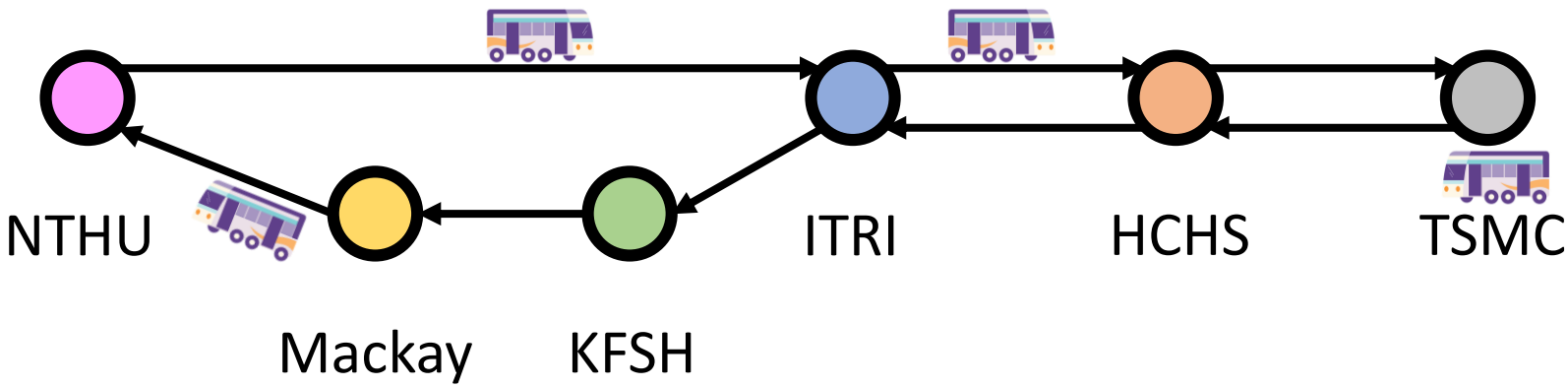
Bus Route Editor

Supporting the Reverse Operation

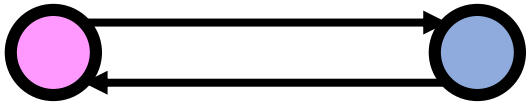
EECS Data Structures, HW3, 2019 Spring

https://acm.cs.nthu.edu.tw/problem/12212/



Bus Route Editing Operations

- **INSERT** (src, dst, new, method)
  - src: the name of the source bus stop
  - dst: the name of the destination bus stop, which is next to the src stop
  - new: the name of the newly added bus stop
  - method:
    - 1: insert the new stop in between **src→dst**
    - 2: In addition to **src→dst**, also insert the same stop in between **dst→src** **if appropriate**
- **DELETE** (name)
  - Delete the named bus stop
- **REVERSE** ()
  - Reverse the entire route

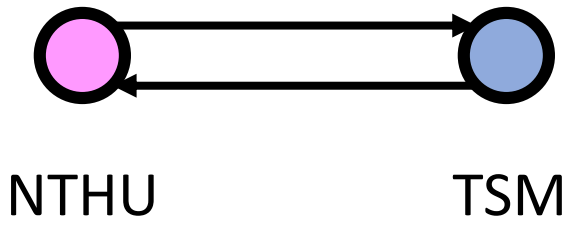


NTHU TSMC

src, dst, new, method

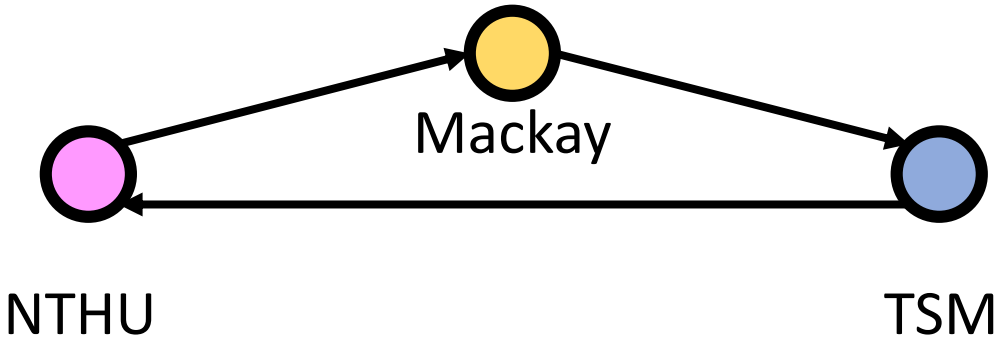
Insert (NTHU, TSMC, Mackay, 2)
or
Insert (TSMC, NTHU, Mackay, 2)

