Starting Byzantine, ID: 0 I, byzantine 2 have received: 3 messages Starting Byzantine, ID: 1 ---> BROADCAST: N Value: 1 Round: 1 ID: 3 Starting Byzantine, ID: 2 <-- RECEIVED: N Value: 0 Round: 1 ID: 3 Starting Byzantine, ID: 3 I, byzantine 3 have received: 2 messages ---> BROADCAST: N Value: 0 Round: 1 ID: 3 ID: 3 | Traitor: true | Type: R Starting Byzantine, ID: 4 <-- RECEIVED: N Value: 0 Round: 1 ID: 4 <-- RECEIVED: N Value: 1 Round: 1 ID: 0 Ready to broadcast! Ready to broadcast! <-- RECEIVED: N Value: 0 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 0 I, byzantine 0 have received: 6 messages I, byzantine 0 have received: 2 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 0 ---> BROADCAST: N Value: 1 Round: 1 ID: 0 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 1 <-- RECEIVED: P Value: 1 Round: 1 ID: 1 Ready to broadcast! ---> BROADCAST: P Value: 1 Round: 1 ID: 0 <-- RECEIVED: P Value: 1 Round: 1 ID: 2 <-- RECEIVED: N Value: 1 Round: 1 ID: 0 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 I, byzantine 0 have received: 3 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 3 ---> BROADCAST: N Value: 1 Round: 1 ID: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 1 <-- RECEIVED: P Value: 1 Round: 1 ID: 4 I. byzantine 1 have received: 2 messages ---> BROADCAST: P Value: 1 Round: 1 ID: 0 ---> BROADCAST: N Value: 1 Round: 1 ID: 1 ---> BROADCAST: N Value: 0 Round: 1 ID: 4 <-- RECEIVED: N Value: 1 Round: 1 ID: 2 <-- RECEIVED: N Value: 0 Round: 1 ID: 1 Ready to broadcast! I, byzantine 1 have received: 5 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 0 ---> BROADCAST: P Value: 1 Round: 1 ID: 1 I, byzantine 0 have received: 4 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 1 ---> BROADCAST: N Value: 1 Round: 1 ID: 2 ---> BROADCAST: P Value: 1 Round: 1 ID: 1 <-- RECEIVED: N Value: 1 Round: 1 ID: 1 <-- RECEIVED: P Value: 1 Round: 1 ID: 2 I, byzantine 1 have received: 3 messages ---> BROADCAST: P Value: 1 Round: 1 ID: 1 ---> BROADCAST: N Value: 1 Round: 1 ID: 2 <-- RECEIVED: P Value: 1 Round: 1 ID: 3 <-- RECEIVED: N Value: 1 Round: 1 ID: 2 ---> BROADCAST: P Value: 1 Round: 1 ID: 1 I, byzantine 2 have received: 2 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 4 ---> BROADCAST: N Value: 1 Round: 1 ID: 2 ---> BROADCAST: P Value: 1 Round: 1 ID: 1 <-- RECEIVED: N Value: 1 Round: 1 ID: 3 ---> BROADCAST: N Value: 0 Round: 1 ID: 4 Ready to broadcast! <-- RECEIVED: N Value: 0 Round: 1 ID: 2 I, byzantine 2 have received: 4 messages <-- RECEIVED: N Value: 0 Round: 1 ID: 0 ---> BROADCAST: N Value: 0 Round: 1 ID: 4 <-- RECEIVED: N Value: 0 Round: 1 ID: 3 I, byzantine 0 have received: 5 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 0 I, byzantine 3 have received: 3 messages ---> BROADCAST: P Value: 1 Round: 1 ID: 0 ---> BROADCAST: N Value: 0 Round: 1 ID: 4 <-- RECEIVED: P Value: 1 Round: 1 ID: 1 <-- RECEIVED: N Value: 0 Round: 1 ID: 4 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 I, byzantine 4 have received: 2 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 2 ---> BROADCAST: N Value: 0 Round: 1 ID: 4 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 I, byzantine 4 have received: 2 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 3 ---> BROADCAST: N Value: 0 Round: 1 ID: 3 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 I, byzantine 3 have received: 3 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 4 ---> BROADCAST: N Value: 1 Round: 1 ID: 2 ---> BROADCAST: P Value: 1 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 4 ---> BROADCAST: N Value: 0 Round: 1 ID: 3 I, byzantine 4 have received: 3 messages <-- RECEIVED: N Value: 1 Round: 1 ID: 1 ---> BROADCAST: N Value: 1 Round: 1 ID: 2 I, byzantine 1 have received: 4 messages I, byzantine 2 have received: 4 messages ---> BROADCAST: N Value: 1 Round: 1 ID: 3 ---> BROADCAST: N Value: 1 Round: 1 ID: 1

