CEPS event on "What laws for the token economy?" Providing Legal Certainty for a «Token Economy»

Trusted Technology Law (TTL)

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Legal Challenges

Challenges to a Token Economy 1/2

› No legal definition of a "token";
  - Need for certainty within the framework of a token economy;
  - Lack of clarity surrounding disposal and transfer of tokens, how can you make a legally binding transfer of a token from party to party?
  - How can you enforce token transfers?

› Can you own a token?
  - Is it a thing in the sense of property law?
  - Can a token represent a physical thing?

Challenges to a Token Economy 2/2

› "Link" between the token and the "real world" physical asset;
  - If there is a real world asset, then what if the asset is lost?
  - Third party rights to the asset?
  - Human error: Token Holder loses his private key or signs a transfer to the wrong address...?
  - How can you enforce the transfer of the represented right?
  - Mandatory laws?

› Different regulatory approaches across jurisdictions
  - Need of requirements for token issuers;
  - Traditional centralized intermediaries are normally subject to regulation.

Token & Coins, ERC 20 and More

Token 1/2

› The term Token has several meanings:
  - Token (coin), physical money that is privately minted;
  - Aids for identification (Hardware and Software Tokens);
  - Crypto Currencies;
  - And many more.

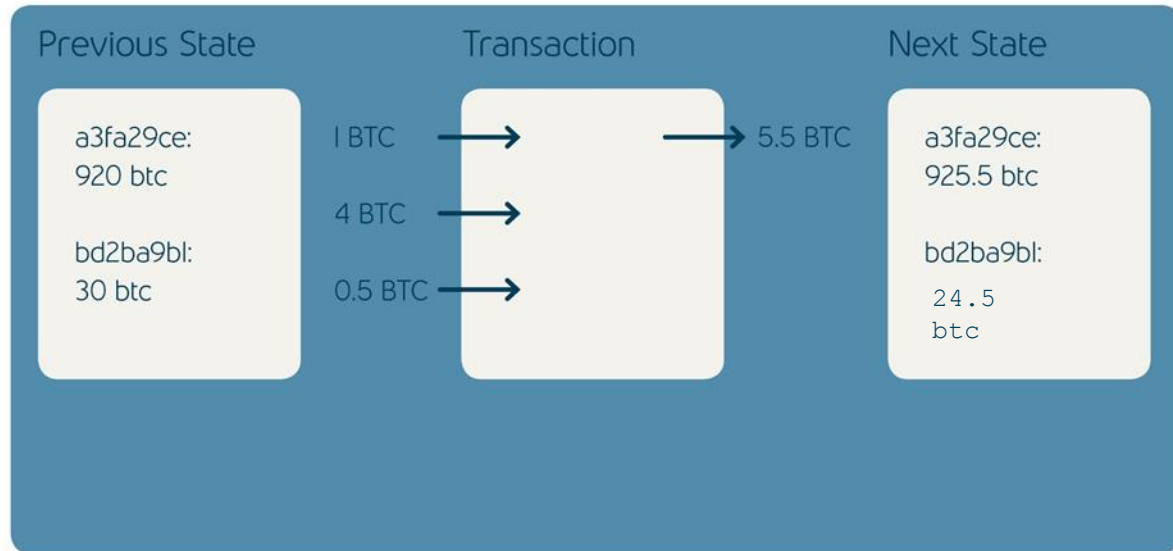Quelle: https://de.wikipedia.org/wiki/Token

