

# **Assignment 5 Introduction**

## ***Version Locking***

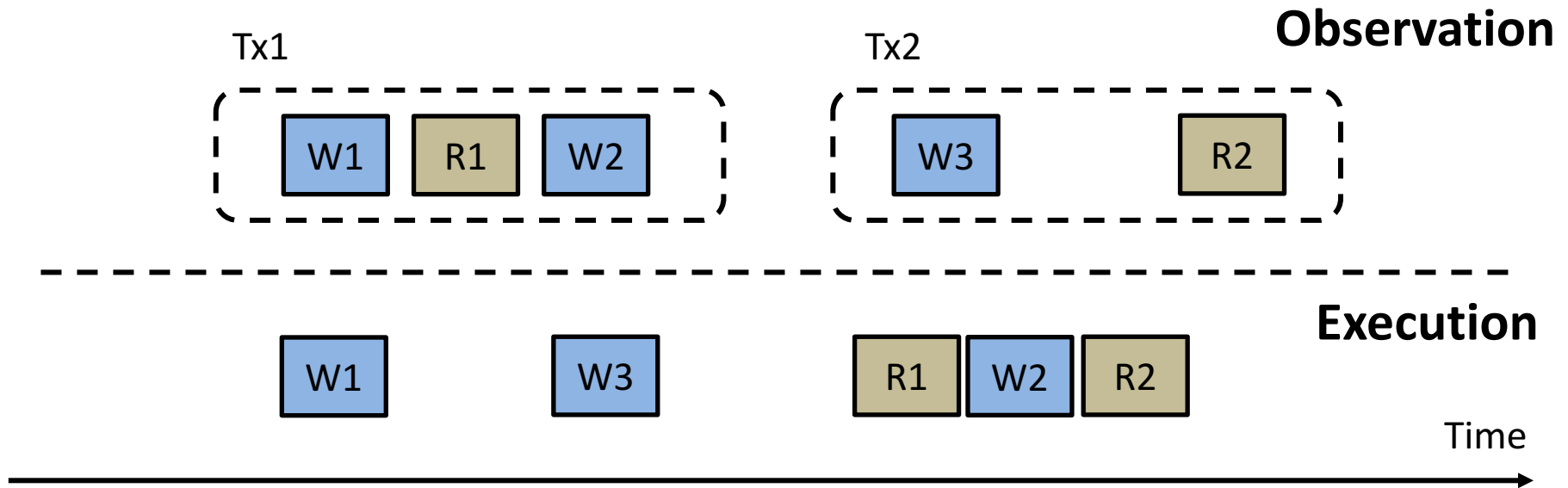
Database Systems

DataLab, CS, NTHU

Spring, 2018

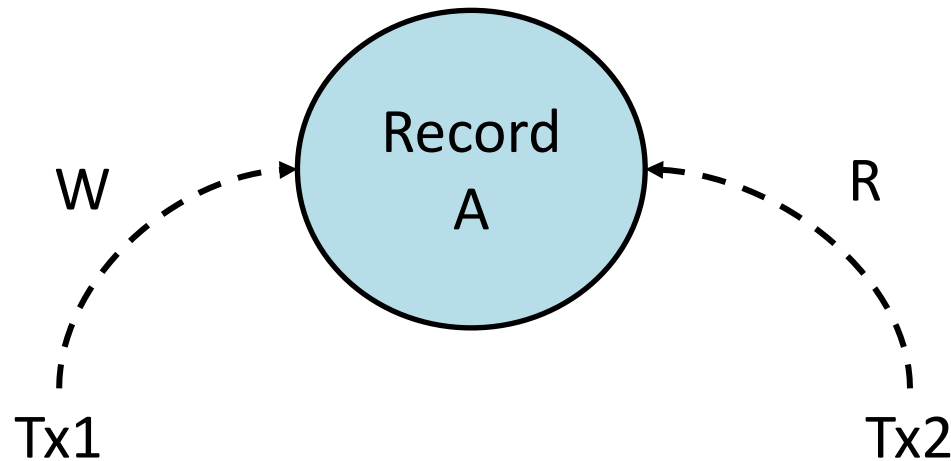
# Version Locking

- Version locking is a commonly used concurrency control method
- One main purpose of concurrency control is to make many concurrent txs **seem** to be executed one by one



