

# Solution for Exercise 9

Concurrent Algorithms 2010



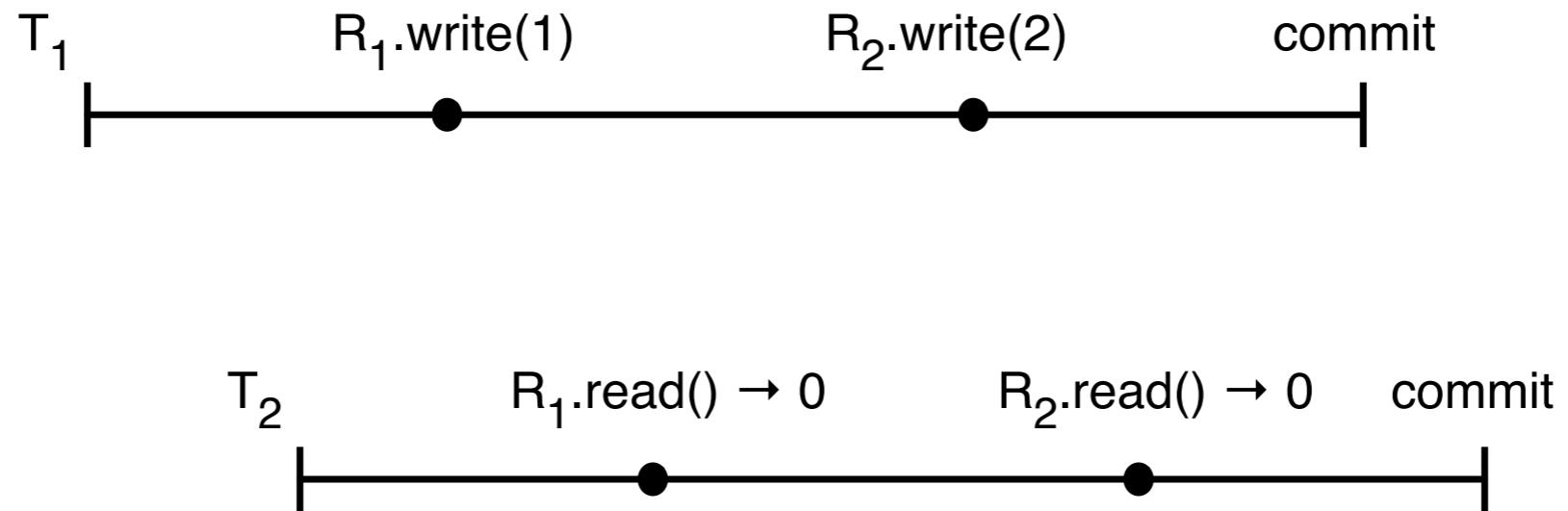
ÉCOLE POLYTECHNIQUE  
FÉDÉRALE DE LAUSANNE

# Problem

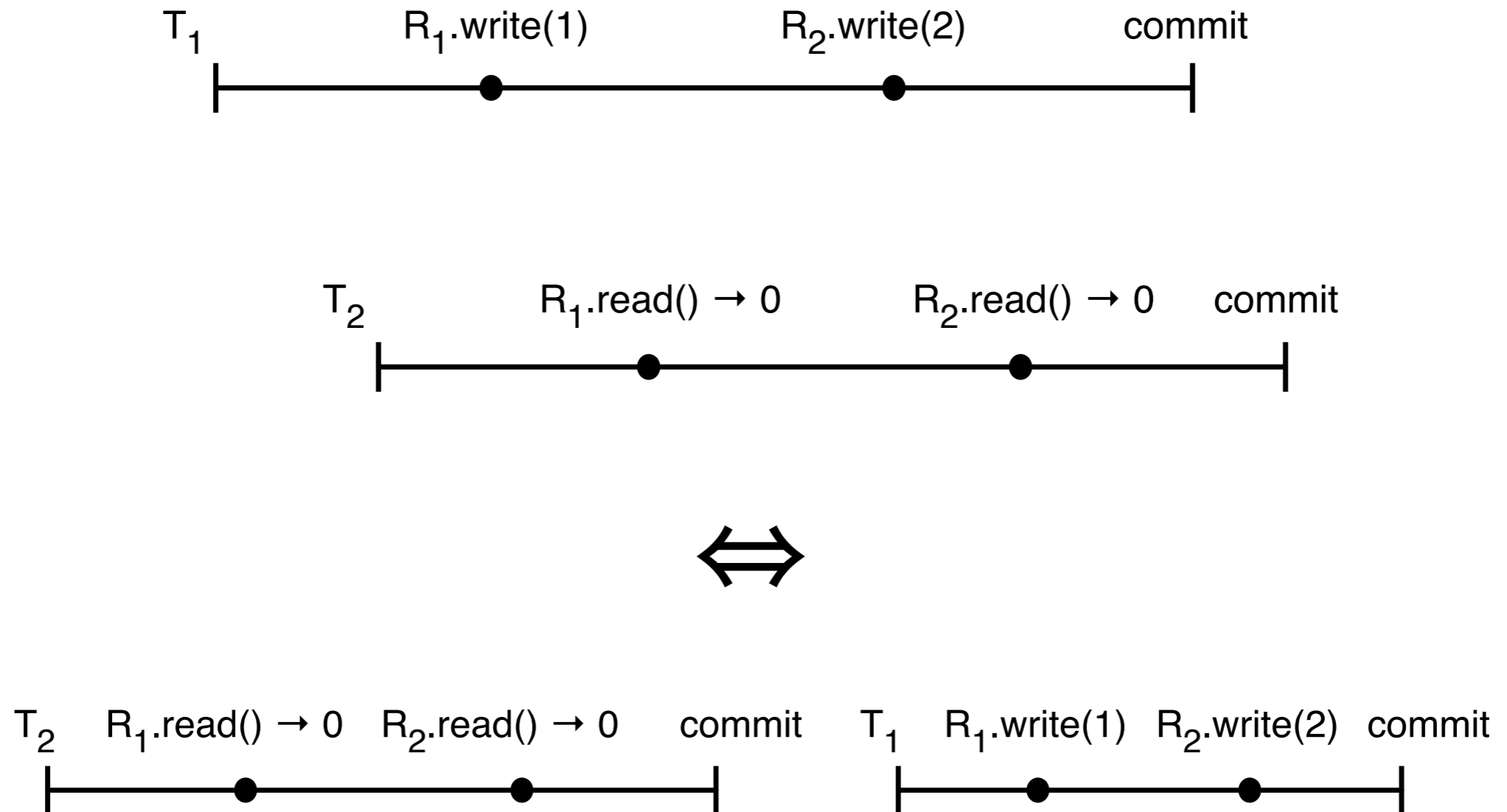
For the following executions of transactions by a *Transactional Memory* object:

