Summary for “Paxos Made Simple”

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In the article “Paxos Made Simple”, author proposed an algorithm to achieve consensus between processes. There are three main roles for the algorithm: proposer, accepter and learner. The whole algorithm for choosing a value, which is a proposal, and learning it is based on a simple idea: two large majority sets of acceptors must have at least one common acceptor. The only single value hence can be decided and learnt because of this or these common acceptor(s). For value choosing, the algorithm can be divided into two phases. Phase one is about “prepare” message. Proposer sends “prepare” message to a majority of acceptors. And acceptors will decide to response or not. If responded, which also means that the proposer gets a promise and the number of the highest that acceptor accepted, proposer in phase two will send a numbered proposal with a selected value. And the acceptors will decide to accept it or not according to their current state. For learning an accepted value, acceptors will send their acceptance to a set of distinguished learner. And the value will get passed to all the learners.

Overall, the algorithm seems to be an elegant solution for consensus problem between nodes or processes. However, it is also a little difficult to fully understand. And for me, a few examples from online resources are rather helpful.