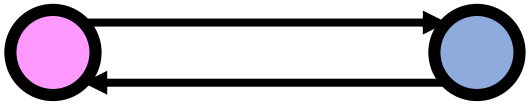
NTHU Mackay TSMC



src, dst, new, method

Insert (NTHU, TSMC, Mackay, 1)

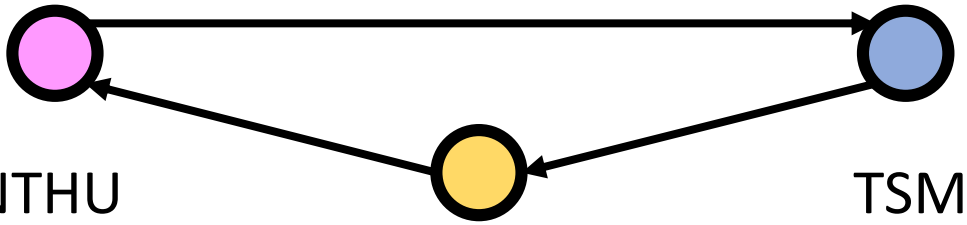




NTHU TSMC

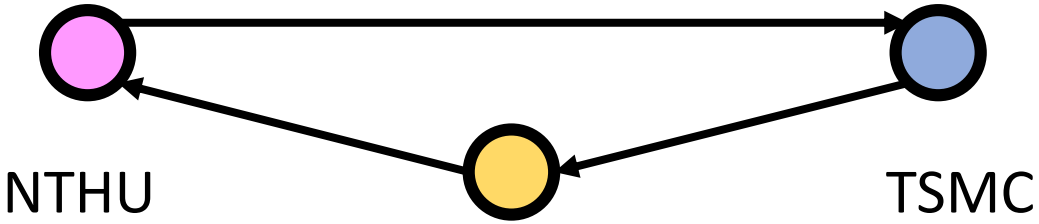
src, dst, new, method

Insert (TSMC, NTHU, Mackay, 1)



