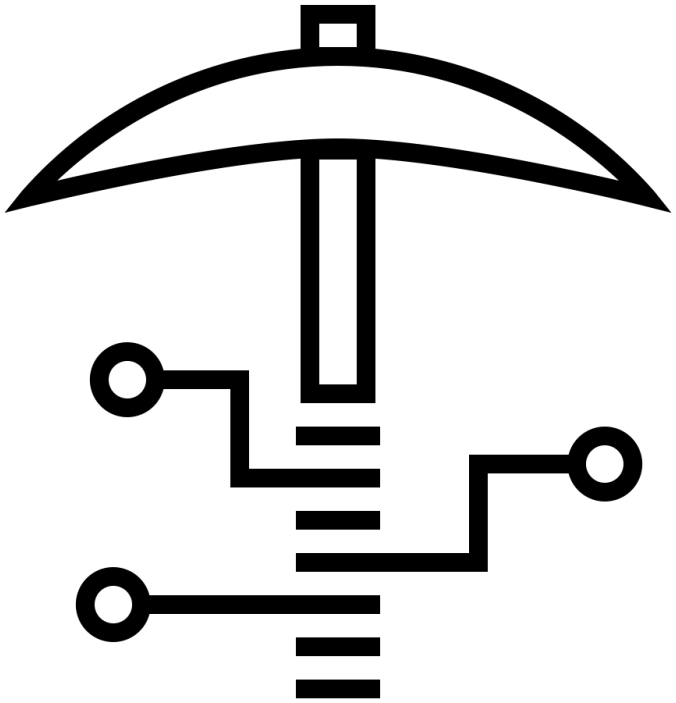
Accompanying Factors

- Mining
- Consensus

Mining



Definition

Mining is the mechanism used in most cryptocurrencies to systematically give rights to add data to the blockchain.

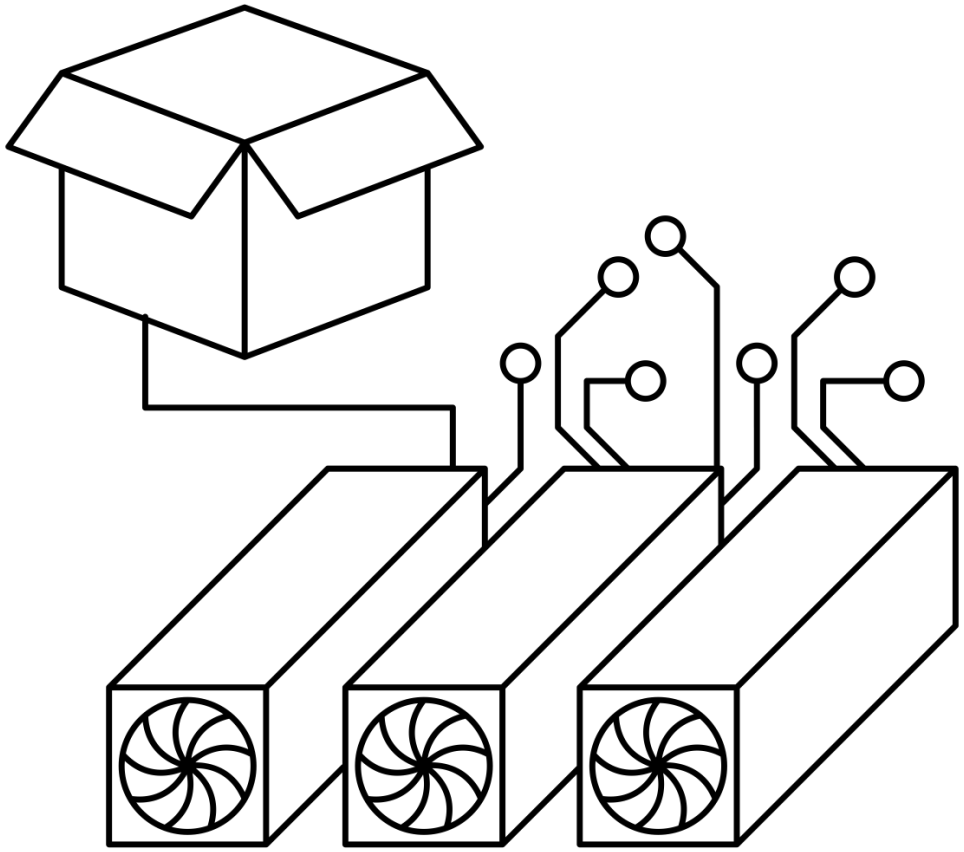
Five Mining Actions

- Validate transactions
- Propagate transactions
- Validate blocks
- Propagate blocks
- Store the data

Mining Incentives

- Giving the miner of each block (the node that puts the block on the blockchain) a block reward
- Giving the miner transaction fees which are paid by those conducting the transactions

