

Even more sub categories of  
forks than the ones Leonhard  
just mentioned

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# Types of forks – Not mutually exclusive

- Software fork
- Chainfork
- Change in the consensus rules
  - Hardfork
    - Asymmetric hardfork
    - Symmetric hardfork
  - Softfork
    - Compulsory for miners
    - Advisable for miners
    - Voluntary for miners

# Hardforks

- Removal or relaxation of an existing consensus rule
  - Perhaps never happened in Bitcoin (Depends if you count removal of nondeterministic rules)
- Alternative definition (very similar), a non upgraded fully validating node gets booted off the network or can no longer connect to the network
  - This has occurred in Bitcoin

# Hardforks – More subcategories

- Asymmetric hardfork - the new blocks can be invalid under the old rules and old blocks are valid under the new rules
  - Examples (BU, Bitcoin Classic, Bitcoin XT)
- Symmetric hardfork - the new blocks can be invalid under the old rules and old blocks are also invalid under the new rules
  - Examples (Ethereum vs Ethereum Classic)

# Softforks

- Adding a new consensus rule (happens often in Bitcoin (Until recently))

# Softforks – More subcategories

- Compulsory for miners - old blocks are guaranteed to be invalid under new rules
  - Examples (SegWit on Litecoin, BIP148 UASF, Most Bitcoin softforks prior to 2015)
- Advisable for miners - old blocks might be invalid under new rules
- Voluntary for miners - old blocks are valid under new rules
  - Examples (SegWit, BIP149 UASF, BIP9, Most recent softforks)

# Softforks – Brief history

1. BIP16 - P2SH soft fork - 2012 - Rolling 55% super majority of last 1,000 blocks (problematic activation)
2. BIP34 - Height in coinbase - 2012 - Rolling 95% super majority of last 1,000 blocks
3. BIP66 - Strict DER signatures - 2015 - Rolling 95% super majority of last 1,000 blocks (problematic activation)
4. BIP65 - OP\_CHECKLOCKTIMEVERIFY - 2015 - Rolling 95% super majority of last 1,000 blocks
5. CSV soft fork, 2016 (3 BIPS) - Versionbits signaling 95%
6. Segregated Witness (3 BIPS) 2017 (proposed)- Versionbits signaling 95%

# Other forks people talk about

- Soft-hardfork
- Merge mining hardfork
- Cleanup hardfork

# Quiz - What type of fork is this?

Current blocksize limit is 1MB

- A rule that says blocks must now all be less than 800KB
- A rule that says blocks must now all be less than 2MB
- A rule that says blocks must now all be more than 500KB
- A rule that says blocks must now all be more than 500KB and less than 1MB
- A rule that says blocks must now all be more than 2MB
- A new rule that says, blocks must contain the string "BitcoinHKisGreat" in the coinbase transaction
- A new rule that says, if contain the string "BitcoinHKisGreat" in the coinbase, then the string "BitcoinJapansucks" must also be in the coinbase

# Quiz - What type of fork is required to do this?

- Freeze user coins
- Take away user coins and spend them yourself
- Increase the 1MB blocksize limit from the perspective of upgraded nodes
- Create newcoins/new inflation from the perspective of existing nodes (trick question)
- Increase the 1MB blocksize limit from the perspective of old nodes (trick question)
- Create new coins from the perspective of upgraded nodes nodes (trick question)