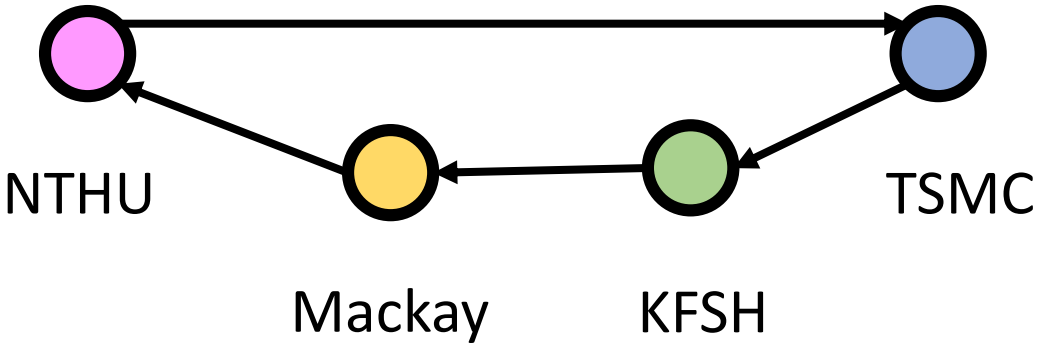
NTHU TSMC

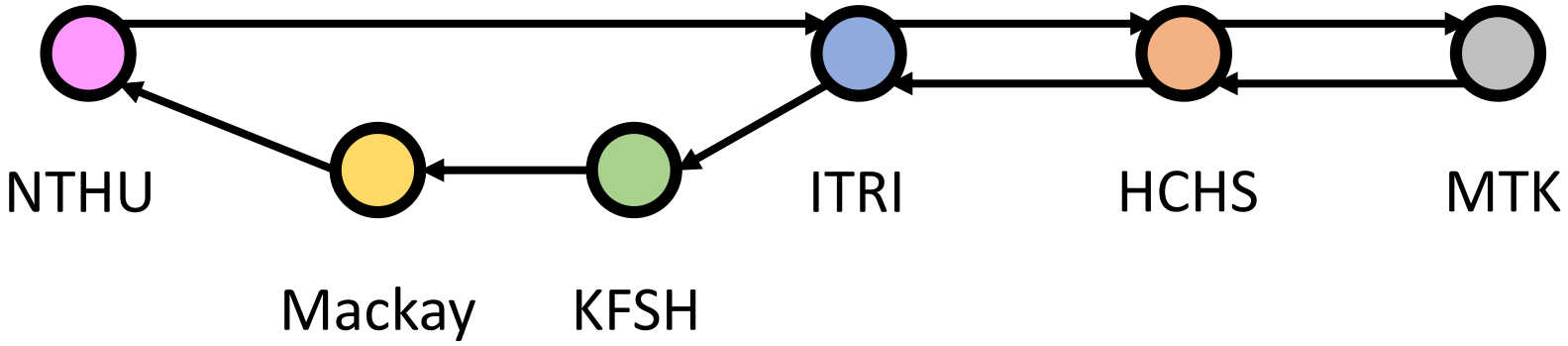
Mackay



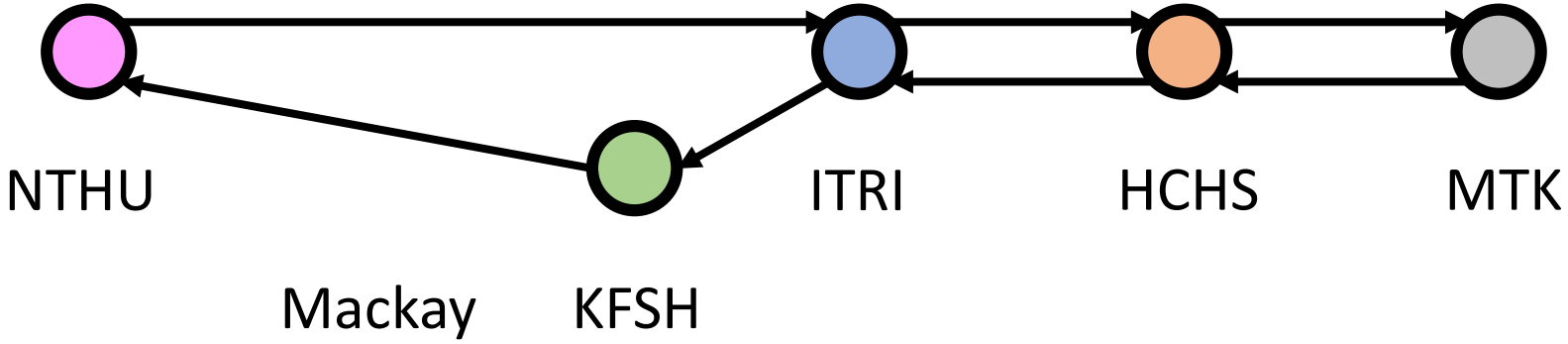
src, dst, new, method

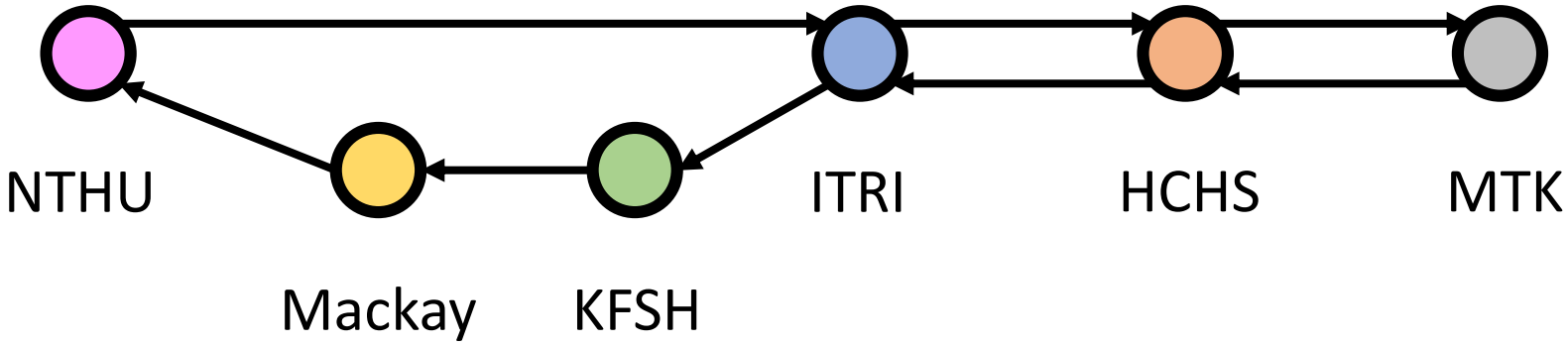
Insert (TSMC, Mackay, KFSH, 1)
or
Insert (TSMC, Mackay, KFSH, 2)