- Is it *opaque*?
- If not, make it.
- What is the equivalent serial execution?

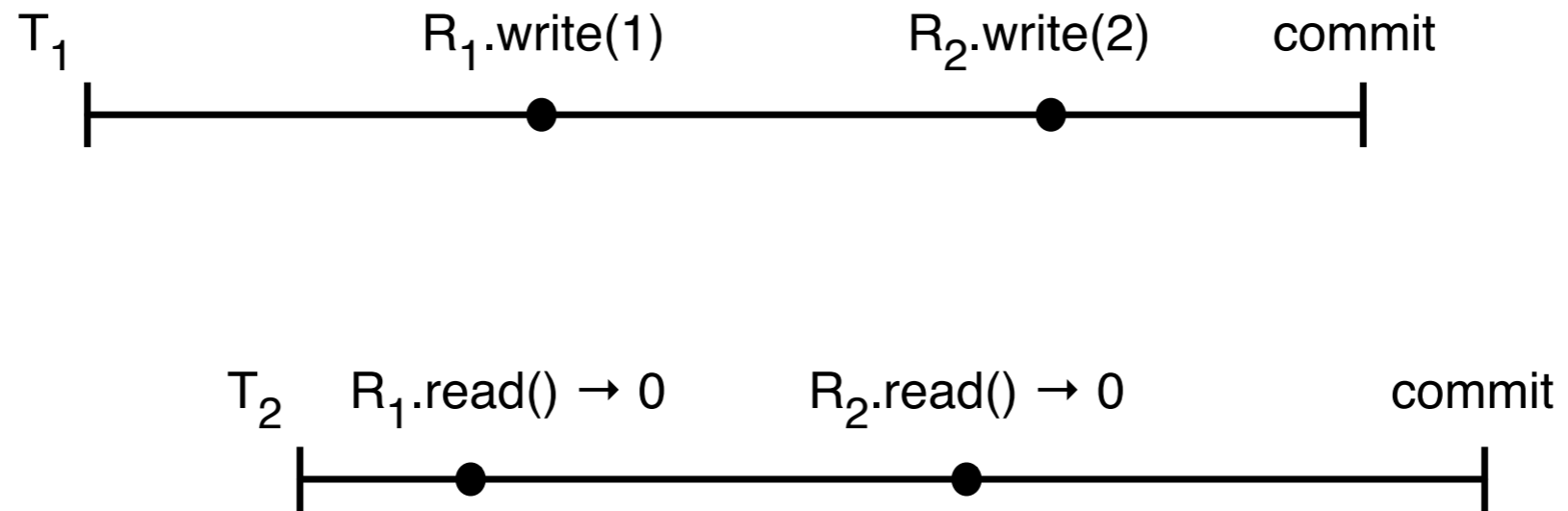
# Execution I