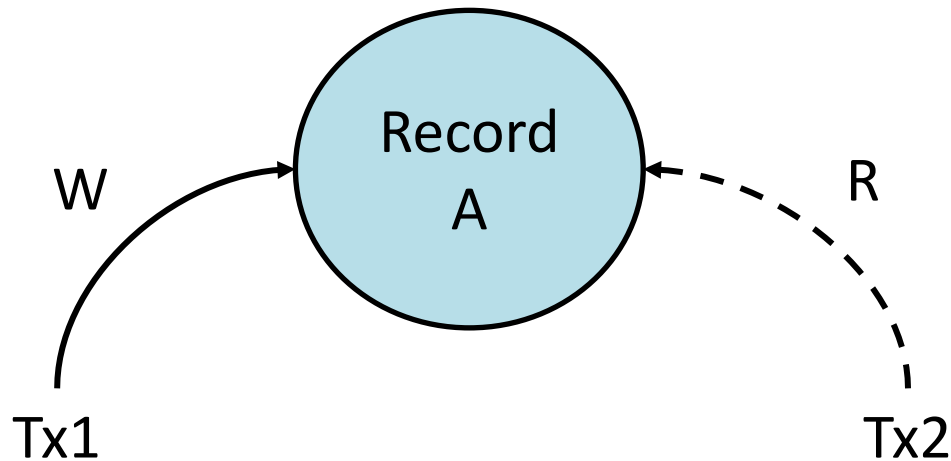
# 2PL

- Acquire exclusive lock before writing
- Acquire shared lock before reading
- Exclusive lock and shared lock are incompatible



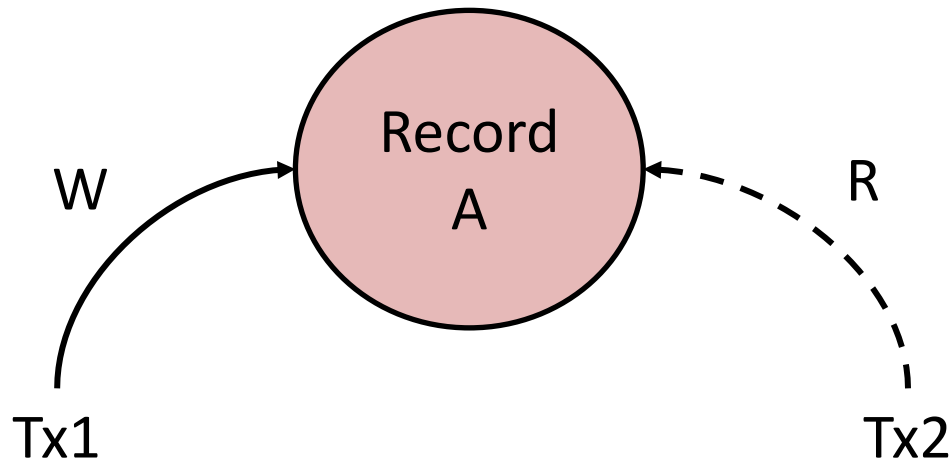
# 2PL

- Acquire exclusive lock before writing
- Acquire shared lock before reading
- Exclusive lock and shared lock are incompatible



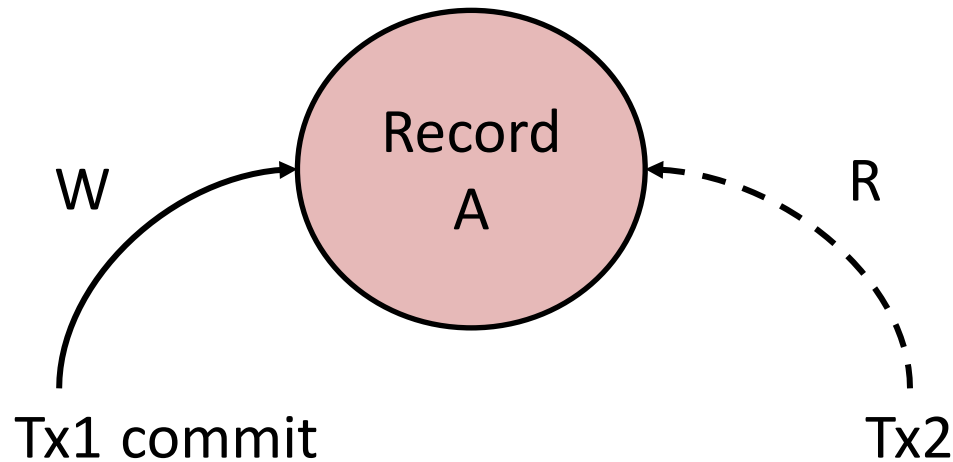
# 2PL

- Acquire exclusive lock before writing
- Acquire shared lock before reading
- Exclusive lock and shared lock are incompatible