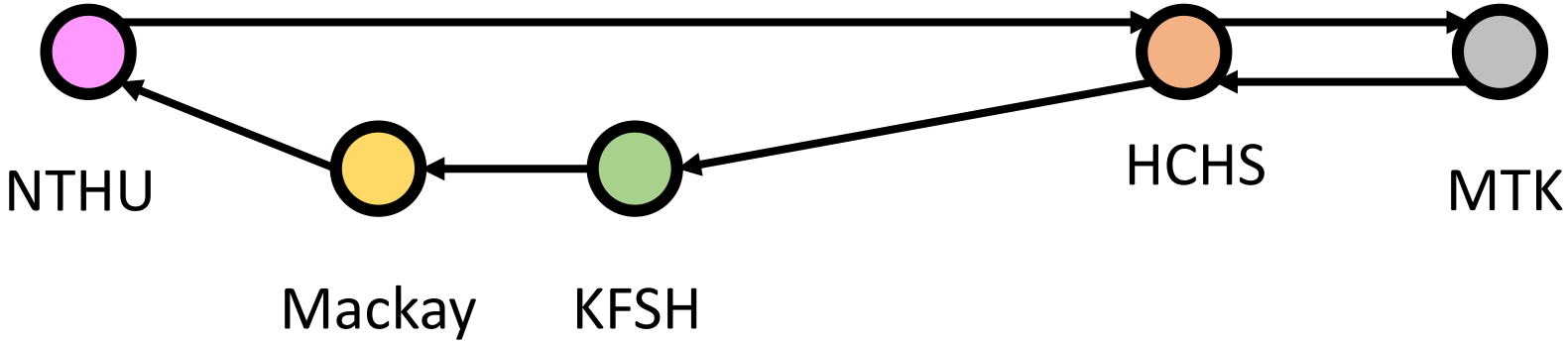


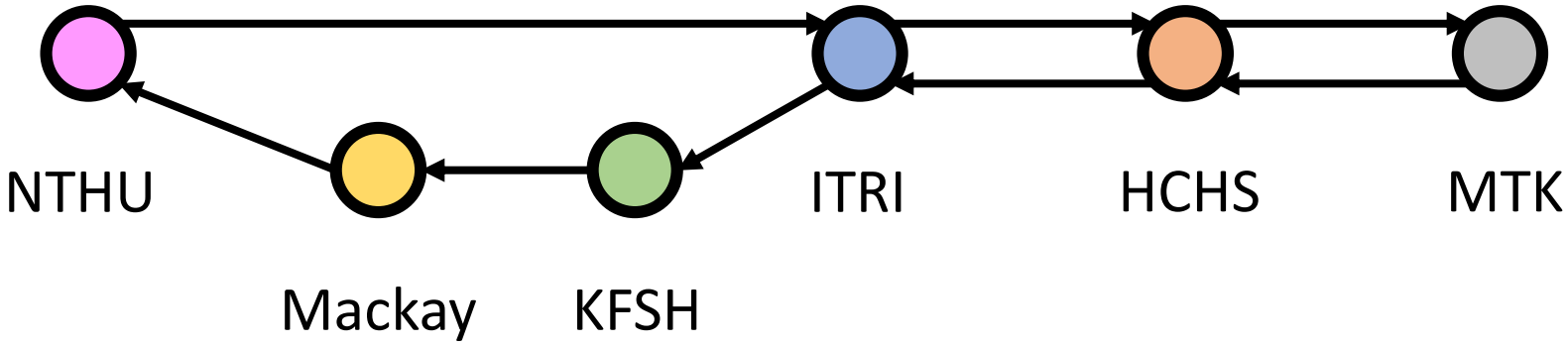
Delete (Mackay)