Proof-of-Work Mining

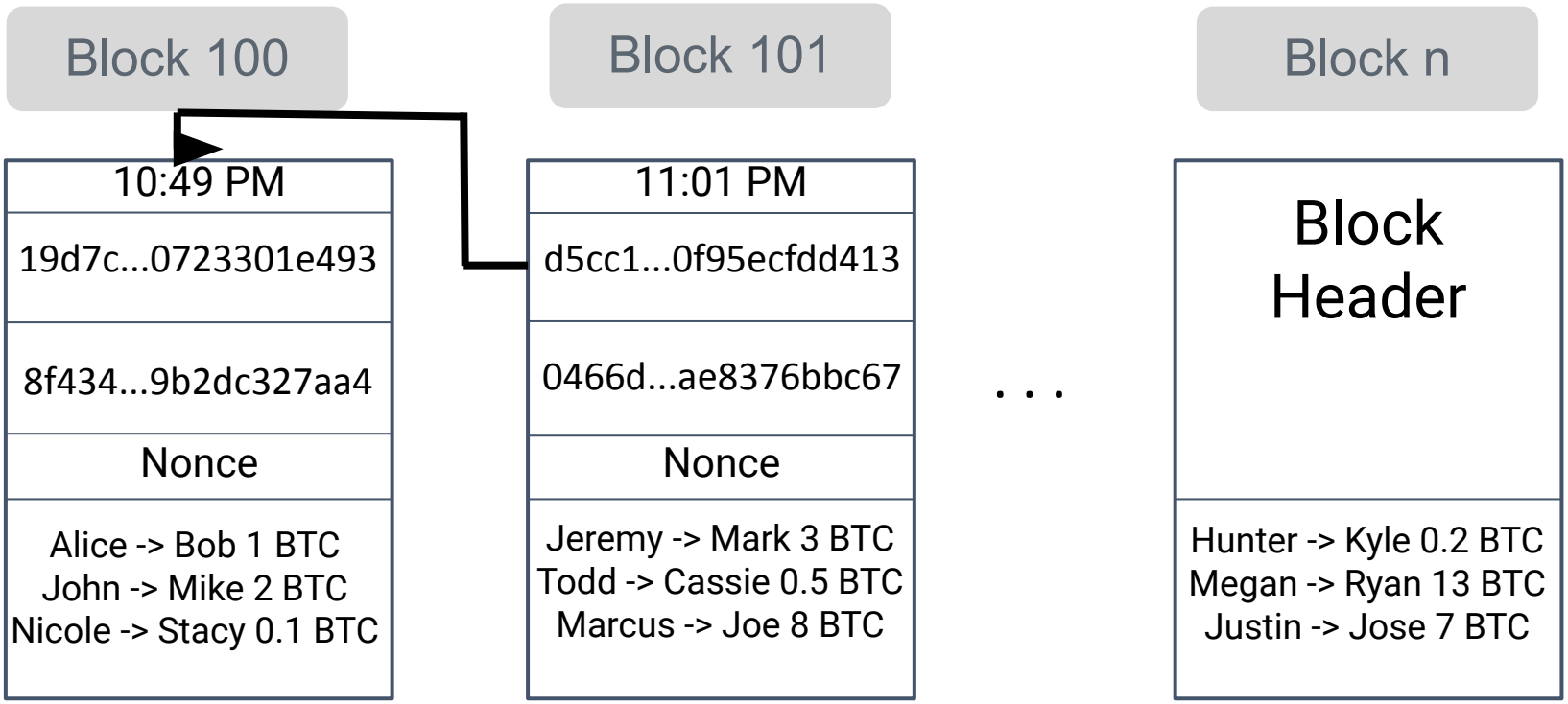


Definitions

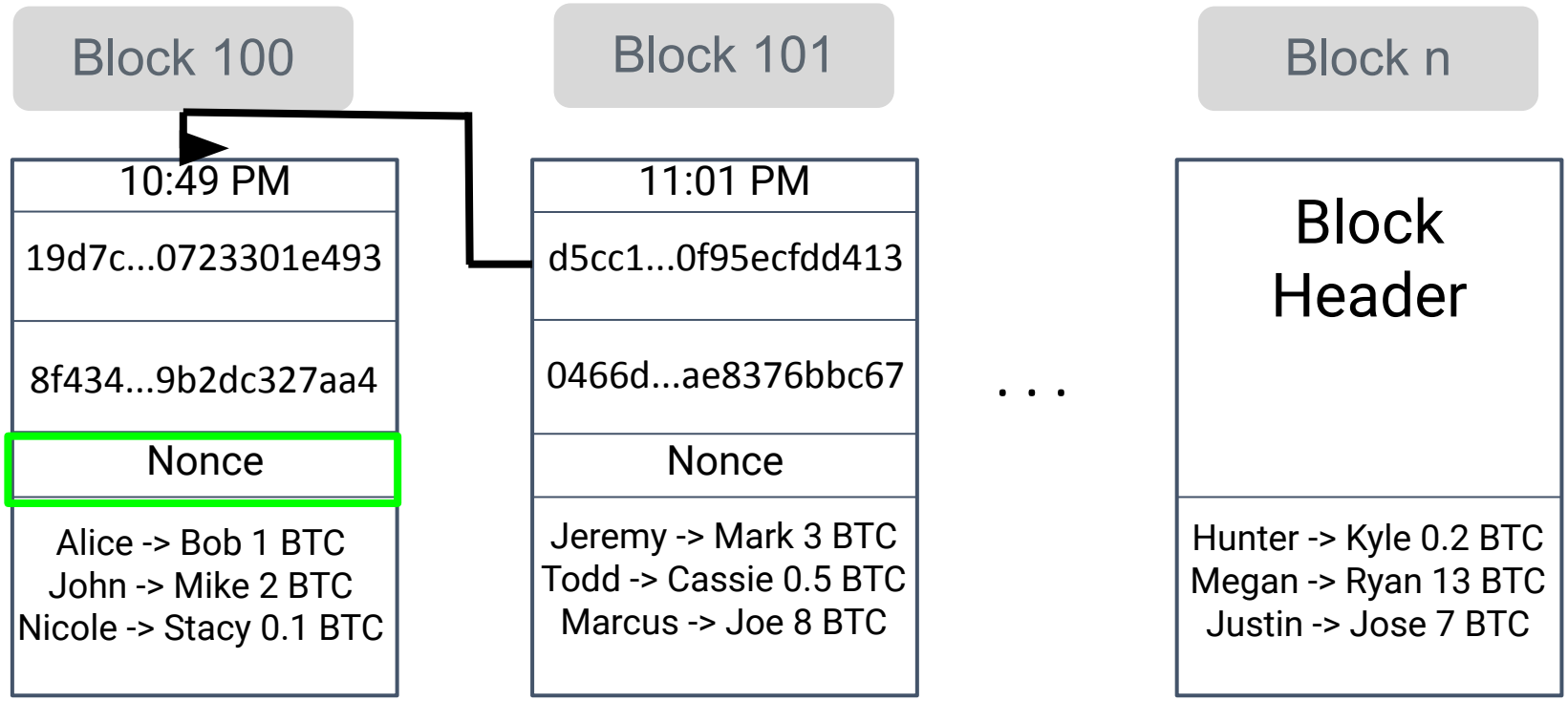
Proof-of-Work (PoW) mining allows us to give the right to add the next block on the blockchain by creating a game that consumes electricity (work).

