

Models and semaphores

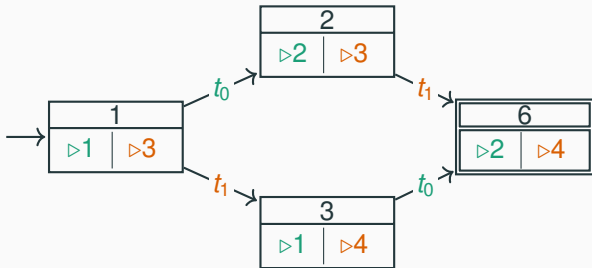
What does Peterson's algorithm achieve?

1. Mutual exclusion using only atomic reads and writes
2. Mutual exclusion and first-come-first-served fairness
3. Mutual exclusion using busy waiting
4. Mutual exclusion using test-and-set operations

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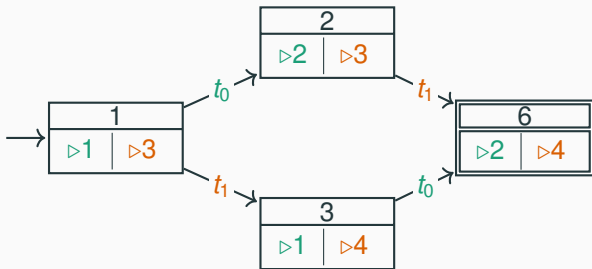
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What properties does the following state/transition diagram show?



1. No deadlocks can occur
2. There are no race conditions
3. No starvation can occur, but deadlocks may occur
4. Neither deadlocks nor race conditions may occur

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3. Limiting the amount of concurrency
4. Using counting semaphores instead of binary semaphores

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What is the value of semaphore `s` when thread `t` finishes the last loop iteration?

```
Semaphore s = new Semaphore(2); // capacity 2
```

thread `t`

```
1 for (int i = 0; i < 10; i++)
2 { s.down();
3   s.up(); }
```

thread `u`

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4 for (int i = 0; i < 10; i++)
5 { s.down();
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- 2
- Either 1 or 2
- 0 or 1 or 2

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What is the value of semaphore `s` when thread `t` finishes the last loop iteration?

```
Semaphore s = new Semaphore(1); // capacity 1
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thread `t`

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