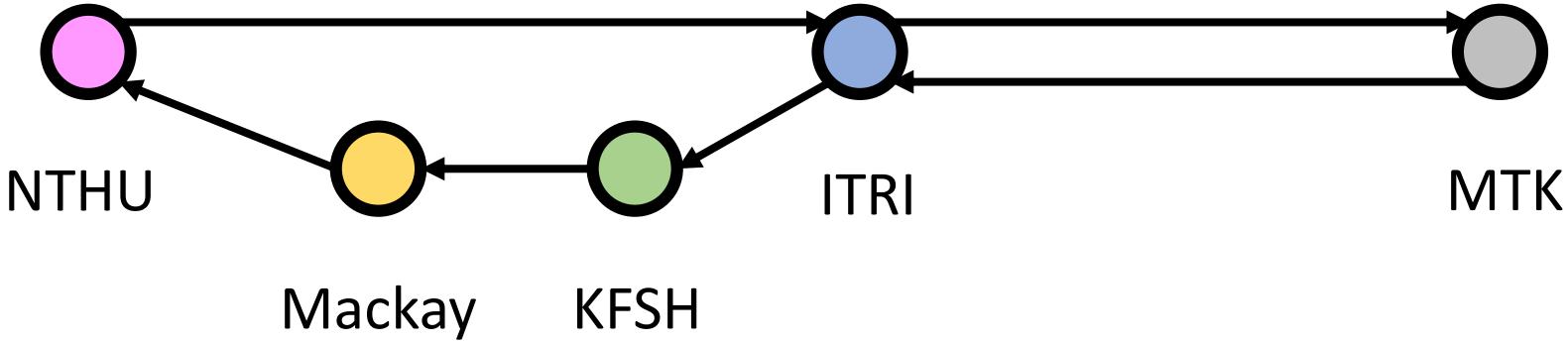


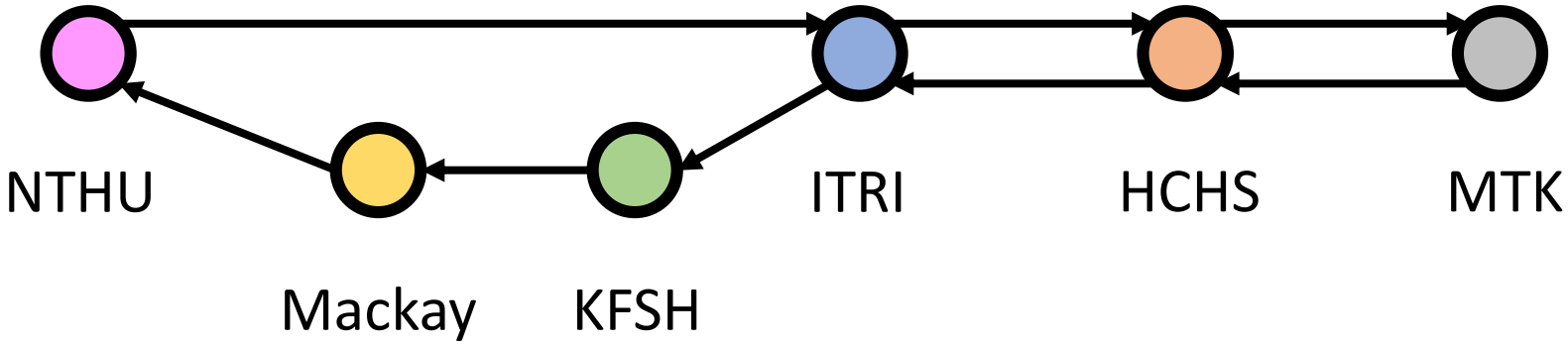
Delete (ITRI)