<-- RECEIVED: N Value: 1 Round: 1 ID: 3

<-- RECEIVED: N Value: 1 Round: 1 ID: 2

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I, byzantine 3 have received: 4 messages
                                                               <-- RECEIVED: N Value: 1 Round: 1 ID: 4
---> BROADCAST: N Value: 1 Round: 1 ID: 1
                                                               I, byzantine 4 have received: 5 messages
<-- RECEIVED: N Value: 1 Round: 1 ID: 4
                                                               <-- RECEIVED: P Value: -1 Round: 1 ID: 0
I, byzantine 4 have received: 4 messages
                                                               << DECIDED >> byzantine 0, value: 1
                                                               ---> BROADCAST: P Value: -1 Round: 1 ID: 4
---> BROADCAST: N Value: 1 Round: 1 ID: 1
I, byzantine 1 have received: 5 messages
                                                               <-- RECEIVED: P Value: -1 Round: 1 ID: 1
<-- RECEIVED: P Value: 1 Round: 1 ID: 0
                                                               << DECIDED >> byzantine 1, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 1
                                                               ---> BROADCAST: P Value: -1 Round: 1 ID: 4
<-- RECEIVED: P Value: 1 Round: 1 ID: 1
                                                               <-- RECEIVED: P Value: -1 Round: 1 ID: 2
---> BROADCAST: P Value: 1 Round: 1 ID: 1
                                                               << DECIDED >> byzantine 2, value: 1
<-- RECEIVED: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: -1 Round: 1 ID: 4
---> BROADCAST: P Value: 1 Round: 1 ID: 1
                                                               <-- RECEIVED: P Value: -1 Round: 1 ID: 3
<-- RECEIVED: P Value: 1 Round: 1 ID: 3
                                                               << DECIDED >> byzantine 3, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 1
                                                               ---> BROADCAST: P Value: -1 Round: 1 ID: 4
<-- RECEIVED: P Value: 1 Round: 1 ID: 4
                                                               <-- RECEIVED: P Value: -1 Round: 1 ID: 4
---> BROADCAST: P Value: 1 Round: 1 ID: 1
                                                               << DECIDED >> byzantine 4, value: 1
---> BROADCAST: N Value: 1 Round: 1 ID: 0
                                                               ---> BROADCAST: P Value: -1 Round: 1 ID: 4
<-- RECEIVED: N Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: N Value: 1 Round: 1 ID: 0
I, byzantine 2 have received: 5 messages
                                                               I, byzantine 0 have received: 6 messages
<-- RECEIVED: P Value: 1 Round: 1 ID: 0
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 0
<< DECIDED >> byzantine 0, value: 1
                                                               << DECIDED >> byzantine 0, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 0
<-- RECEIVED: P Value: 1 Round: 1 ID: 1
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 1
<< DECIDED >> byzantine 1, value: 1
                                                               << DECIDED >> byzantine 1, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 0
<-- RECEIVED: P Value: 1 Round: 1 ID: 2
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 2
<< DECIDED >> byzantine 2, value: 1
                                                               << DECIDED >> byzantine 2, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 0
<-- RECEIVED: P Value: 1 Round: 1 ID: 3
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 3
<< DECIDED >> byzantine 3, value: 1
                                                               << DECIDED >> byzantine 3, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 0
<-- RECEIVED: P Value: 1 Round: 1 ID: 4
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 4
<< DECIDED >> byzantine 4, value: 1
                                                               << DECIDED >> byzantine 4, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 2
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 0
---> BROADCAST: N Value: 1 Round: 1 ID: 0
                                                               ---> BROADCAST: N Value: 1 Round: 1 ID: 0
<-- RECEIVED: N Value: 1 Round: 1 ID: 3
                                                               <-- RECEIVED: N Value: 1 Round: 1 ID: 1
I, byzantine 3 have received: 5 messages
                                                               I, byzantine 1 have received: 6 messages
<-- RECEIVED: P Value: 1 Round: 1 ID: 0
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 0
<< DECIDED >> byzantine 0, value: 1
                                                               << DECIDED >> byzantine 0, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 3
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 1
<-- RECEIVED: P Value: 0 Round: 1 ID: 1
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 1
<< DECIDED >> byzantine 1, value: 1
                                                               << DECIDED >> byzantine 1, value: 1
---> BROADCAST: P Value: 0 Round: 1 ID: 3
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 1
<-- RECEIVED: P Value: 0 Round: 1 ID: 2
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 2
<< DECIDED >> byzantine 2, value: 1
                                                               << DECIDED >> byzantine 2, value: 1
---> BROADCAST: P Value: 0 Round: 1 ID: 3
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 1
<-- RECEIVED: P Value: 0 Round: 1 ID: 3
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 3
<< DECIDED >> byzantine 3, value: 1
                                                               << DECIDED >> byzantine 3, value: 1
---> BROADCAST: P Value: 0 Round: 1 ID: 3
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 1
<-- RECEIVED: P Value: 1 Round: 1 ID: 4
                                                               <-- RECEIVED: P Value: 1 Round: 1 ID: 4
<< DECIDED >> byzantine 4, value: 1
                                                               << DECIDED >> byzantine 4, value: 1
---> BROADCAST: P Value: 1 Round: 1 ID: 3
                                                               ---> BROADCAST: P Value: 1 Round: 1 ID: 1
---> BROADCAST: N Value: 1 Round: 1 ID: 0
                                                               ---> BROADCAST: N Value: 1 Round: 1 ID: 0
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---> BROADCAST: N Value: 1 Round: 1 ID: 0

