Transactions and Recovery:

Concurrency Control

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Example

- T1:
  - Interleaving:
  - T1: A=A+100, B=B-100
- T2:
  - Interleaving:
  - T2: A=1.06*A, B=1.06*B

The DBMS's view:

T1: R(A), W(A), R(B), W(B)

T2: R(A), W(A), R(B), W(B)

Scheduling Transactions

Serial schedule

- Schedule that does not interleave the actions of different transactions.

Equivalent Schedule

- For any database state, the effect of executing the first schedule is identical to the effect of executing the second schedule.

Serializable Schedule

- A schedule that is equivalent to some serial execution of the transactions.

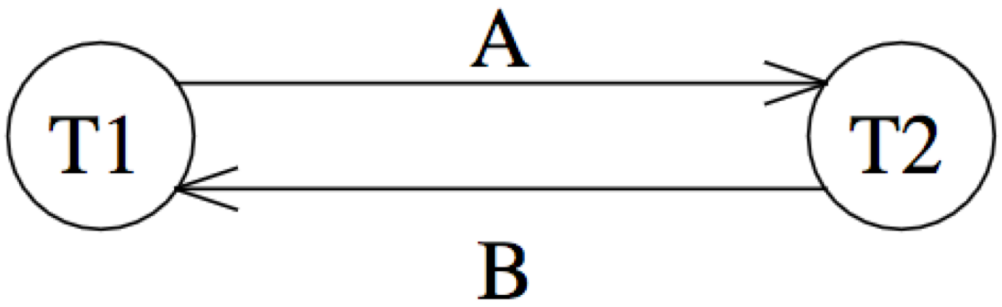
Conflict Serializable Schedules

- Two schedules are conflict equivalent if:
  - Involve the same actions of the same transactions
  - Every pair of conflicting actions is ordered the same way
- Schedule S is conflict serializable if S is conflict equivalent to some serial schedule

Example: Not Conflict Serializable

T1: R(A), W(A), R(B), W(B)

T2: R(A), W(A), R(B), W(B)



Dependency Graph