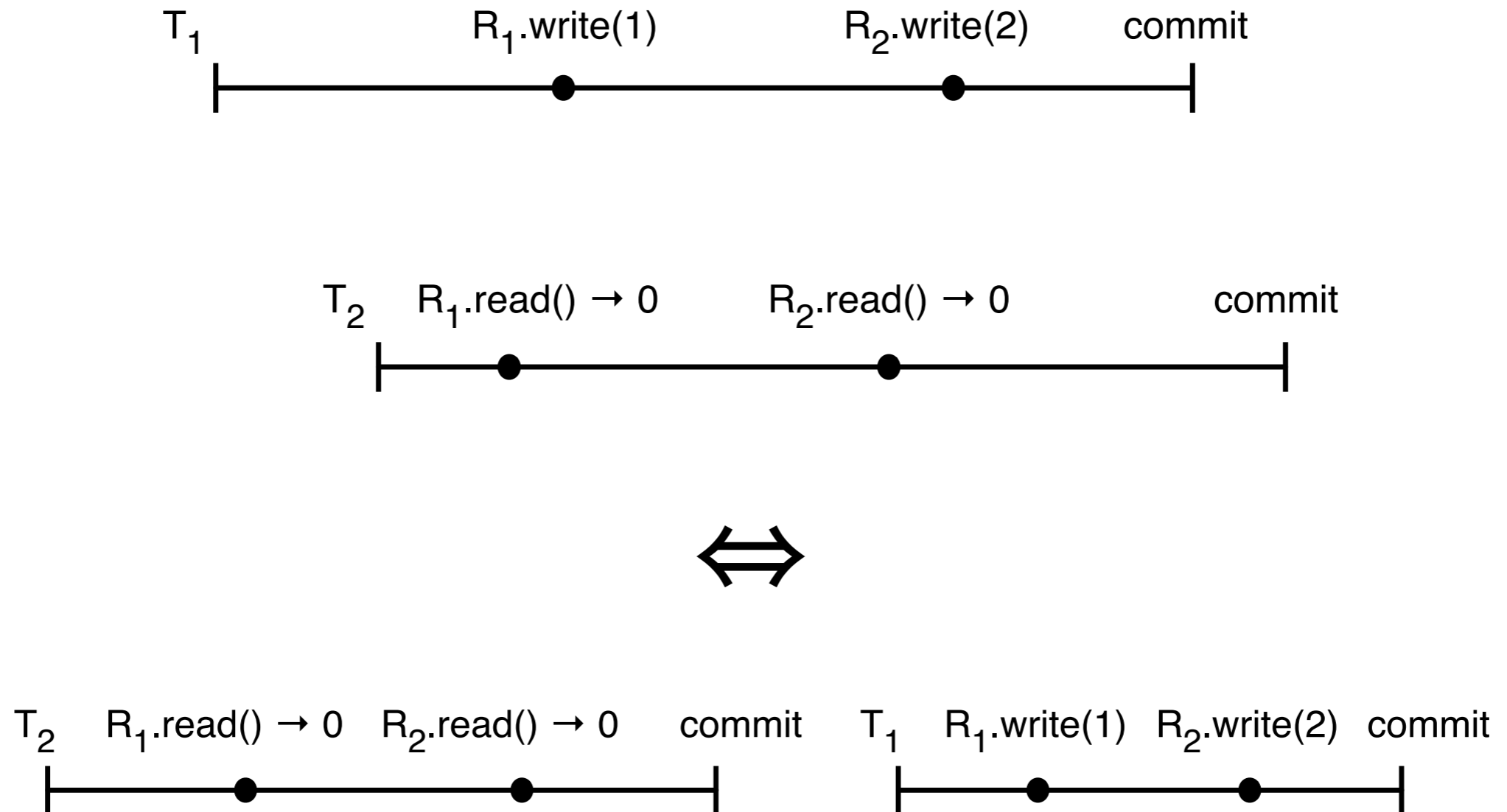
# Execution I



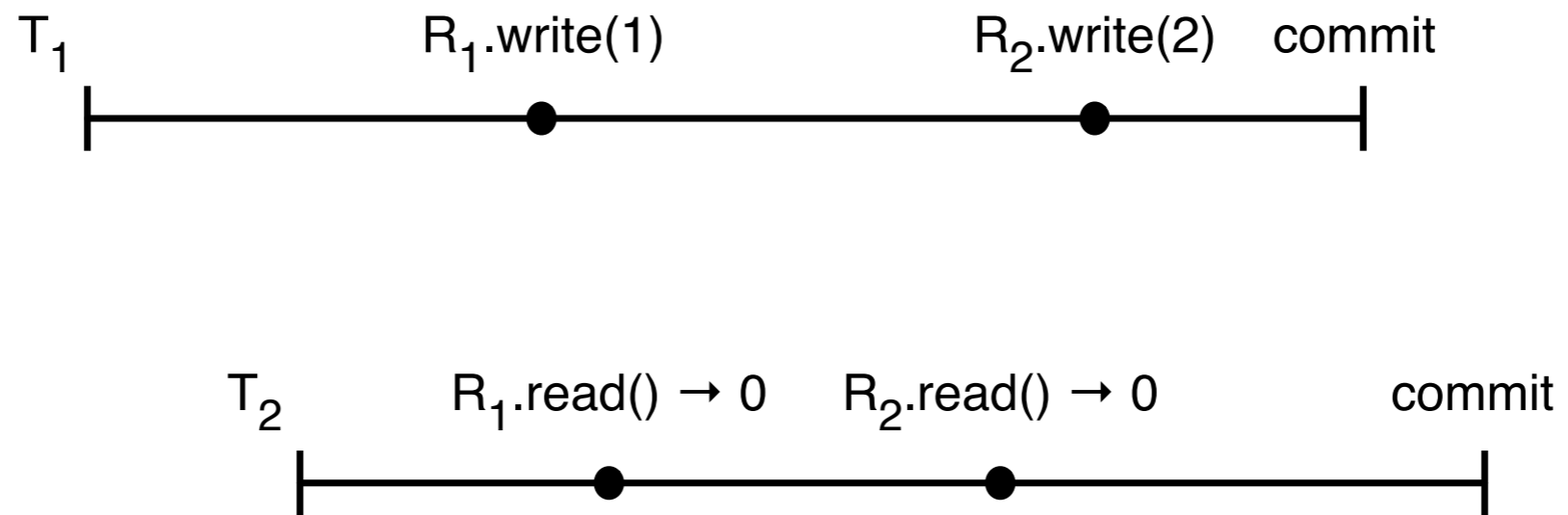
# Execution 2



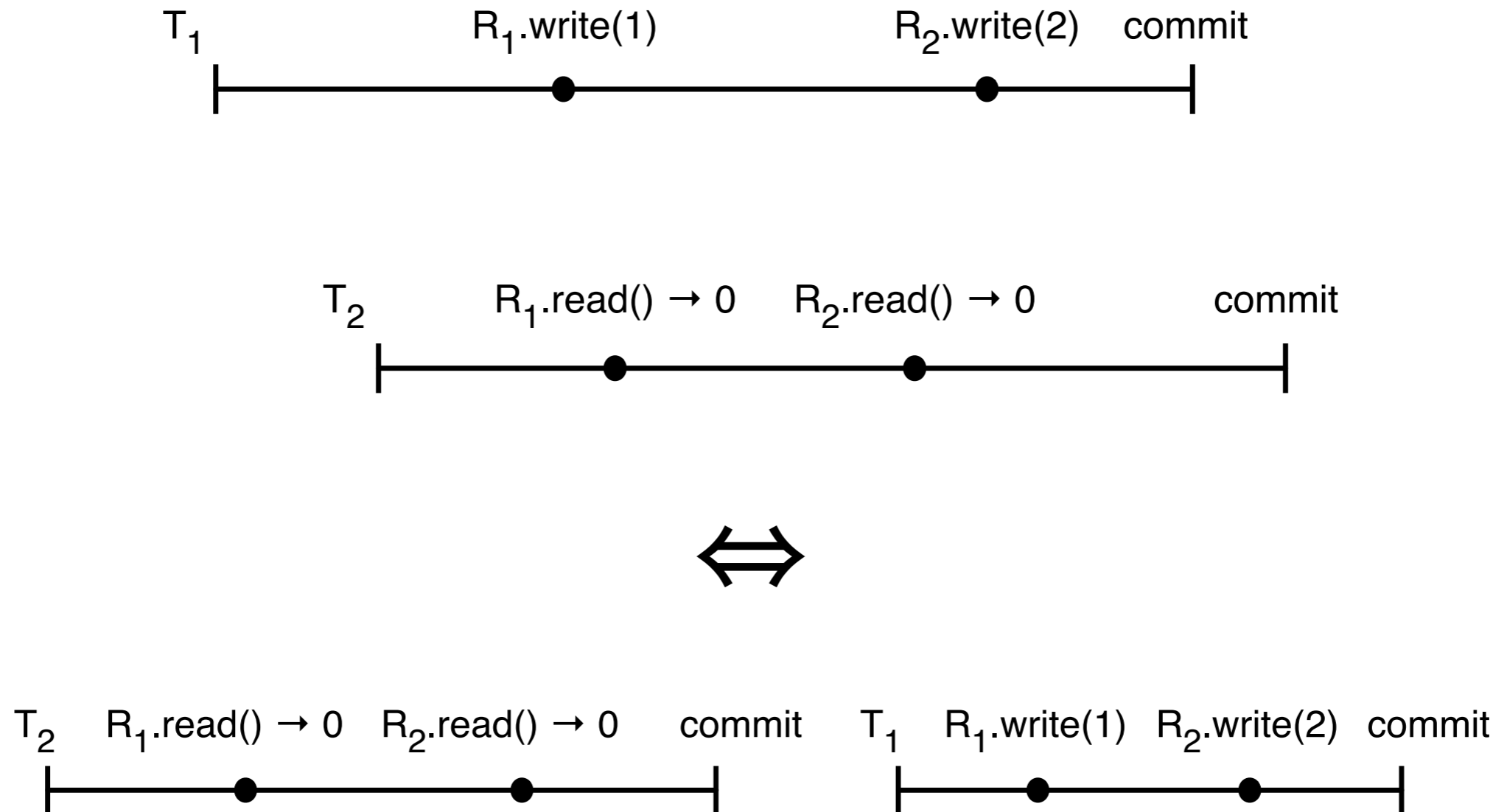