Mining Difficulty Rate can be thought of as the hash of the block header must contain a certain number of 0's at the beginning.

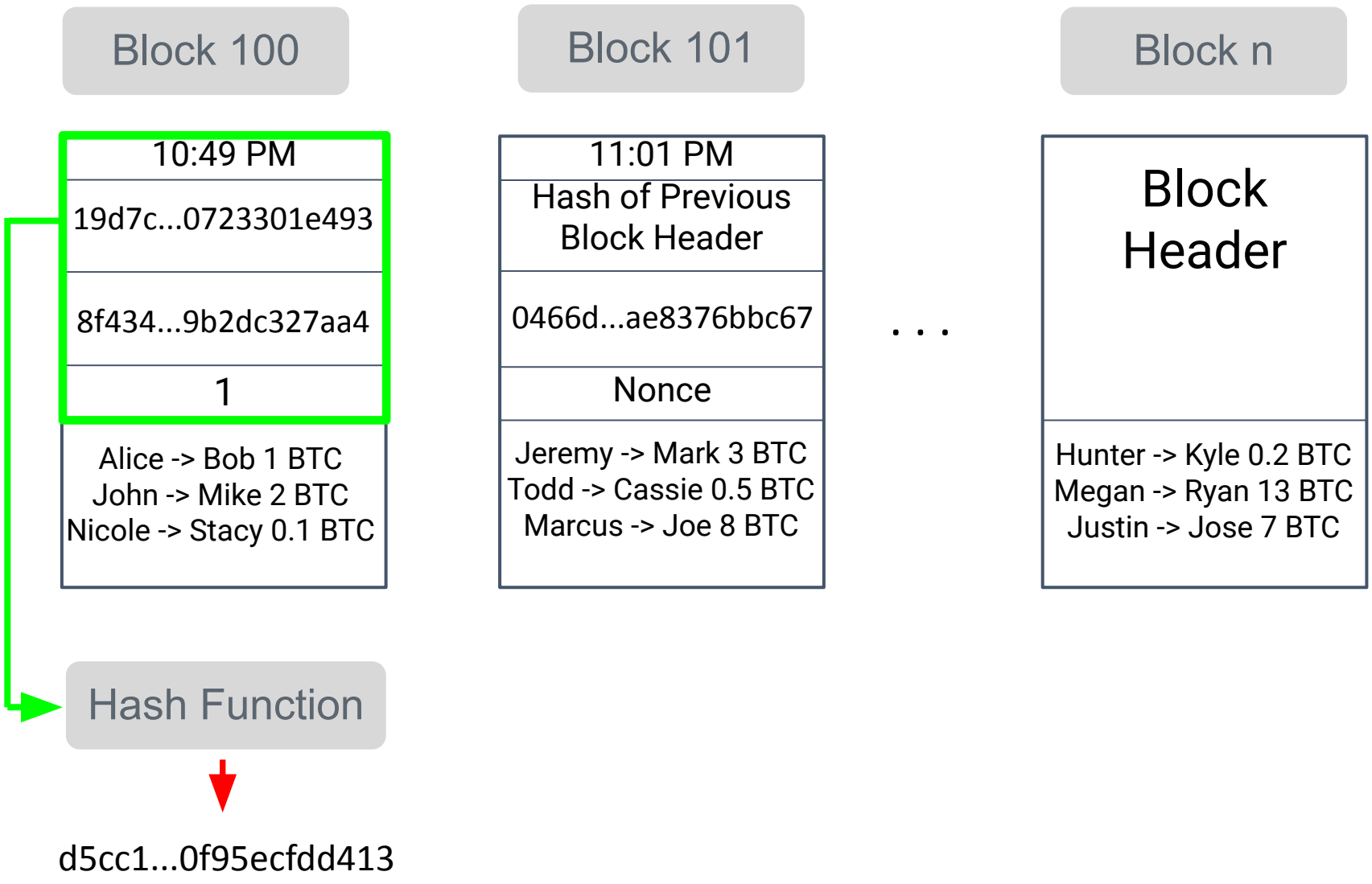
Proof-of-Work: Example (1/8)



