

The block, the blockchain and the network

crypto251.0 Cryptocurrency and the Smileycoin

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November 29, 2020

The block and the chain

- Alice and Bob have **wallets**
- A **transaction** is generated by Alice's wallet when Alice sends Bob Smileycoins
- Alice's wallets **broadcast** the new transaction to the network
- The transaction then enters the **mempool**
- Any wallet on the network can examine the transaction
- A **miner** aggregates these transactions into a **block**
- A miner may simply be a wallet set to **mine**
- The block is **linked** to the previous blocks in a **chain**
- The miner broadcasts the block to the network
- A block needs to satisfy certain **difficulty** criteria

(more later)

The hash and the nonce

See https://en.bitcoin.it/wiki/Block_hashing_algorithm to see the code below and a description of the composition of the header

The network

The full (core) **wallets** are really just computer programs which “talk” together across the Internet, forming “points” which are connected using a protocol.

Each such point is called a **node**.

The collection of SmileCoin nodes forms the SmileyCoin network. This network can be studied in several ways and some of the block explorers do so:

<https://chainz.cryptoid.info/smlly/#!network>

When a node sees a transaction, this is sent across the network. This collection is called the **mempool**.

A miner picks up transactions in the mempool and puts them into a block. Note that different miners may have seen different transaction so they may not all be mining the same content into a block.

See the handout to look at commands to link to other computers and view the mempool.

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