<-- RECEIVED: N Value: 1 Round: 1 ID: 2 I, byzantine 2 have received: 6 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 0 << DECIDED >> byzantine 0, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 2 <-- RECEIVED: P Value: 1 Round: 1 ID: 1 << DECIDED >> byzantine 1, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 2 <-- RECEIVED: P Value: 1 Round: 1 ID: 2 << DECIDED >> byzantine 2, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 2 <-- RECEIVED: P Value: 1 Round: 1 ID: 3 << DECIDED >> byzantine 3, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 2 <-- RECEIVED: P Value: 1 Round: 1 ID: 4 << DECIDED >> byzantine 4, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 2 ---> BROADCAST: N Value: 1 Round: 1 ID: 0 <-- RECEIVED: N Value: 1 Round: 1 ID: 3 I, byzantine 3 have received: 6 messages <-- RECEIVED: P Value: 1 Round: 1 ID: 0 << DECIDED >> byzantine 0, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 3 <-- RECEIVED: P Value: 1 Round: 1 ID: 1 << DECIDED >> byzantine 1, value: 1 ---> BROADCAST: P Value: 1 Round: 1 ID: 3 <-- RECEIVED: P Value: 0 Round: 1 ID: 2 << DECIDED >> byzantine 2, value: 1 ---> BROADCAST: P Value: 0 Round: 1 ID: 3 <-- RECEIVED: P Value: 0 Round: 1 ID: 3 << DECIDED >> byzantine 3, value: 1 ---> BROADCAST: P Value: 0 Round: 1 ID: 3 <-- RECEIVED: P Value: 1 Round: 1 ID: 4 << DECIDED >> byzantine 4, value: 1 <-- RECEIVED: N Value: 1 Round: 1 ID: 4

---> BROADCAST: P Value: 1 Round: 1 ID: 3 ---> BROADCAST: N Value: 1 Round: 1 ID: 0 I, byzantine 4 have received: 6 messages

<-- RECEIVED: P Value: 1 Round: 1 ID: 0

<< DECIDED >> byzantine 0, value: 1

---> BROADCAST: P Value: 1 Round: 1 ID: 4

<-- RECEIVED: P Value: 1 Round: 1 ID: 1

<< DECIDED >> byzantine 1, value: 1

---> BROADCAST: P Value: 1 Round: 1 ID: 4

<-- RECEIVED: P Value: 1 Round: 1 ID: 2

<< DECIDED >> byzantine 2, value: 1

---> BROADCAST: P Value: 1 Round: 1 ID: 4

<-- RECEIVED: P Value: 1 Round: 1 ID: 3

<< DECIDED >> byzantine 3, value: 1

---> BROADCAST: P Value: 1 Round: 1 ID: 4 <-- RECEIVED: P Value: 1 Round: 1 ID: 4

<< DECIDED >> byzantine 4, value: 1

---> BROADCAST: P Value: 1 Round: 1 ID: 4