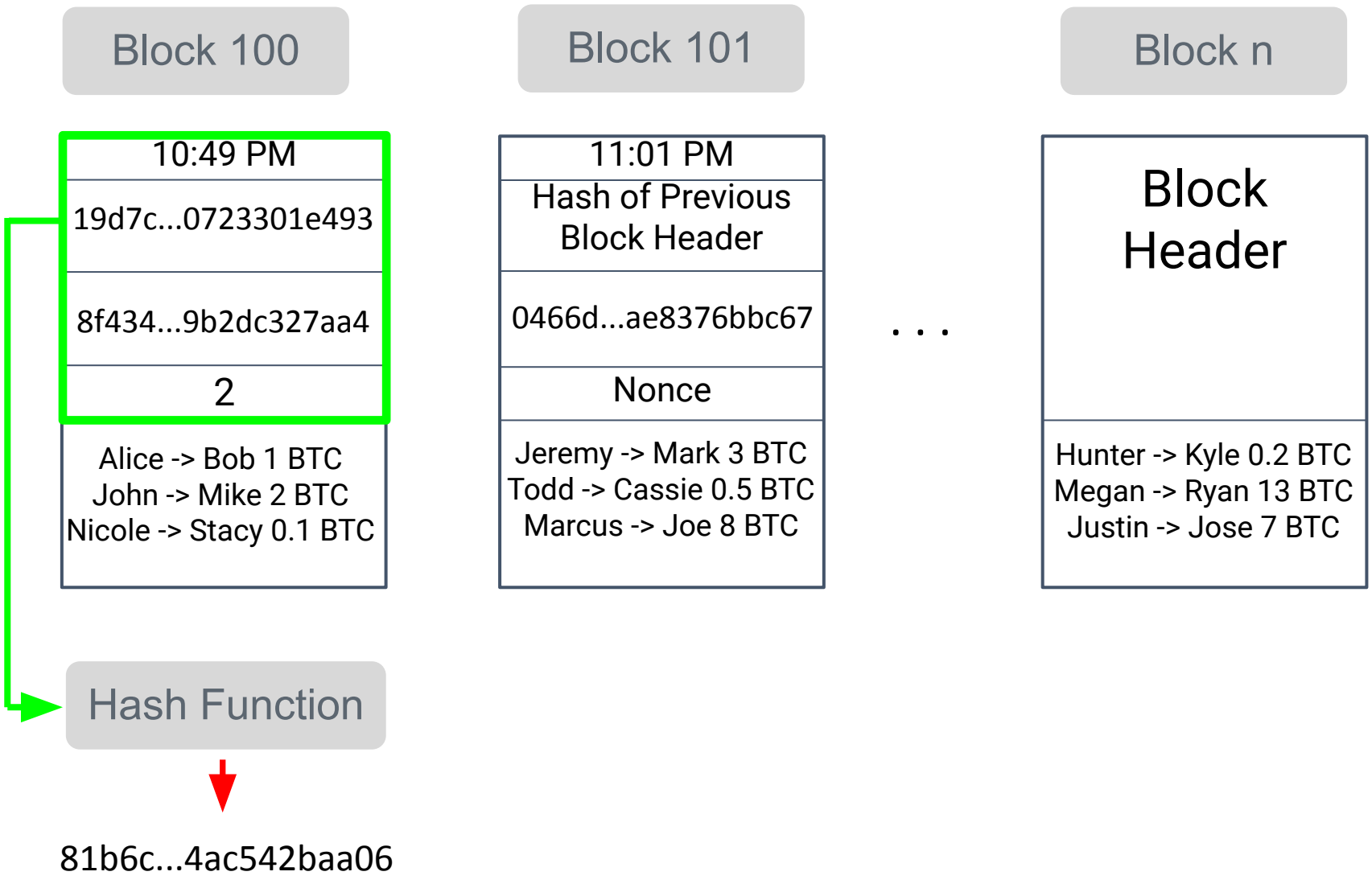
Proof-of-Work: Example (2/8)



