



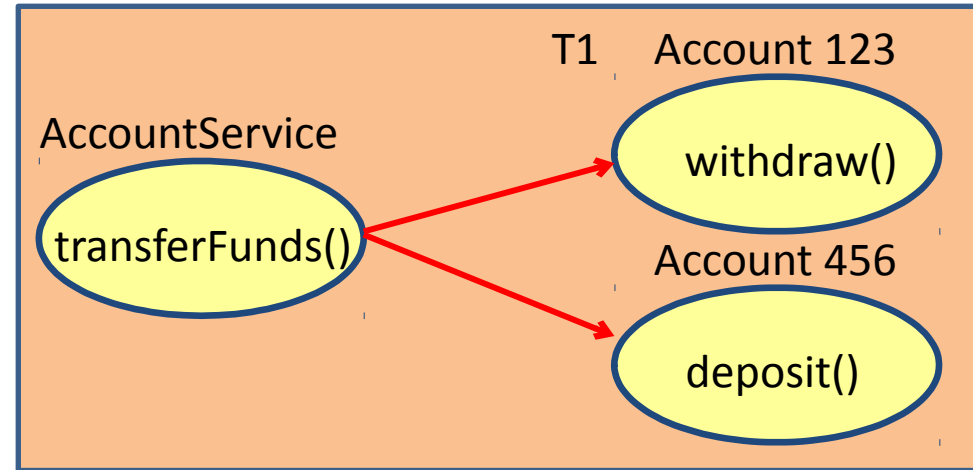
CS544 EA

Applications

Transactions: Propagation

Transaction Propagation

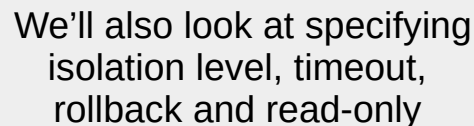
- Transaction propagation defines the **interaction** between transactions and method calls
 - Normally any method called between begin() and commit() is part of the TX
 - A TX for transferFunds() will automatically propagate to withdraw() and deposit()



Model © Prof. Rene de Jong

Propagation Options

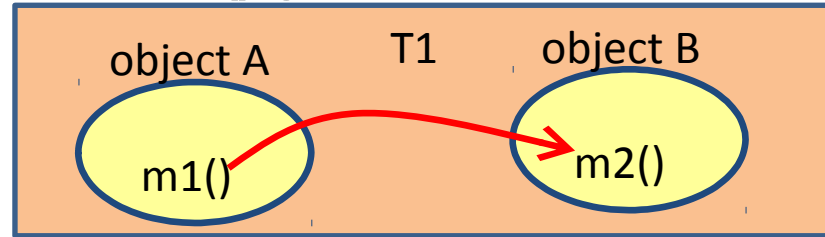
- Spring provides **7 propagation options**:
 - REQUIRED
 - REQUIRES_NEW
 - MANDATORY
 - NESTED
 - SUPPORTS
 - NOT_SUPPORTED
 - NEVER



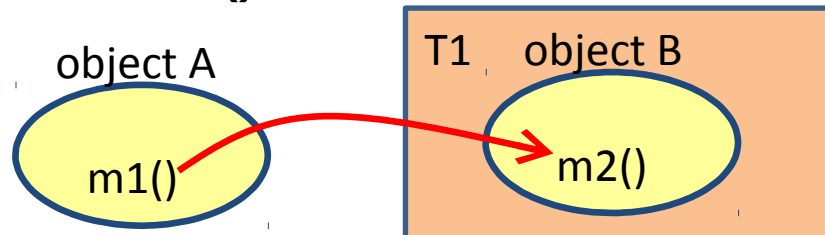
We'll also look at specifying isolation level, timeout, rollback and read-only

Propagation: REQUIRED

- If the calling method `m1()` runs in a transaction `T1`
 - Then method `m2()` joins the same transaction `T1`

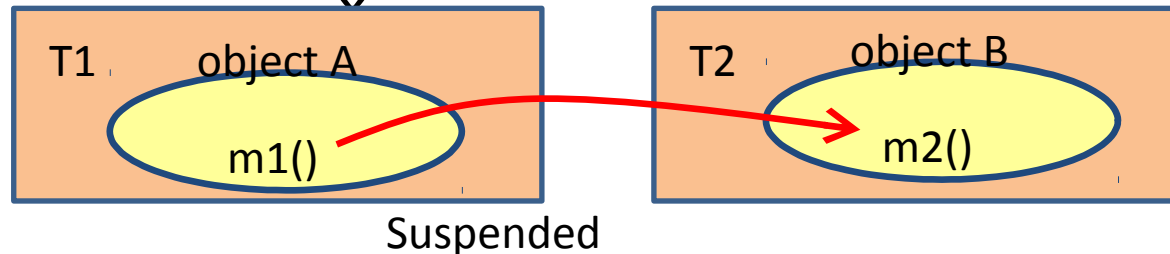


- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` runs in a new transaction `T1`