# Execution 2



# Execution 3

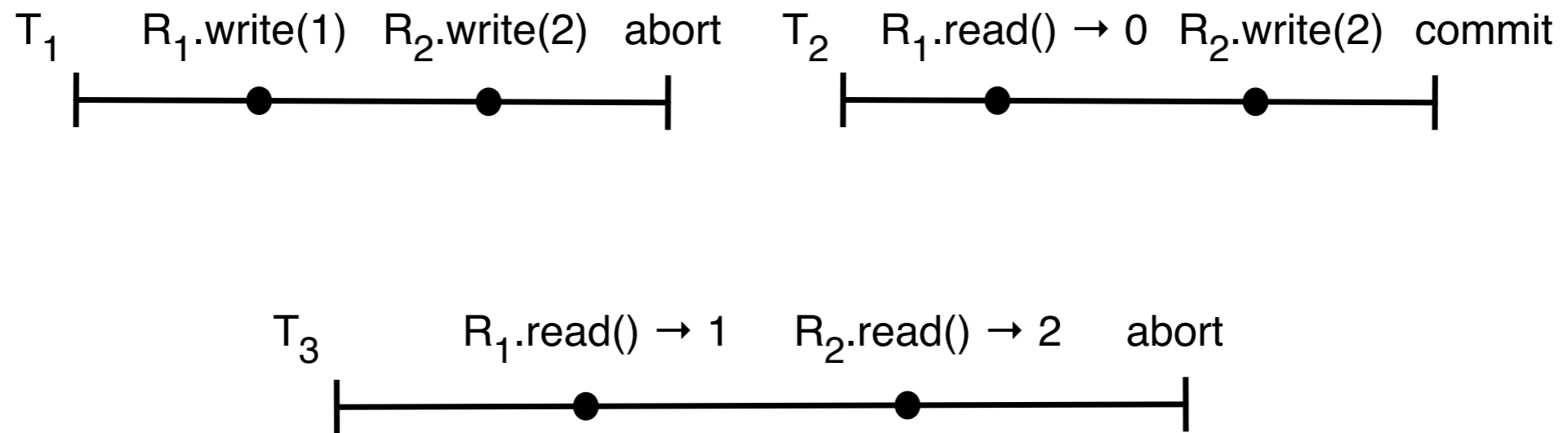


# Execution 3

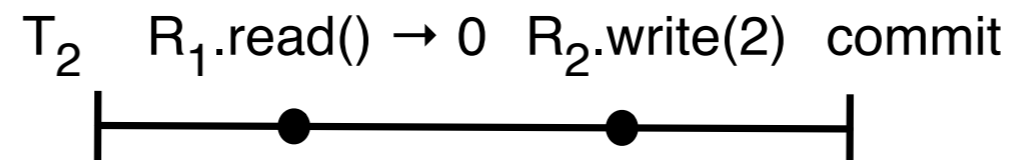
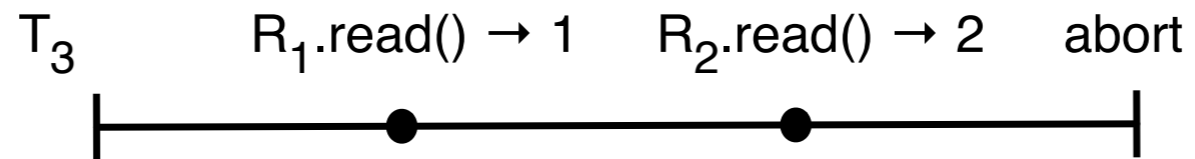