Token 2/2

```solidity
contract MyToken {
    /* This creates an array with all balances */
    mapping (address => uint256) public balanceOf;

    /* Initializes contract with initial supply tokens to the creator of the contract */
    function MyToken(
        uint256 initialSupply
        ) {
        balanceOf[msg.sender] = initialSupply;              // Give the creator all initial tokens
    }

    /* Send coins */
    function transfer(address _to, uint256 _value) {
        require(balanceOf[msg.sender] >= _value);           // Check if the sender has enough
        require(balanceOf[_to] + _value >= balanceOf[_to]); // Check for overflows
        balanceOf[msg.sender] -= _value;                    // Subtract from the sender
        balanceOf[_to] += _value;                           // Add the same to the recipient
    }
}
```
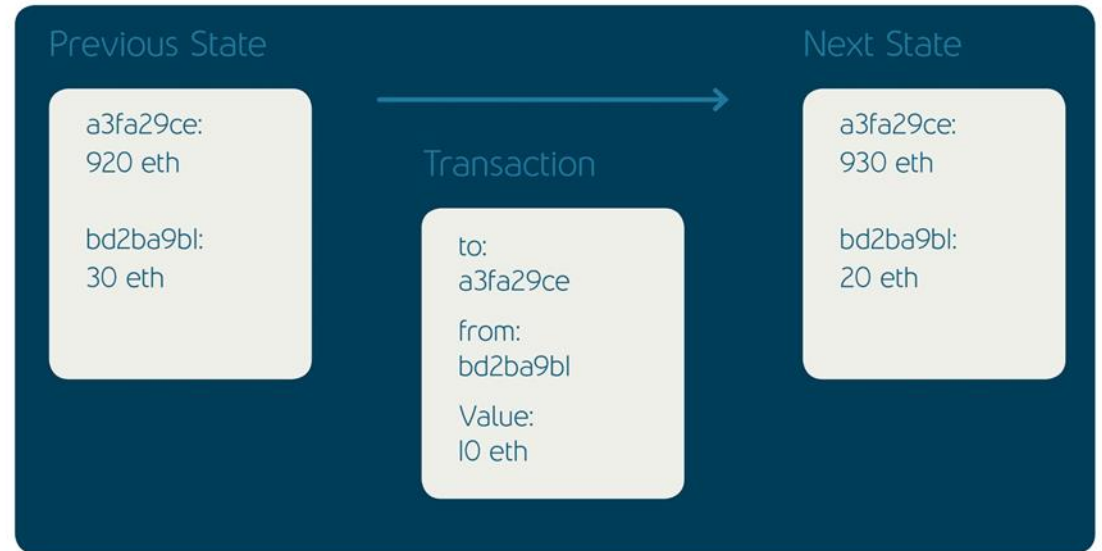
Source: https://ethereum.org/token

Are all Tokens Equal? Bitcoin vs. Ethereum

Bitcoin

Previous State	Transaction	Next State
a3fa29ce: 920 btc	1 BTC → → 5.5 BTC	a3fa29ce: 925.5 btc
bd2ba9bl: 30 btc	4 BTC → 0.5 BTC →	bd2ba9bl: 24.5 btc

Ethereum

Previous State	Transaction	Next State
a3fa29ce: 920 eth	to: a3fa29ce from: bd2ba9bl Value: 10 eth	a3fa29ce: 930 eth
bd2ba9bl: 30 eth		bd2ba9bl: 20 eth

Based on: https://www.coindesk.com/information/how-ethereum-works/

Token Standards

Bitcoin Blockchain
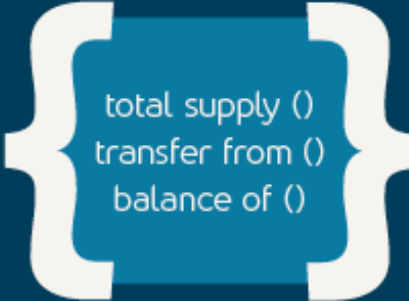
Ethereum Blockchain

Token as Information

› A **token** is information that
- Represents an underlying (right), or;
- Does not have anything underlying (e.g. Bitcoin).

› **Underlying,** for example
- An access right to a network;
- Discount on the purchase of a service or product;
- Right of Claim or membership in respect to a legal entity;
- Title to an object.

Functions of Tokens:

› In particular, tokens have the following functions:

Legitimization
(for the benefit of the beneficiary or creditor)

Liberation
(in favor of the debtor)

Transportation
(Transfer of the underlying right)

Legal Definition in Art. 5 P. 1 Cl. 1 of TTL

"Information on a TT System that can represent reasonable claims or membership rights of a person, rights in property, or other absolute and/or relative rights ensuring the assignment of one or more Public Keys."

› Token:

- TT-System;
- Information;
  - Can represent reasonable claims or membership rights of a person, rights to property, and/or other absolute or relative rights;
  - Ensuring the assignment of one or more Public Keys.

Questions?

› Contact me by E-mail: tn@naegele.law

› Find our blog at www.naegele.law/blog

Thank you very much for your time!

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