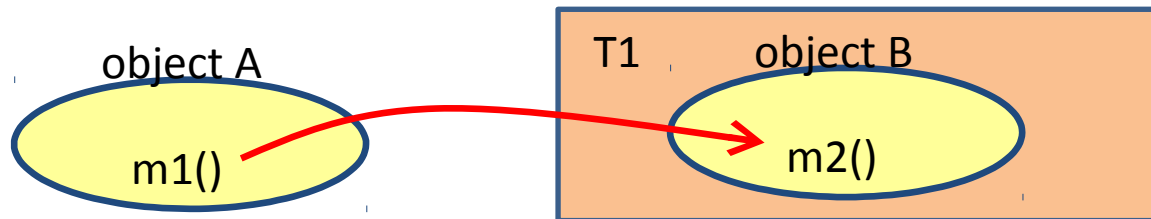


Propagation: REQUIRES_NEW

- If the calling method `m1()` runs in a transaction T1
 - Then method `m2()` runs in a new transaction T2

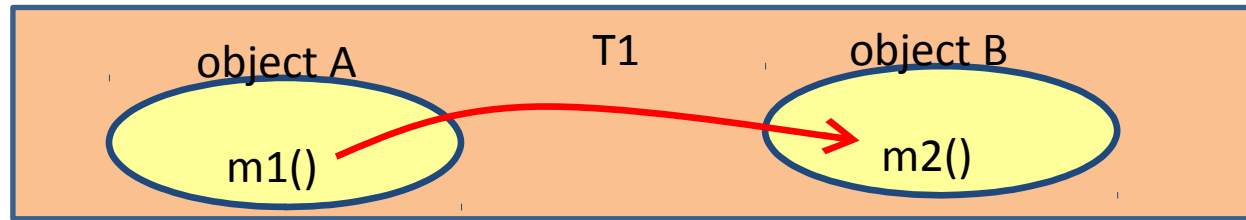


- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` runs in a new transaction T1

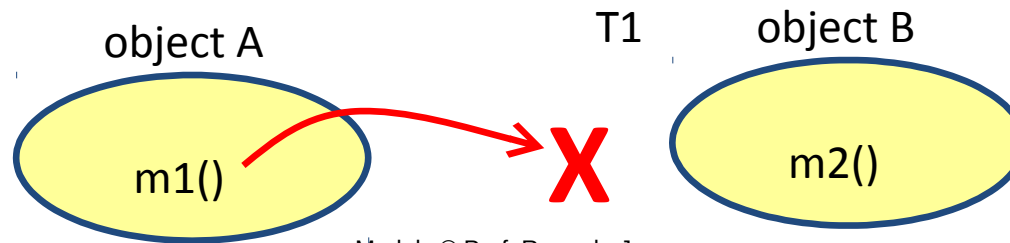


Propagation: MANDATORY

- If the calling method `m1()` runs in a transaction `T1`
 - Then method `m2()` joins the same transaction `T1`

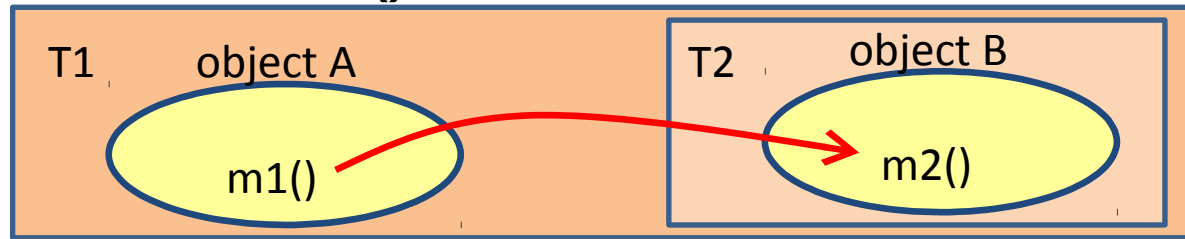


- If the calling method `m1()` does not run in a transaction
 - An exception is thrown

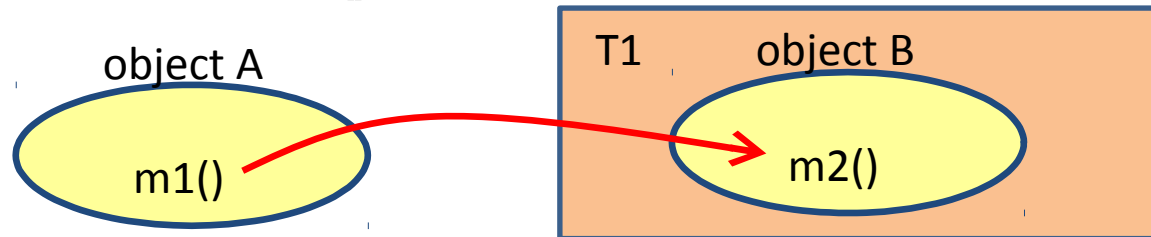


Propagation: NESTED

- If the calling method `m1()` runs in a transaction `T1`
 - Then method `m2()` runs in a nested transaction `T2`