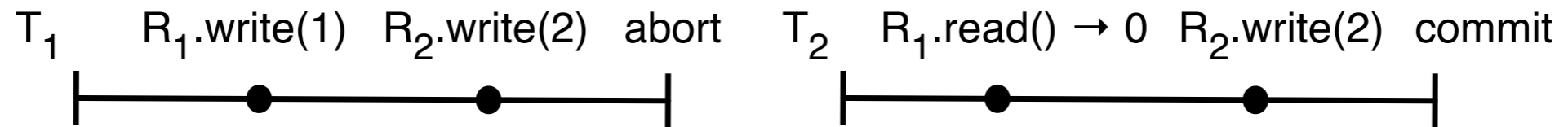




# Execution 4



# Execution 4



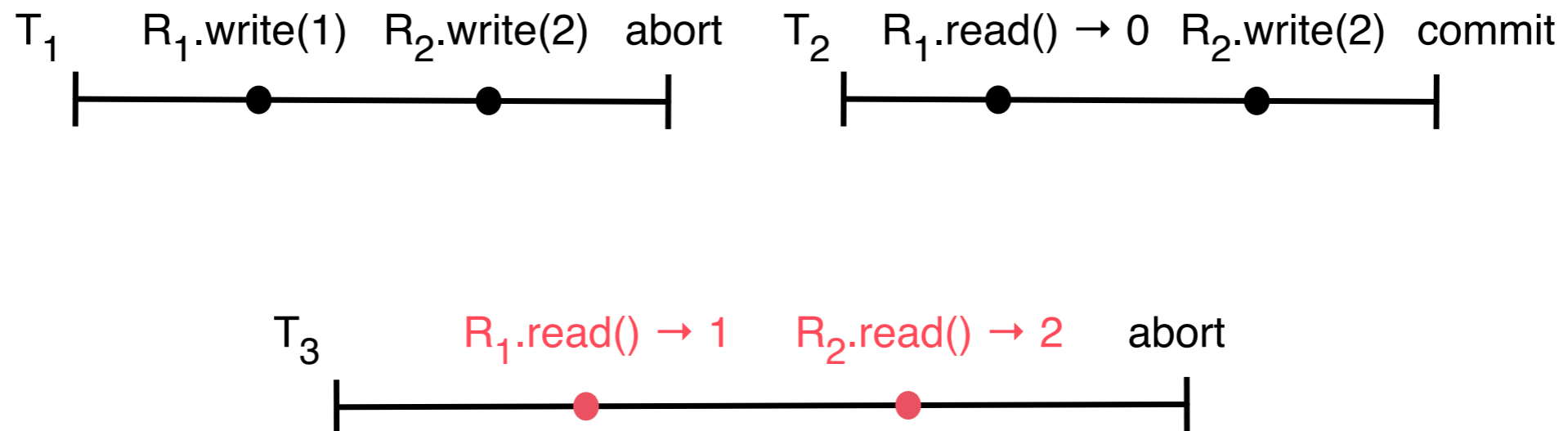
# Execution 4

But is it *opaque*?