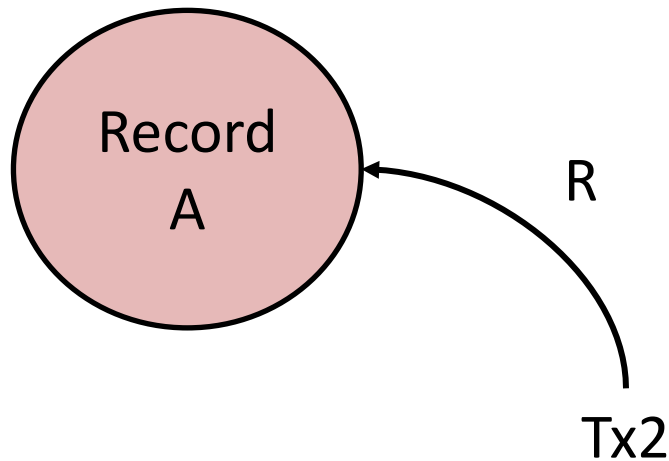
# 2PL

- Acquire exclusive lock before writing
- Acquire shared lock before reading
- Exclusive lock and shared lock are incompatible



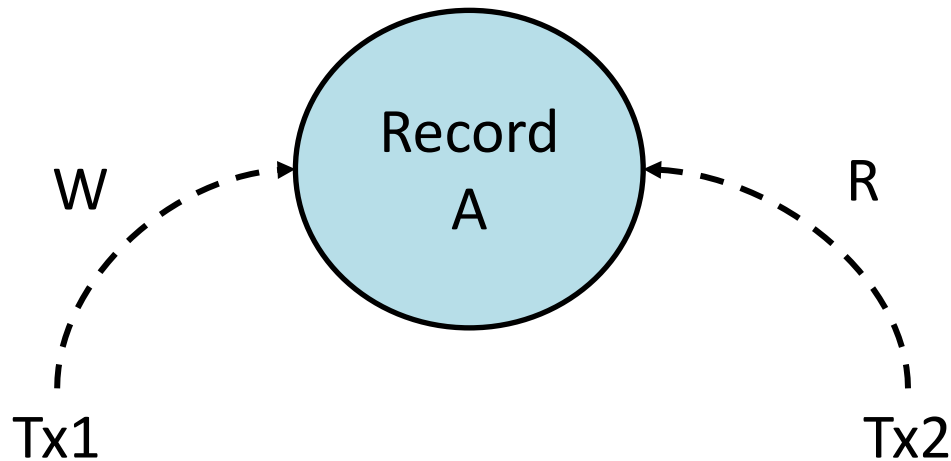
# 2PL

- Acquire exclusive lock before writing
- Acquire shared lock before reading
- Exclusive lock and shared lock are incompatible



# 2V2PL

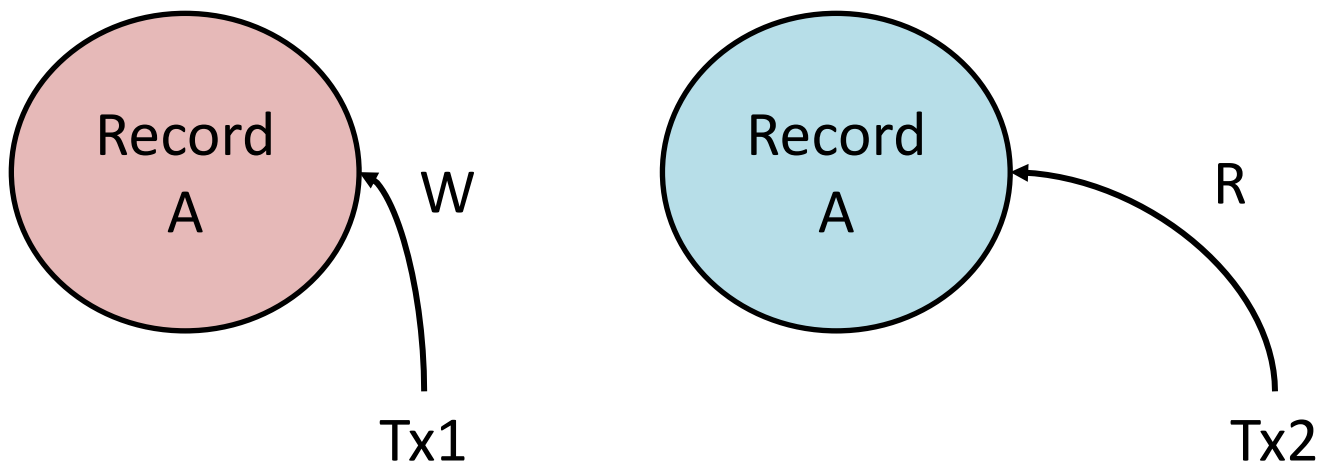
- Acquire **shadow exclusive lock** before writing
- Acquire shared lock before reading
- Shadow exclusive lock and shared lock are **compatible**