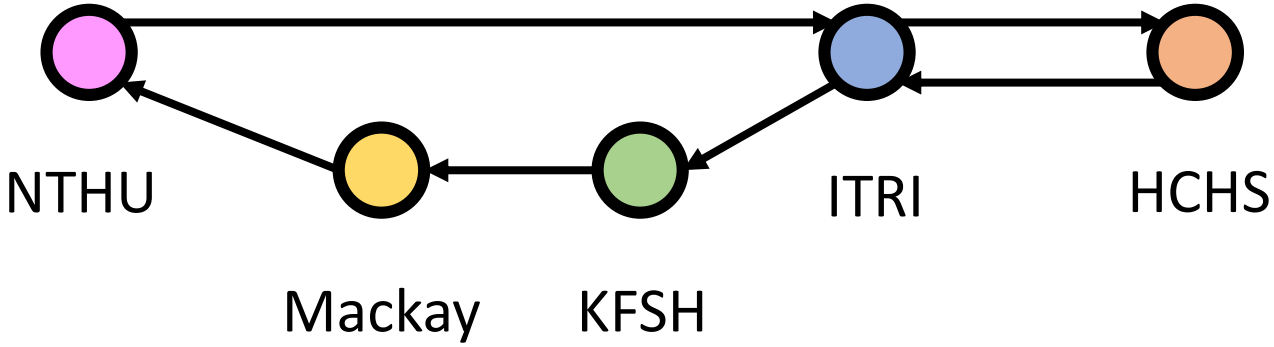


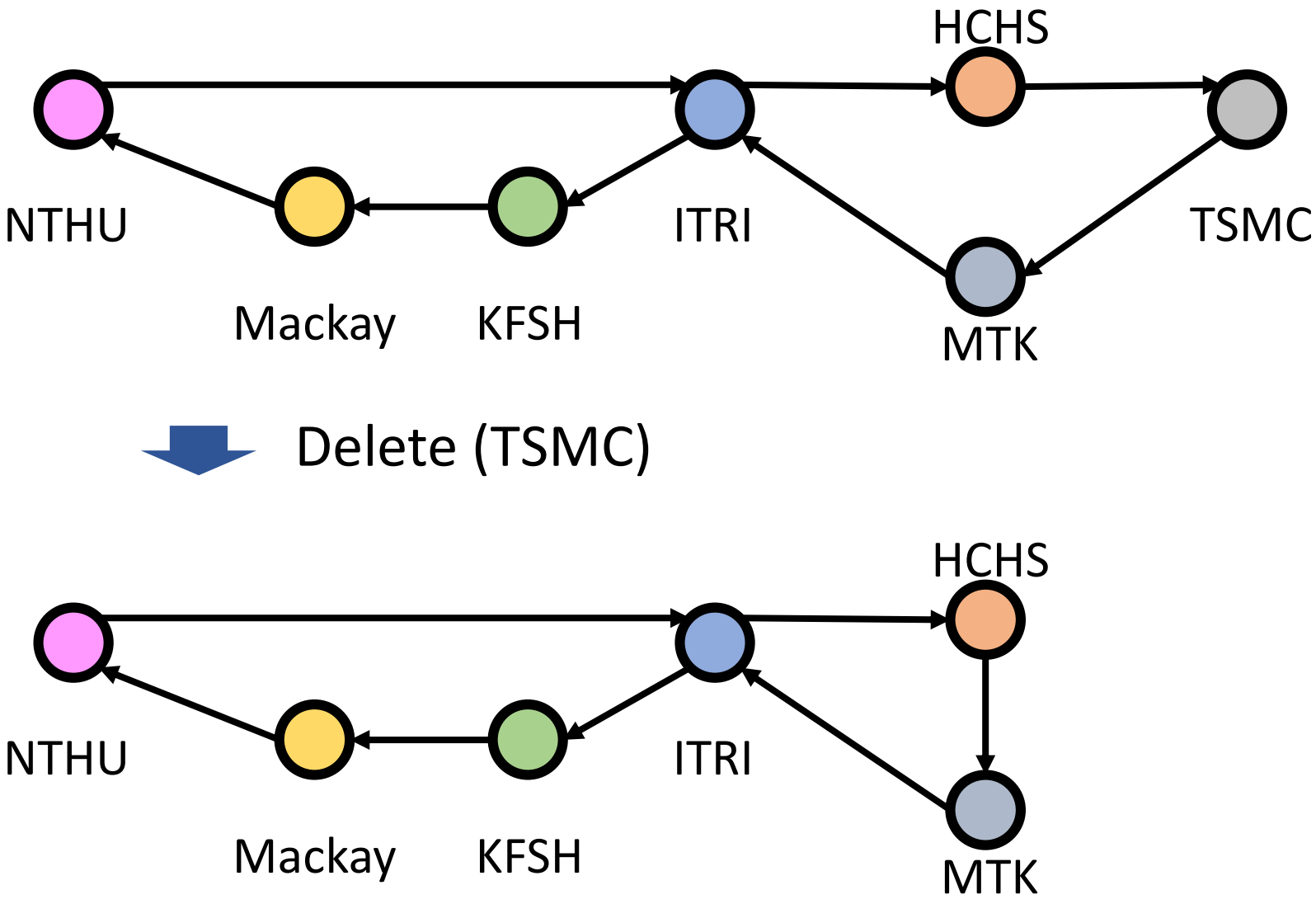
Delete (HCHS)

