<u>Verification of Causal Broadcast Algorithm</u>

In order to verify our implementation of causal broadcasting, we created a transaction log for each node (*Trans<nodeID>.log*). Every time a message is broadcasted by a node *X*, it is written to *TransX.log*, specifying which node is broadcasting it, what the tag of the message is, and the contents of the *prevDelivered* ordered list (just the tags, since the actual message contents would not be so helpful) as per the causal broadcasting algorithm. With this information then, we can verify if the causal broadcast algorithm has been implemented quite simply. So let's say the following line appears in *TransX.log*:

NODE X IS SENDING MSG WITH TAG 1-3 WITH PREVDELIV: [1-1],[1-2],[2-0]

For a correct causal broadcasting implementation, we would need to observe messages with tags 1-1, 1-2, and 2-0 are delivered before 1-3 (i.e. they appear above message with tag 1-3 in every write/delivery log). Since, this is true for all 25 messages that have been broadcasted, this means this is implementation of causal broadcasting has been done correctly.