

Problem Set 1

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1. Prove that $SC \not\subseteq QC$, and $QC \not\subseteq SC$.
2. Prove that $Lin \subset SC$, and $Lin \subset QC$, where Lin refers to executions that are *linearizable*.
3. Prove that the definition of linearizability given in the book by Herlihy and Shavit is the same as the following definition:
An execution is linearizable if it is possible to find a unique point in the lifetime of each operation (between its start and end), where the entire *operation* seems (or appears) to execute instantaneously.
4. Prove that the single enqueue/single dequeue queue is linearizable. What are its points of linearizability (lines of code in which it appears to execute instantaneously)?