

## 13.4 Locks

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- Transactions must be scheduled so that their effect on shared objects is serially equivalent
- A server can achieve serial equivalence by serialising access to objects, e.g. by the use of locks
- for serial equivalence,
  - (a) all access by a transaction to a particular object must be serialized with respect to another transaction's access.
  - (b) all pairs of conflicting operations of two transactions should be executed in the same order.
- to ensure (b), a transaction is not allowed any new locks after it has released a lock
  - **Two-phase locking** - has a 'growing' and a 'shrinking' phase