Concurrent preliminaries

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Summary of chapter 13:

Chapter 13 talks about the concurrent world. It consider concepts, algorithms and data structures fundamental to collection in presence of logical and physical parallelism, including an introduction to the relevant aspects of hardware, memory consistency models, atomic update primitives, progress guarantees, mutual exclusion algorithms, work sharing and termination detection, concurrent data structures and the emerging model called transactional memory.

My contribution:

Slide 11: Example of the cache coherence problem

Slides 14-18: Execution example and state machine of the MESI protocol

Slide 24: Performance graph comparing TAS &TTAS primitives

Slide 80: Discussion:

- ABA problem without presence of garbage collector:
    - o *Occur when one thread free the memory of some object and allocate a new object which is allocated in the same place of the first one.*

- Applications of deque data structure:

    - o *A-Steal job scheduling algorithm*
    - o *Palindrome detector*