# 2V2PL

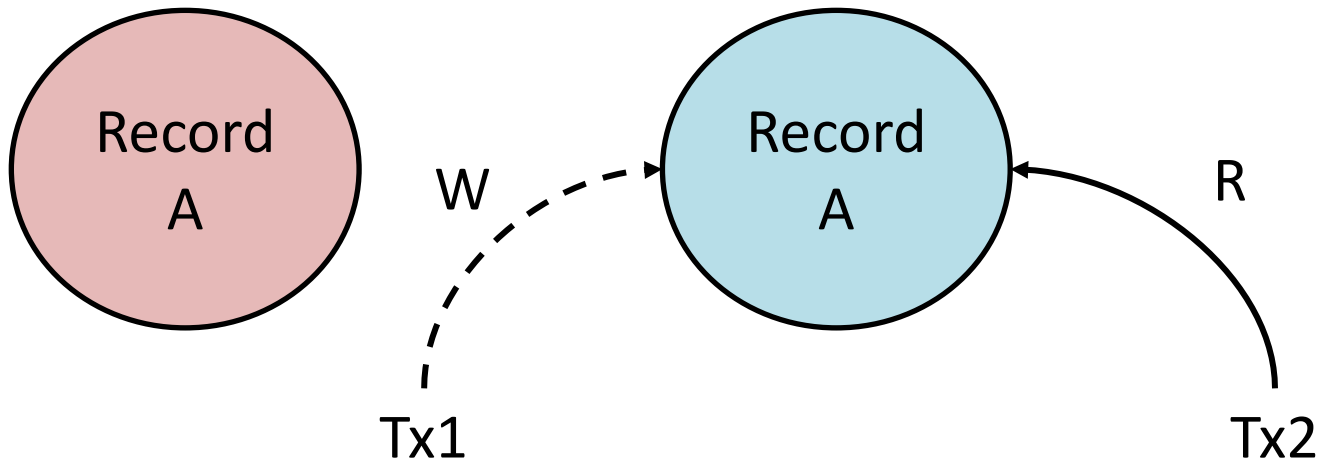
- Acquire **shadow exclusive** lock before writing
- Acquire shared lock before reading
- Shadow exclusive lock and shared lock are **compatible**



*update in Tx1's private workspace*

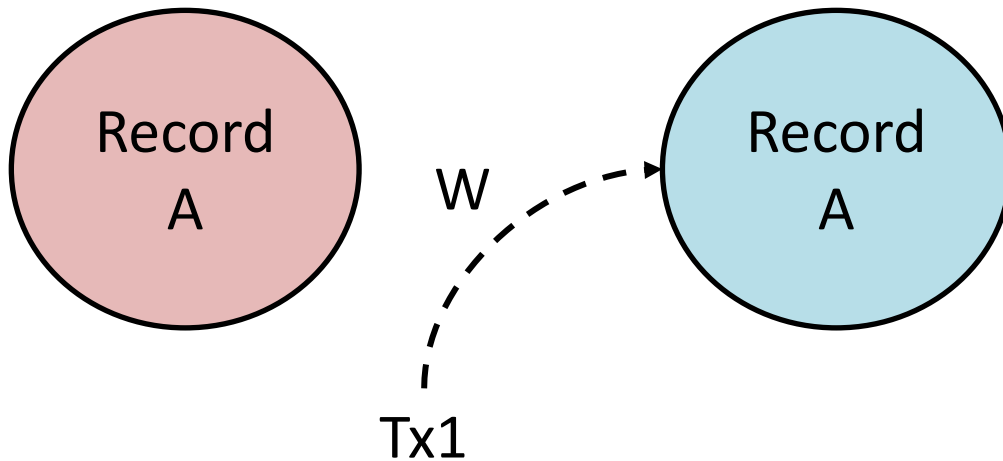
# 2V2PL

- Before a transaction commit, it needs to acquire exclusive lock for every record it modified
- After the tx collecting all the exclusive locks required, copy the content in its private workspace to table



# 2V2PL

- Before a transaction commit, it needs to acquire exclusive lock for every record it modified
- After the tx collecting all the exclusive locks required, copy the content in its private workspace to table



# 2V2PL

- Before a transaction commit, it needs to acquire exclusive lock for every record it modified
- After the tx collecting all the exclusive locks required, copy the content in its private workspace to table

