Possible or Not

- In the synchronous system model

  - Consensus is solvable

- In the asynchronous system model

  - Consensus is impossible to solve

  - Whatever protocol/algorithm you suggest, there is always a worst-case possible execution (with failures and message delays) that prevents the system from reaching consensus

  - Powerful result (*see the FLP proof*)

  - Subsequently, <u>safe</u> or <u>probabilistic</u> solutions have become quite popular to consensus or related problems.