

Homework 4 (due 4/21/2004)

Assumption: all variables originally hold the value 0.

Answer the ones we didn't do in class.

1. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3
P2: W(x)2
P3: R(x)3 R(x)2
P4: R(x)2 R(x)3

Is this execution causally consistent? Add or modify an event to change the answer.

2. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3
P2: R(x)1 W(x)2 R(x)1

Is this execution sequentially consistent? Add or modify an event to change the answer.

3. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3
P2: R(x)1 R(x)1 R(x)3

Is this execution strictly consistent? Add or modify an event to change the answer.

4. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3
P2: R(x)1 W(x)2 R(x)3
P3: R(x)3 R(x)1

Is this execution causally consistent? Add or modify an event to change the answer.

5. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3 S S R(x)3
P2: S R(x)3 W(x)2 S

Is this execution weakly consistent? Add or modify an event to change the answer.

6. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3 S
P2: R(x)3 S R(x)1

Is this execution weakly consistent? Add or modify an event to change the answer.

7. Consider the following sequence of operations in a distributed shared memory system:

P1: W(x)1 W(x)3
P2: R(x)1 W(x)2 R(x)3

Is this execution sequentially consistent? Add or modify an event to change the answer.

