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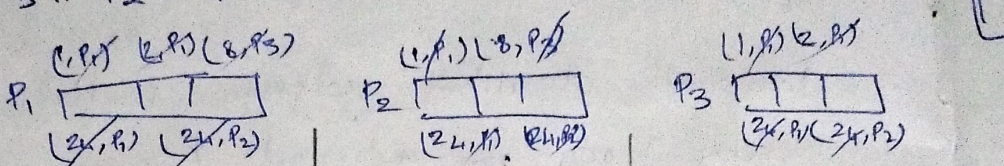
Lamports Distributed Mutex Algorithm

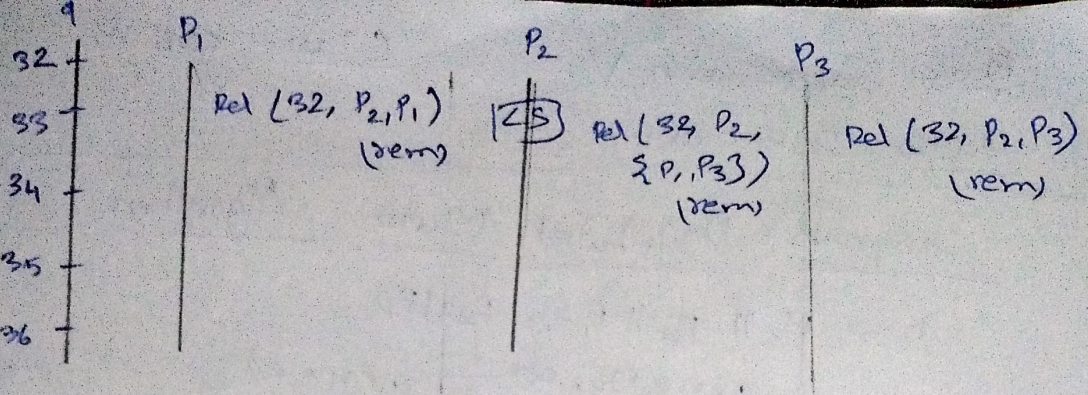
$P_1 \rightarrow P_3 \,||\, P_2 \,||\, P_1 \rightarrow P_2 \,||\, P_1$



P_1: Req(1, P_1, {P_2, P_3}) (Add to queue); Rep(3, P_2, P_1); Rep(3, P_3, P_1); Rel(6, P_1, {P_1, P_2}) (remove); Req(8, P_1, {P_2, P_3}); Req(8, P_2, P_1); Req(8, P_3, P_1); Rep(11, P_2, P_1); Rep(11, P_3, P_1); CS; Rep(15, P_1, P_3) (remove); Rel(18, P_2, P_1) (remove); Rel(P_1, P_3, P_2) (remove); Rep(26, P_2, P_1); Rep(26, P_3, P_1); CS

P_2: Req(1, P_1, P_2) (add); Rep(3, P_2, P_1); Rel(6, P_1, P_2) (remove); Req(8, P_2, {P_1, P_3}) (add); Req(8, P_1, P_2) (add); Req(11, P_2, P_1); Rel(15, P_1, P_2) (remove); CS; Rep(18, P_2, {P_1, P_3}) (remove); Rep(26, P_2, P_1)

