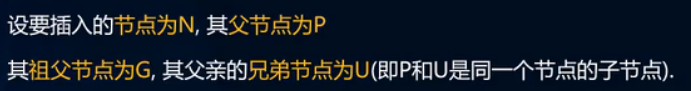


**左旋转**



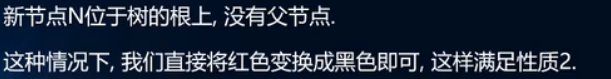
**右旋转**



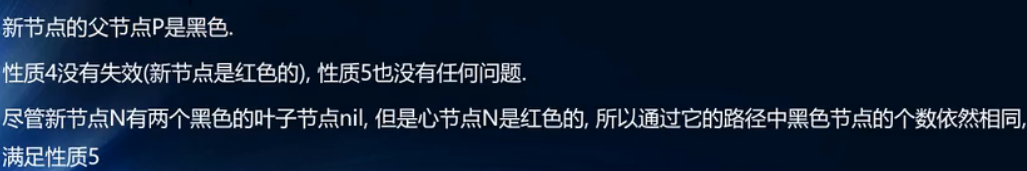


*插入时统一插入默认为红色的节点*

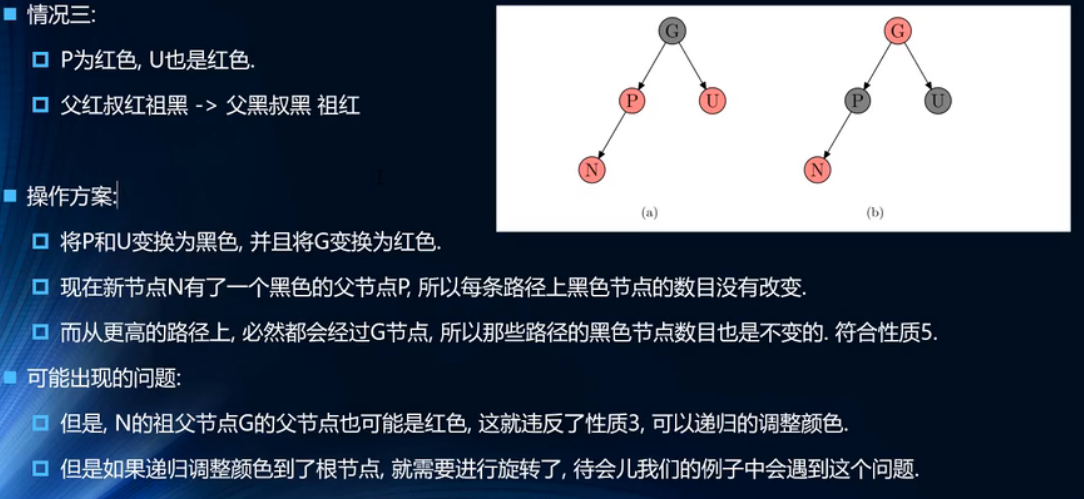
**情况一**



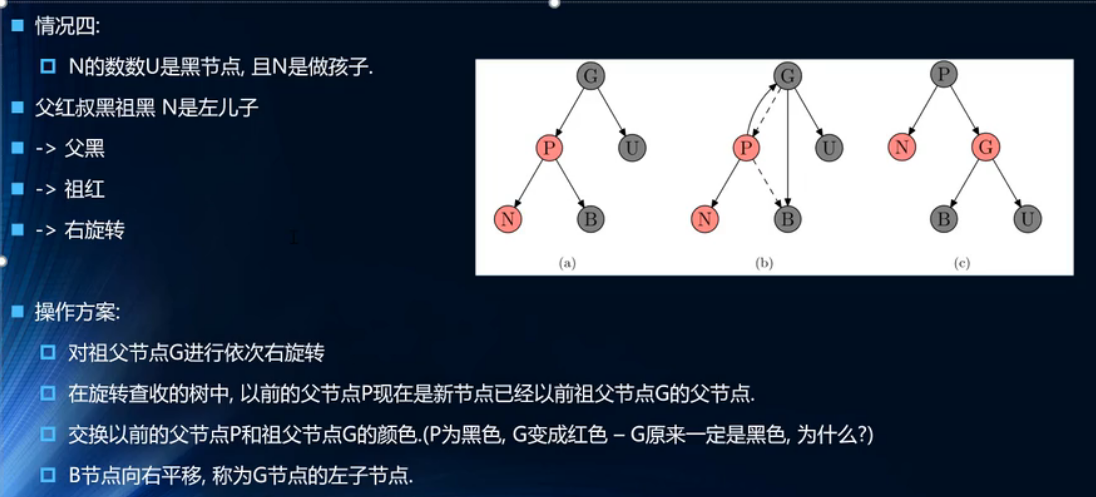
**情况二**



**情况三**



**情况四**



**情况五**