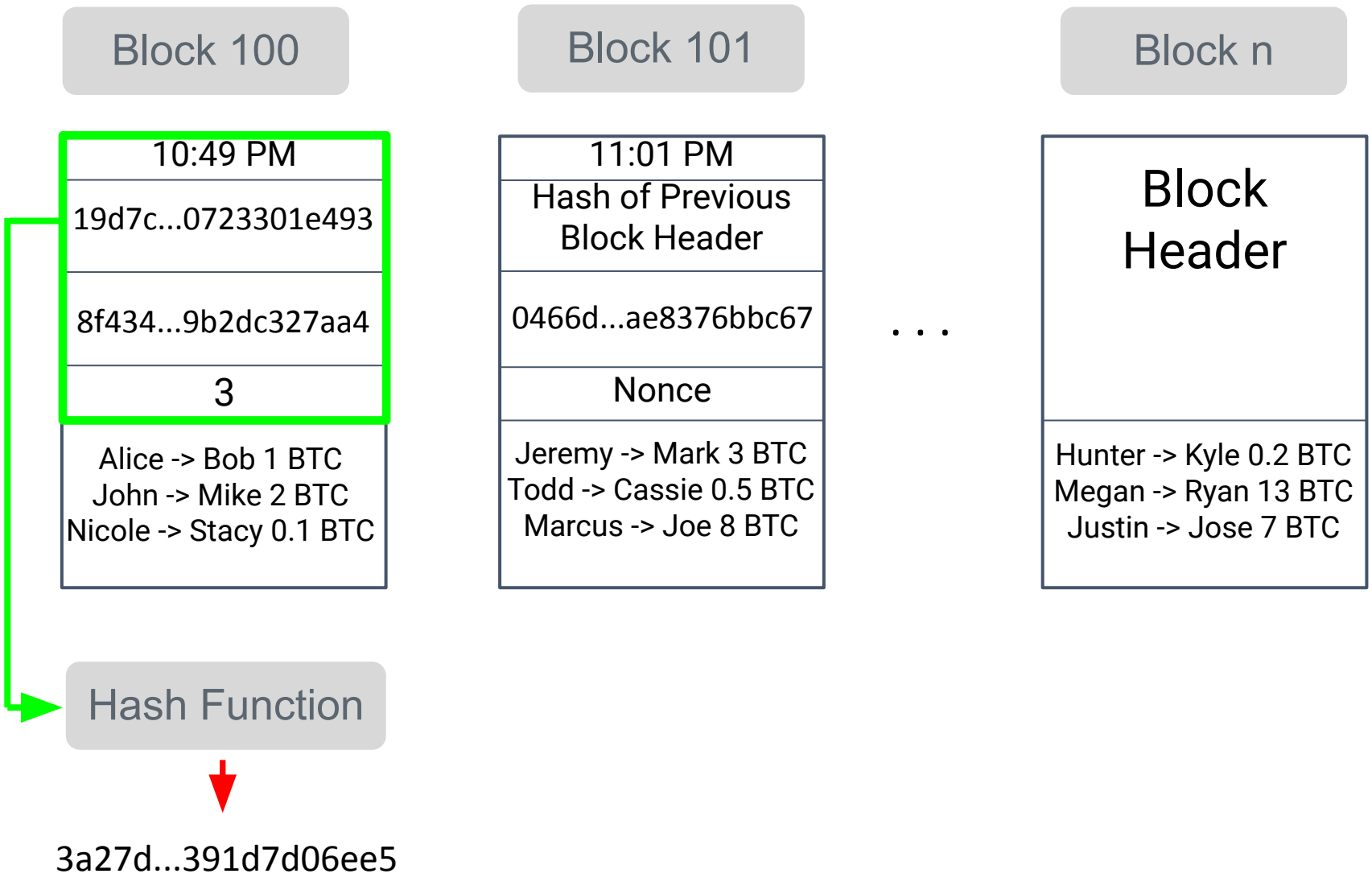
Proof-of-Work: Example (3/8)

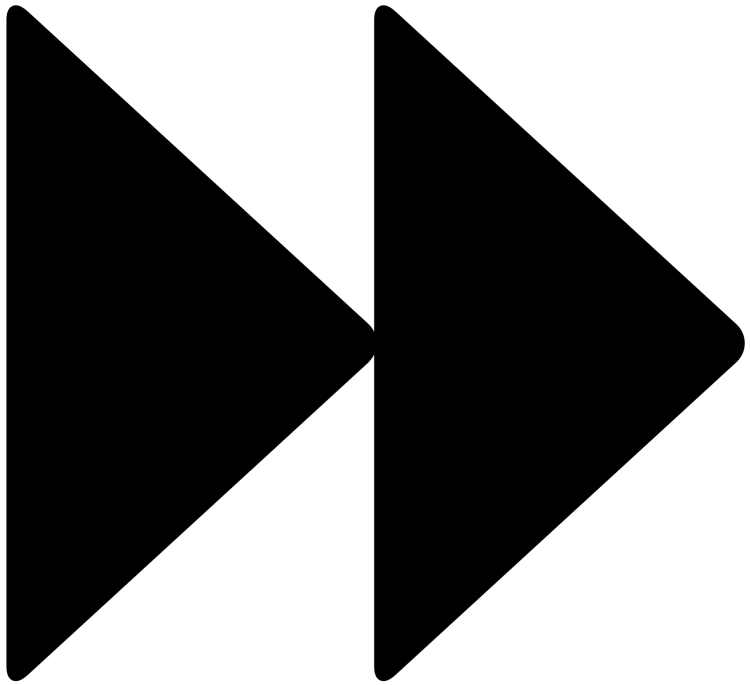


Proof-of-Work: Example (4/8)