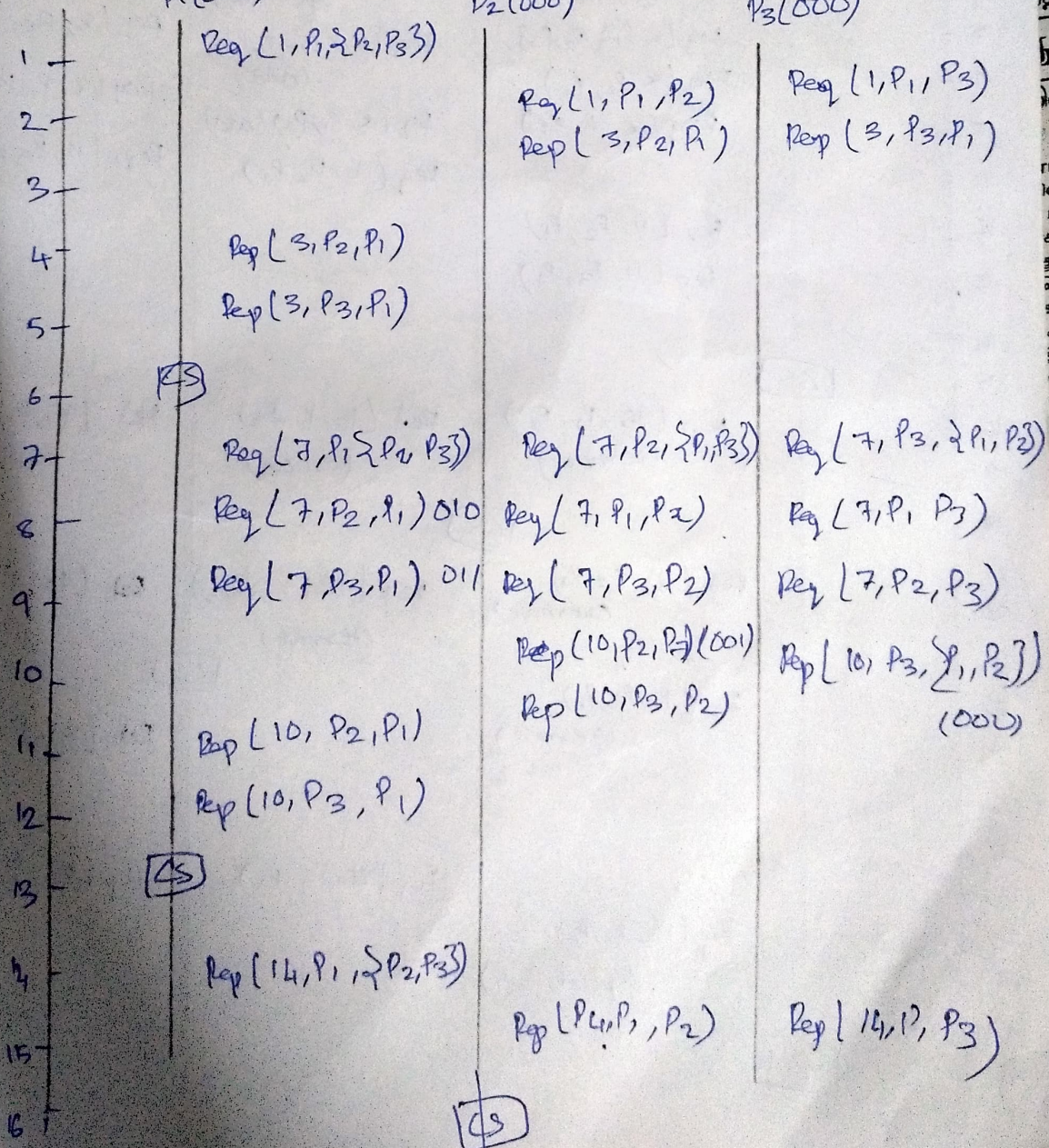
P_3: Req(1, P_1, P_3); Rep(3, P_3, P_1) (add); Rel(6, P_1, P_3) (rm); Req(8, P_3, {P_1, P_2}); Req(8, P_1, P_3) (add); Rep(11, P_3, P_1); Rel(15, P_1, P_3) (remove); Rel(18, P_2, P_1) (rem); CS; Rel(21, P_3, {P_1, P_2}) (rem); Rep(26, P_3, P_5)