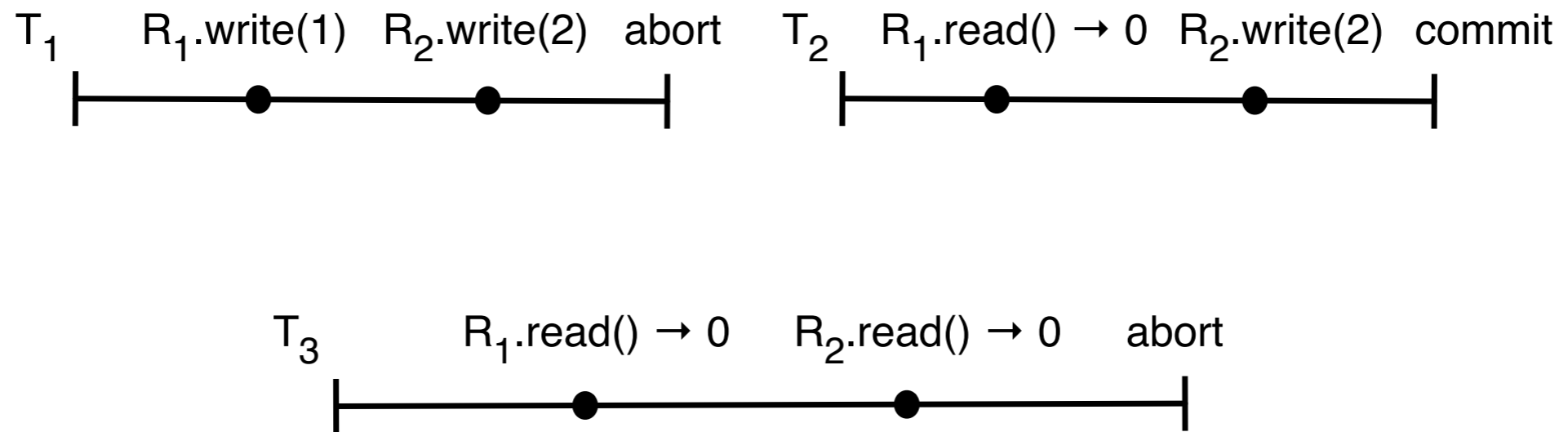
# Execution 4

But is it *opaque*?

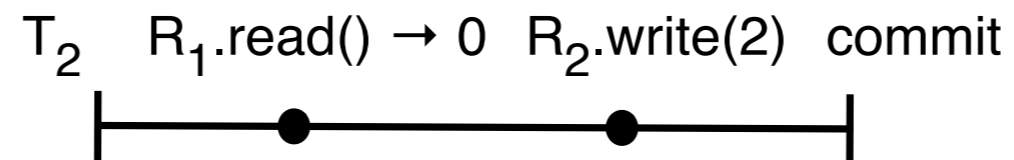
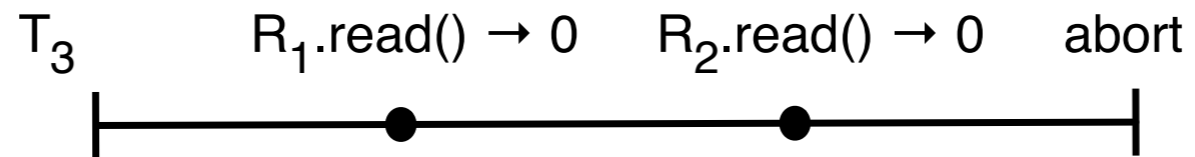
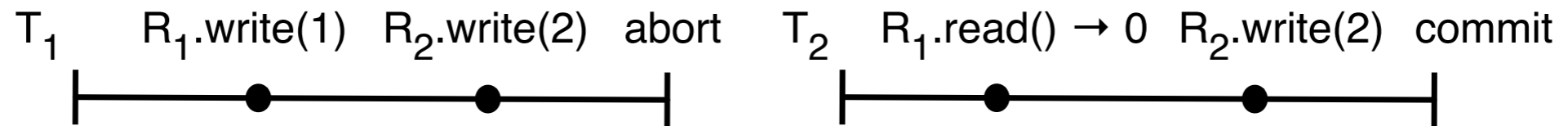
No!