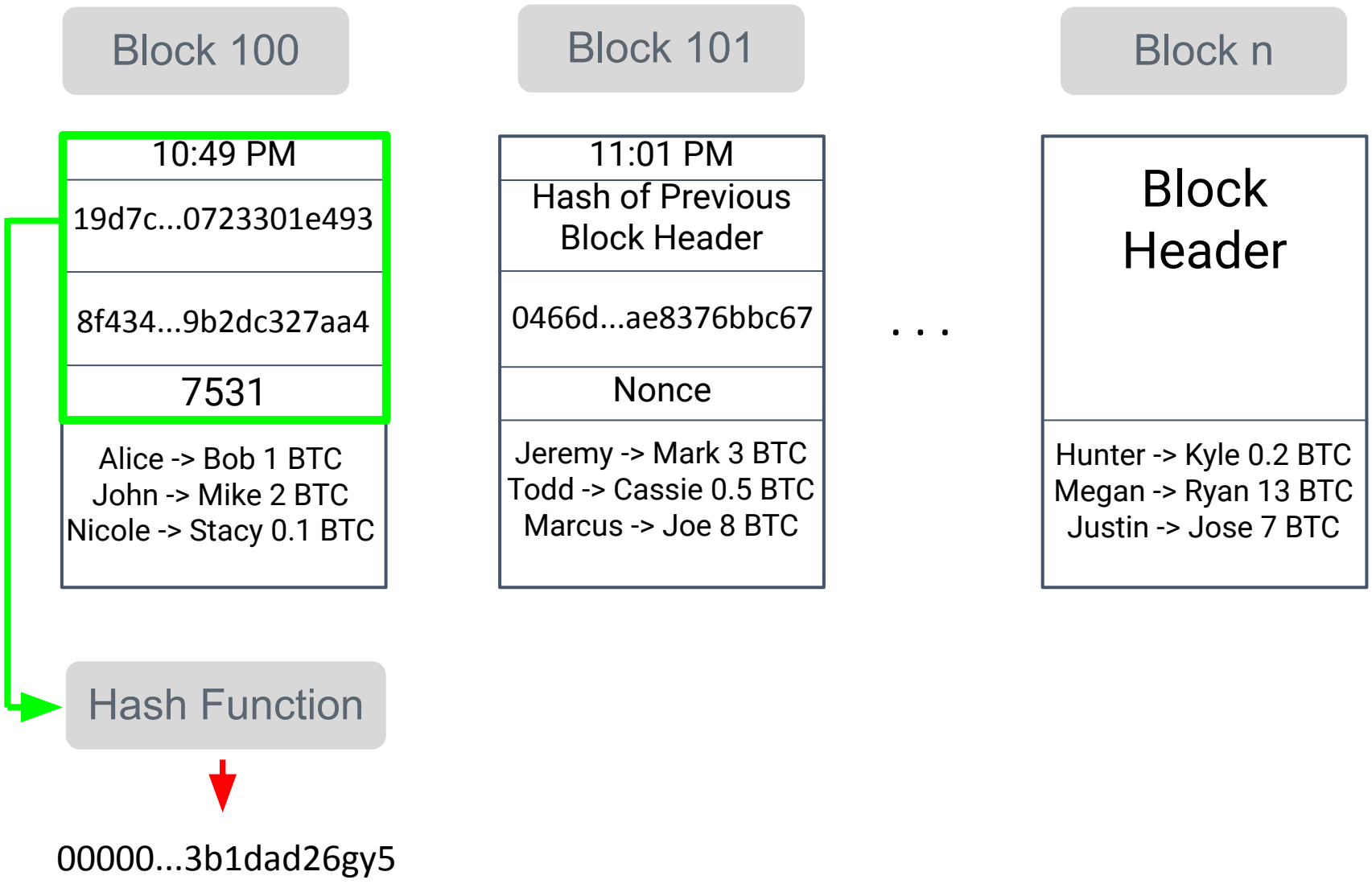


Proof-of-Work: Example (5/8)

