The Theory & Practice of Concurrent Programming

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1 Synchronisation Paradigms

1.1 Properties in Asynchronous computation

1. Safety

   - Nothing bad happens ever
   - If it is violated, it is done by a finite computation

2. Liveness

   - Something good happens eventually
   - Cannot be violated by a finite computation

1.2 Problems in Asynchronous computation

1. Mutual Exclusion (Safety)

   - **cannot** be solved by transient communication or interrupts
   - **can** be solved by shared variables that can be read or written

2. No Deadlock (Liveness)