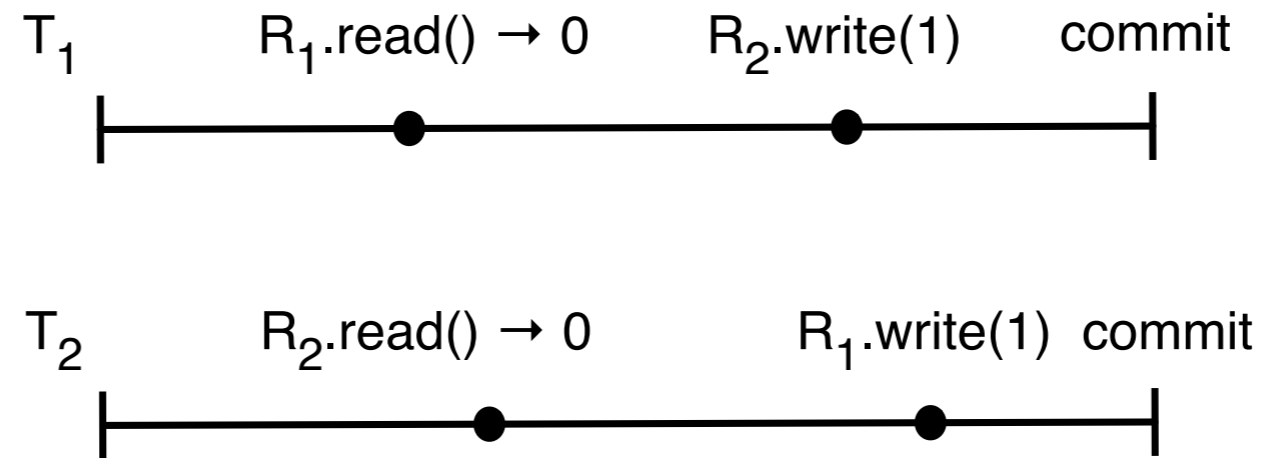
# Execution 4



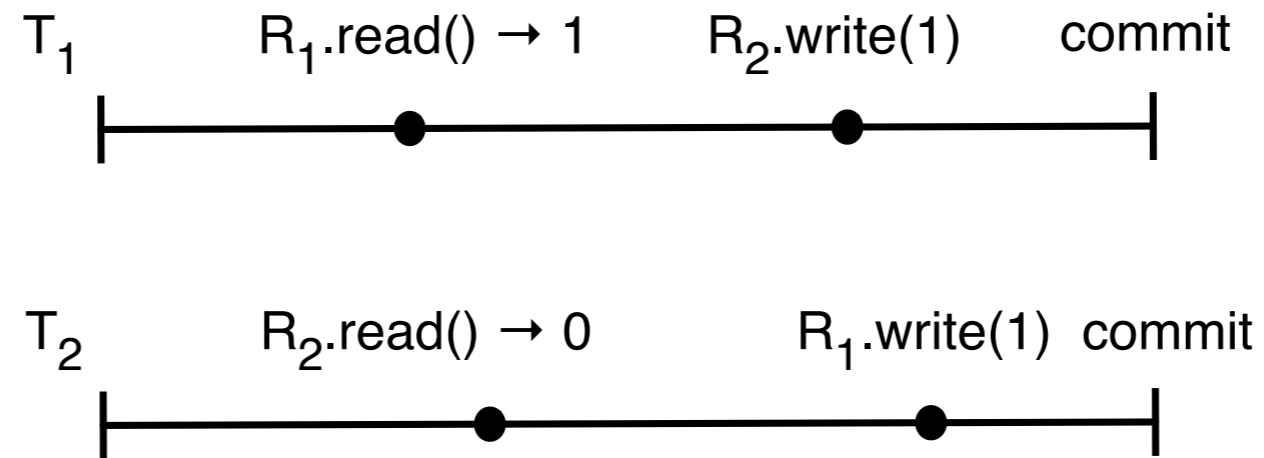
# Execution 4



# Execution 5

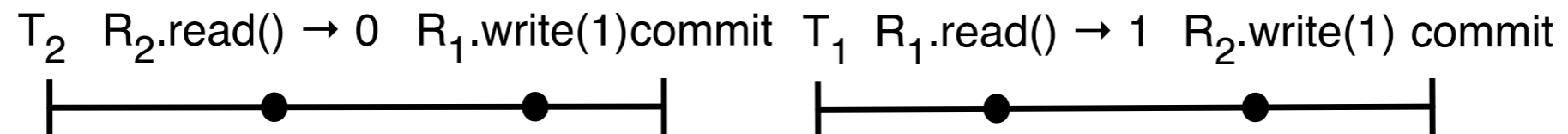
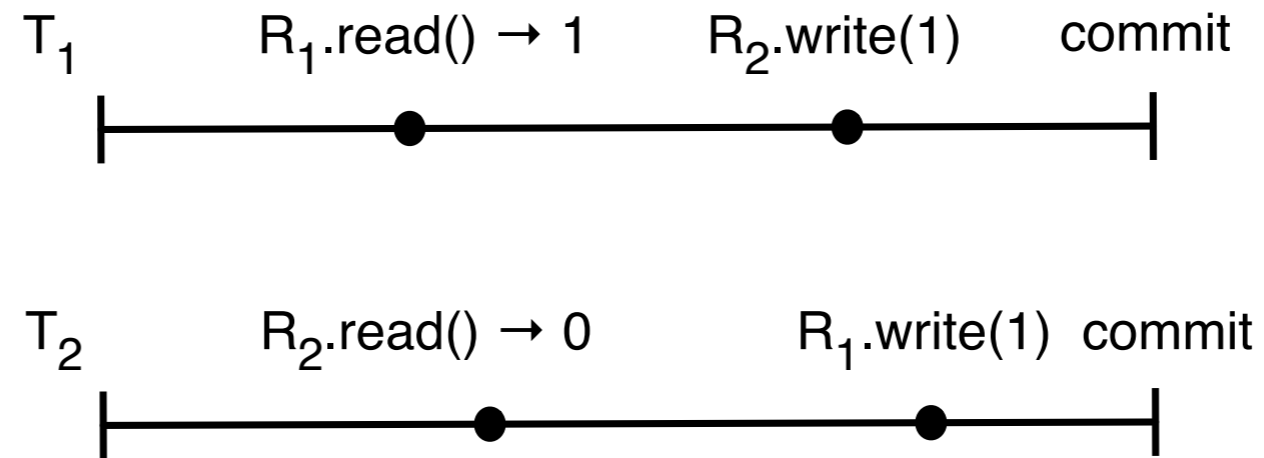