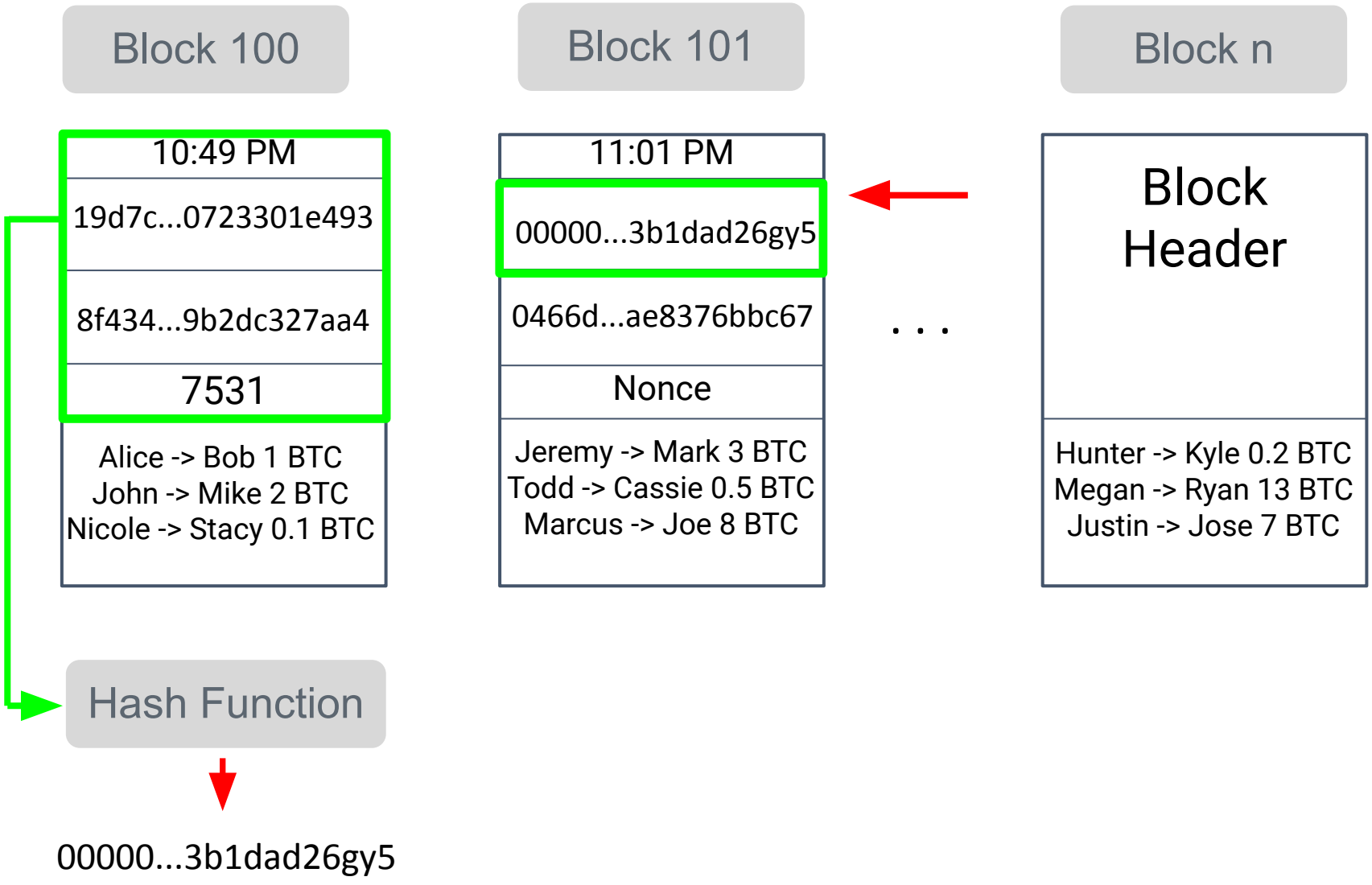




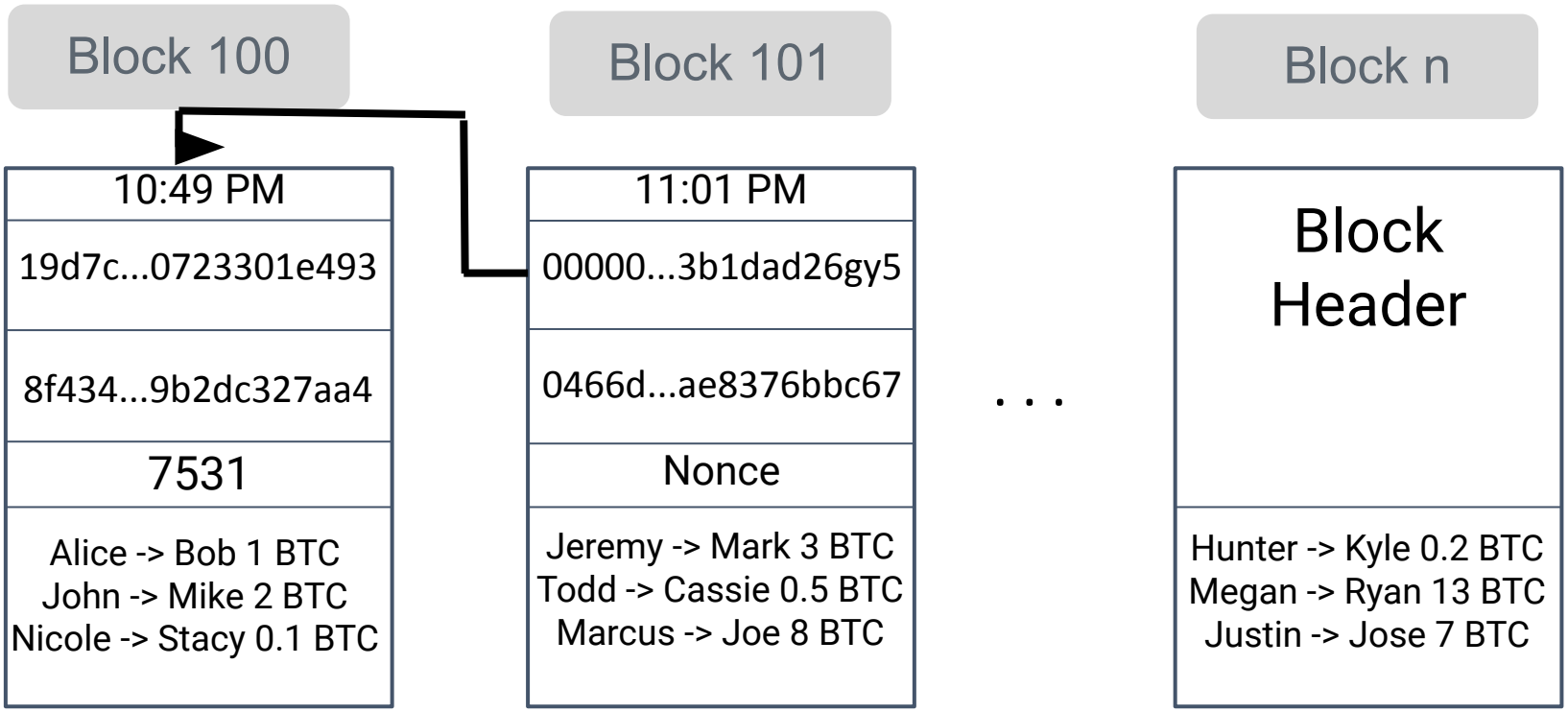
Proof-of-Work: Example (6/8)