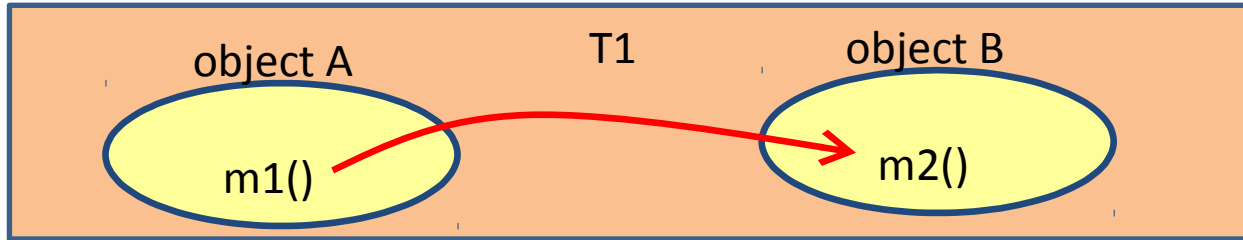


- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` runs in a new transaction `T1`



Propagation: SUPPORTS

- If the calling method `m1()` runs in a transaction `T1`
 - Then method `m2()` joins the transaction `T1`

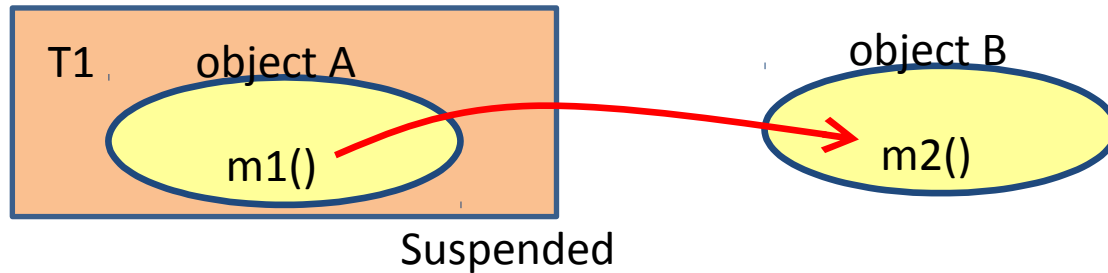


- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` also does not run in a transaction

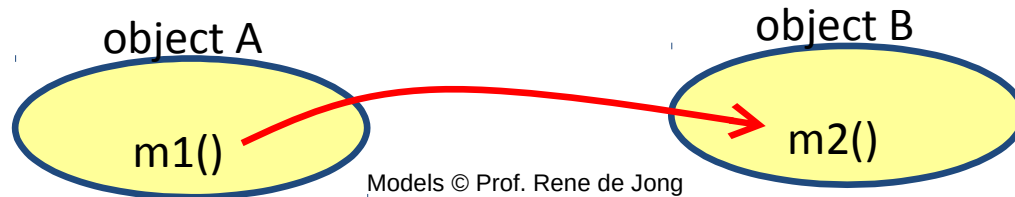


Propagation: NOT_SUPPORTED

- If the calling method `m1()` runs in a transaction `T1`
 - Then method `m2()` does not run in a transaction

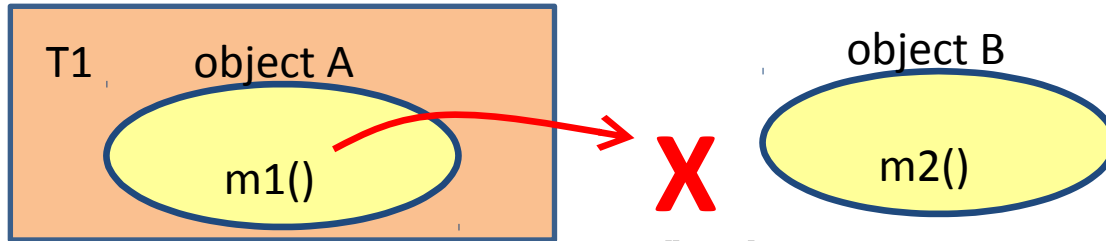


- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` also does not run in a transaction



Propagation: NEVER

- If the calling method `m1()` runs in a transaction `T1`
 - Then an exception is thrown



- If the calling method `m1()` does not run in a transaction
 - Then method `m2()` also does not run in a transaction



Transaction Propagation

- Your propagation options are very dependent on your **transaction manager**
 - The default REQUIRED propagation is supported by every transaction manager (DB)
 - Propagation options that require transaction suspension or nesting are more problematic