# Execution 5

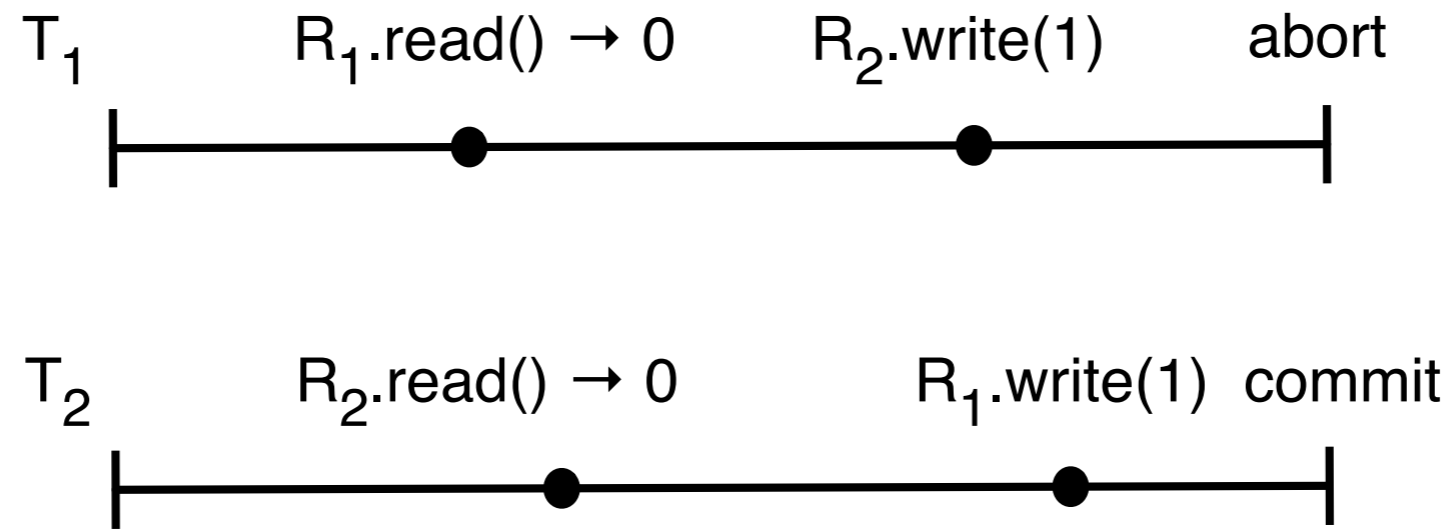




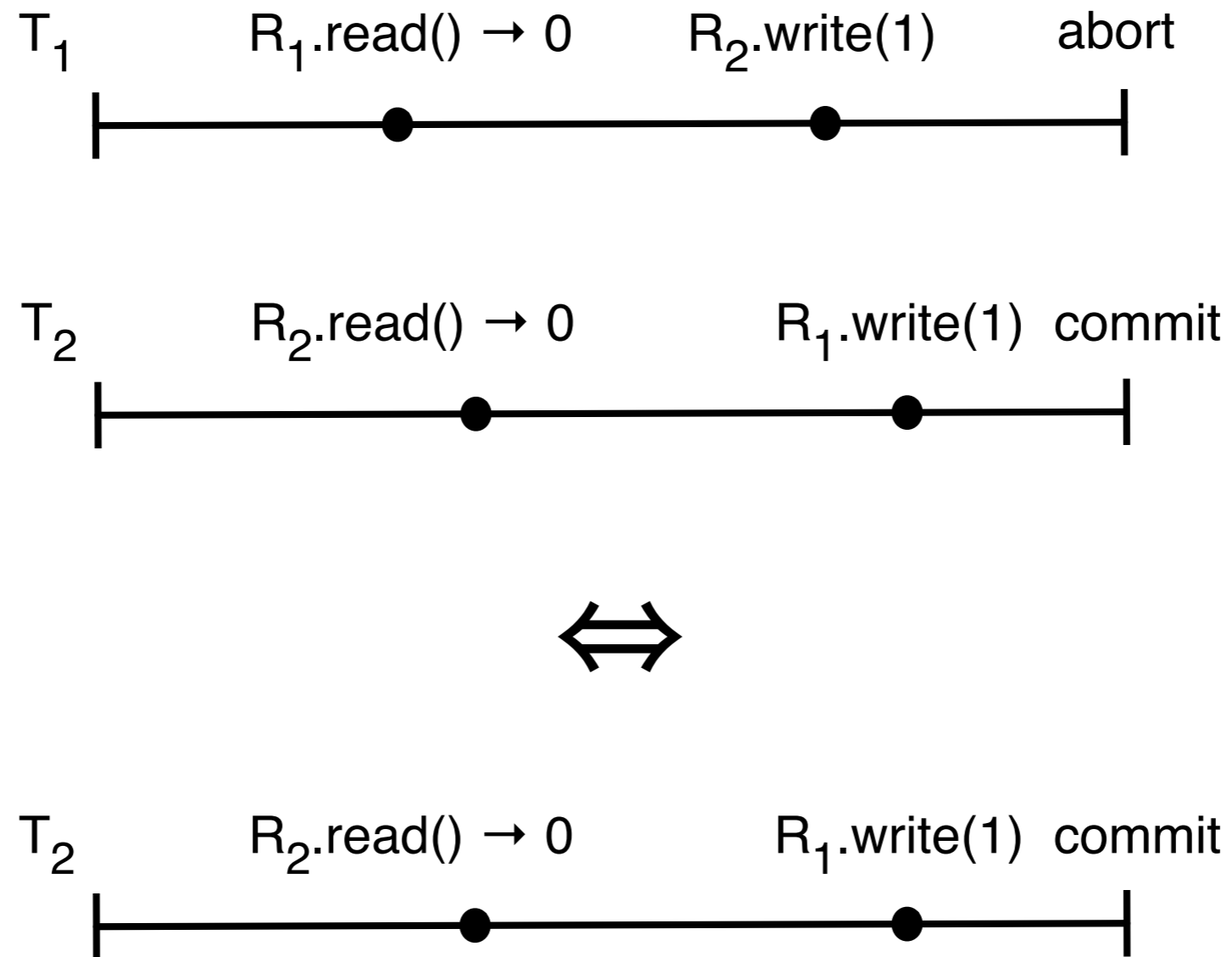
# Execution 5



# Execution 6



# Execution 6



**Questions?**