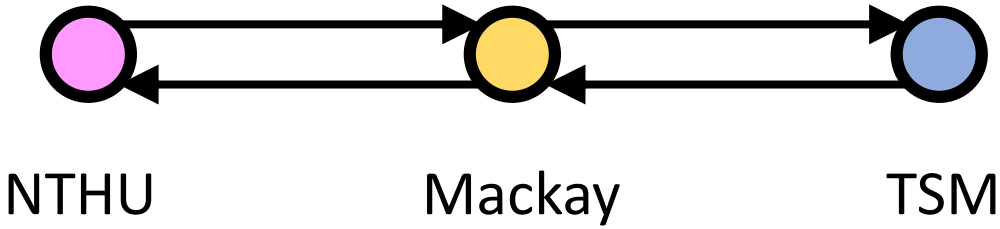




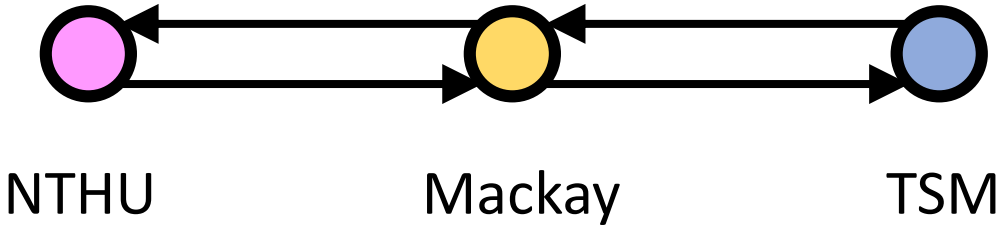
Delete (MTK)