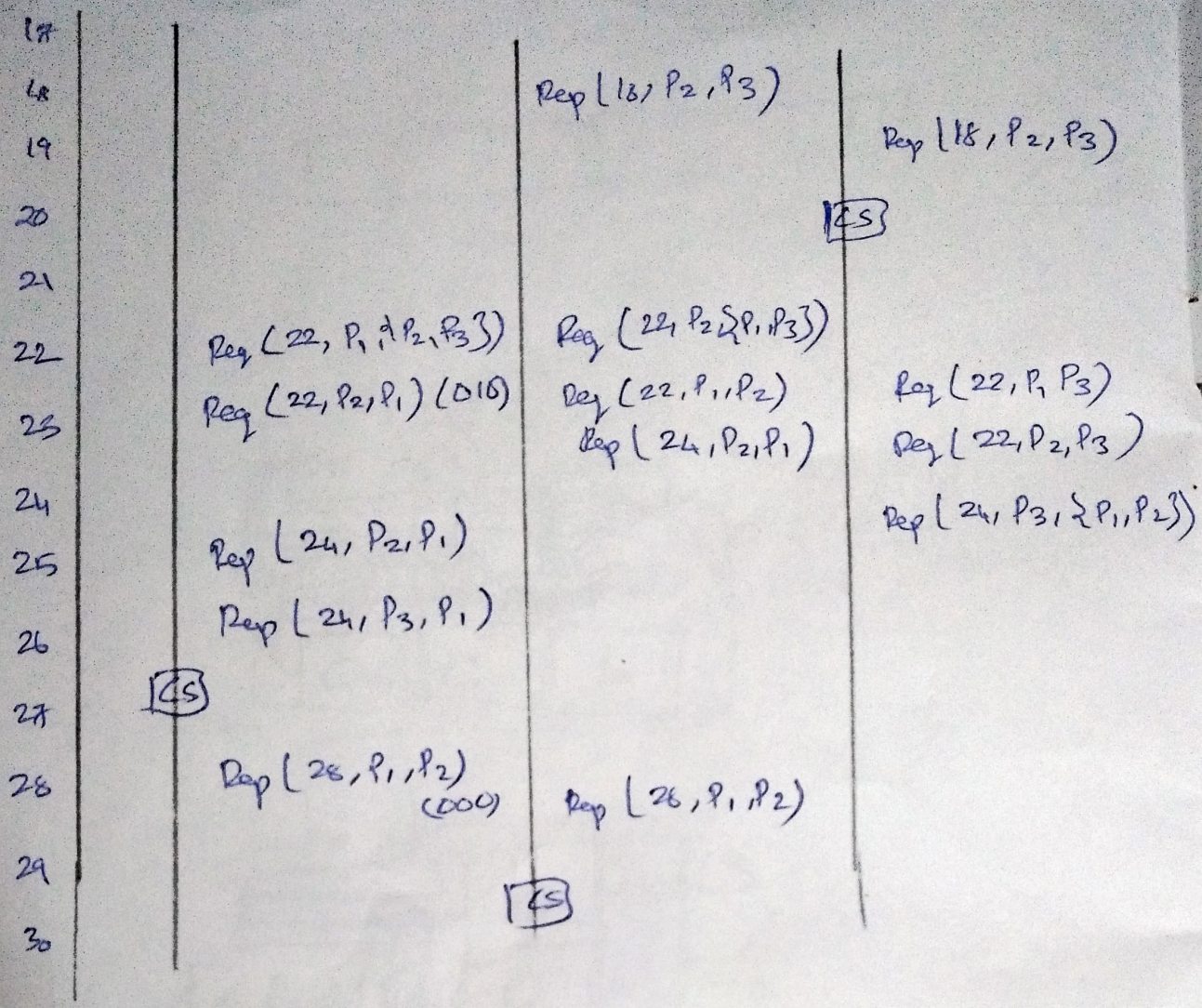


Lamport's algorithm achieves mutual exclusion by sending req, rep and rel messages accordingly.

Ricart Agrawala Algorithm

$P_1 \rightarrow P_3 \,||\, P_2 \,||\, P_1 \rightarrow P_2 \,||\, P_1$ RD − 000





Richart Agrawala algorithm reduces number of messages sent (request, reply) by checking which replies have been deferred.