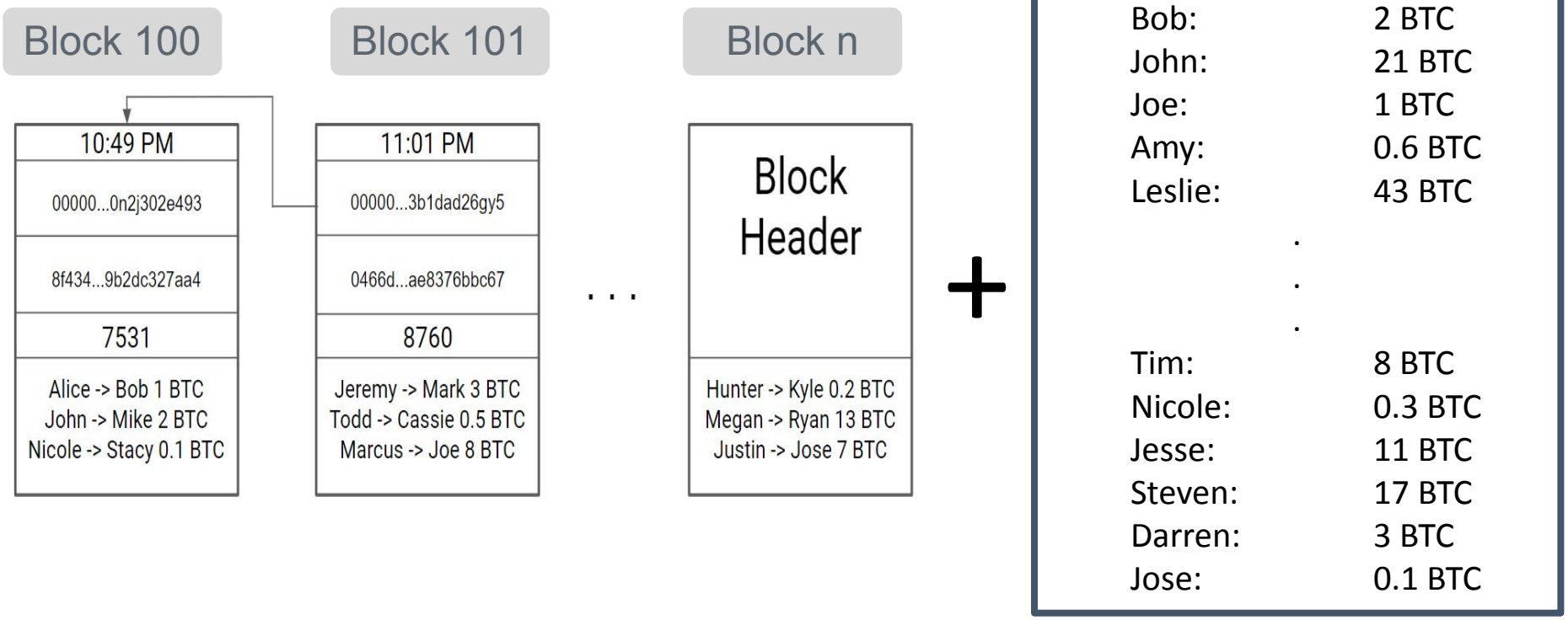
Proof-of-Work: Example (7/8)



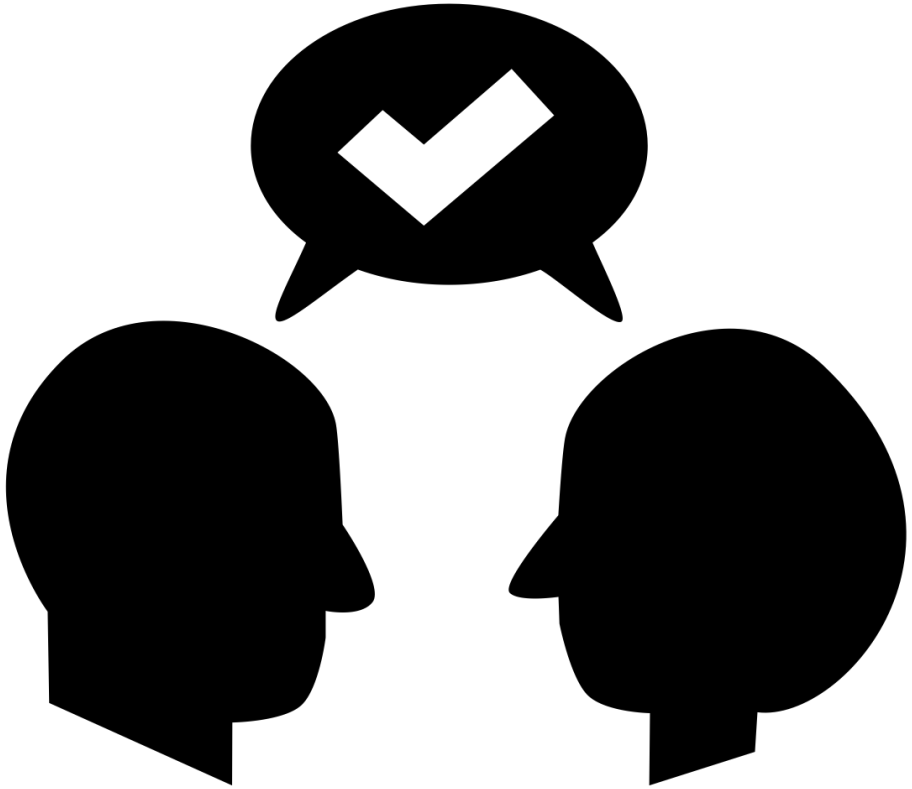
Proof-of-Work: Example (8/8)



Blockchain + Current State



Consensus



Definition

Consensus is the ability for all honest participants to come to agreement over a single truthful version of the blockchain in a trustless manner.

Consensus Algorithm is the algorithmic process in which a blockchain network achieves consensus.