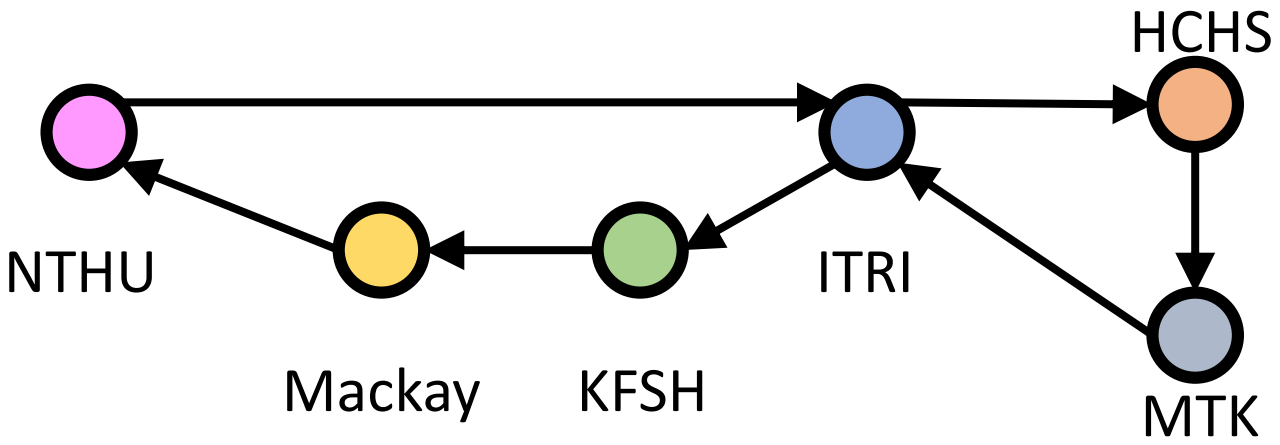



HCHS
NTHU
ITRI
TSMC
Mackay
KFSH
MTK
Delete (TSMC)
HCHS
NTHU
ITRI
Mackay
KFSH
MTK

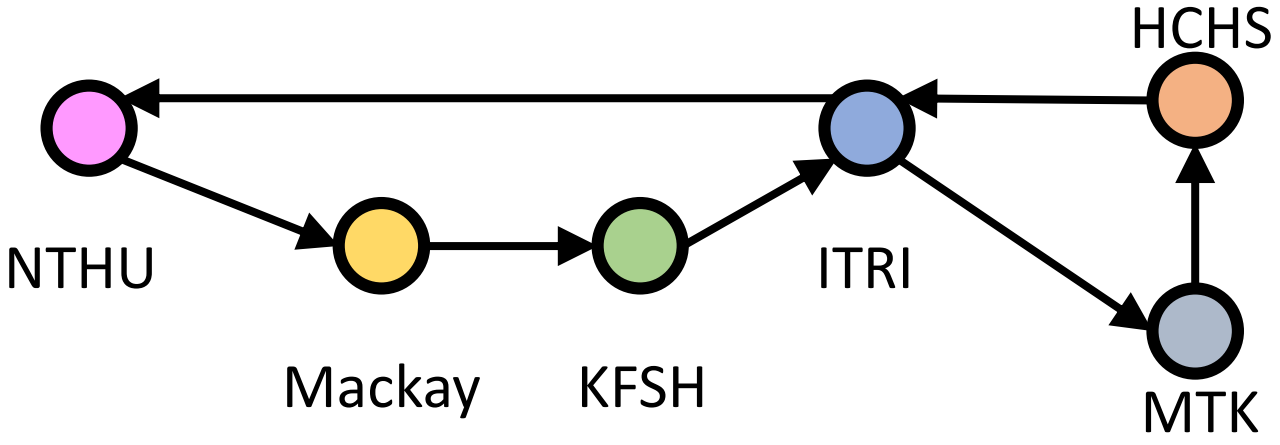


Reverse ()




HCHS
NTHU
ITRI
Mackay
KFSH
MTK

Reverse ()


HCHS
NTHU
ITRI
Mackay
KFSH
MTK

Other Notes

- The bus route contains NTHU and TSMC in the beginning
- NTHU is never deleted

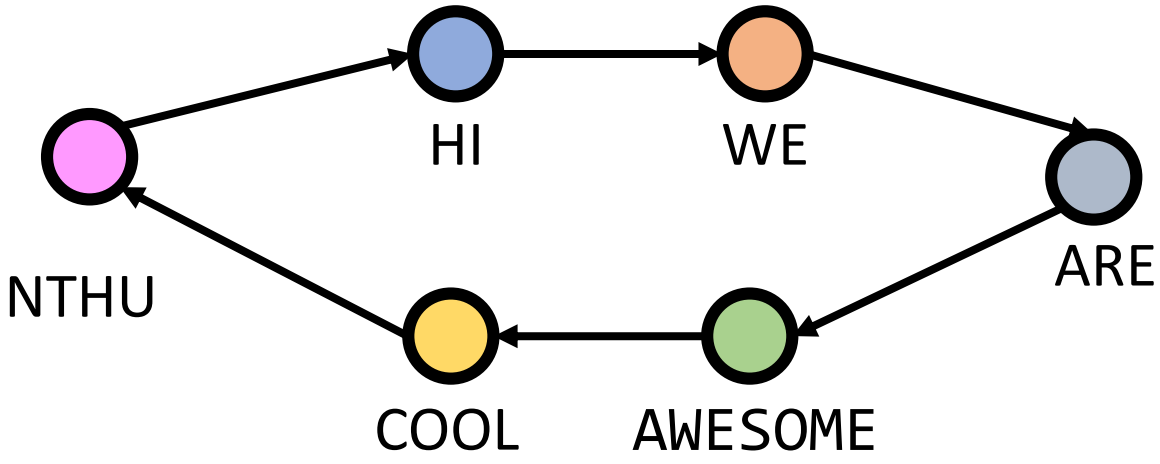
Input

Number of operations bellow

Each line is an operation

```
16↵
REVERSE↵
INSERT NTHU TSMC APPLE 2↵
REVERSE↵
INSERT NTHU APPLE HTC 2↵
INSERT HTC APPLE ASUS 2↵
INSERT NTHU HTC WE 1↵
INSERT NTHU WE HI 2↵
INSERT ASUS HTC ARE 1↵
INSERT ARE HTC AWESOME 1↵
DELETE TSMC↵
INSERT HTC NTHU COOL 2↵
REVERSE↵
DELETE APPLE↵
DELETE HTC↵
DELETE ASUS↵
REVERSE↵
```

Output

- Traverse the final bus route from NTHU and back to NTHU

```
NTHU->HI->WE->ARE->AWESOME->COOL->NTHU↵
```