

DEXtory

Dive deep into protocols space

Anton Bukov, 1inch.exchange

Agenda

Is this «DeFi» thing something new?

1. Orderbook-based approach from traditional finance
2. Liquidity-based (AMM) approach from DeFi
3. Impermanent Loss (IL) explained
4. Aggregation is the key

Exchange

Happens when demand meets supply



Price?



Limit orders vs Market orders

Exchange happens where **supply** meets **demand**

- **Makers** create new limit orders
 - Swap happens with **exact price**
 - **Delayed** execution
- **Takers** fill existing limit orders
 - Possible **price slippage**
 - **Instant** execution

On-chain vs Off-chain

Something accessible and non-accessible within smart contract

- On-chain data is available within smart contract
- Off-chain data exists only outside of blockchain and should be passed in arguments

Orderbook-based DEXes

Makers create orders, **takers** fill orders

1. EtherDelta.com (on-chain):
 - No on-chain market orders
2. 0x.org (off-chain):
 - 0x Relays (permissioned)
 - 0x Mesh (permissionless)
3. AirSwap.com (off-chain):
 - No partial fill orders
 - Only direct querying
4. Oasis.app:
 - On-chain market orders

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ETH-DAI

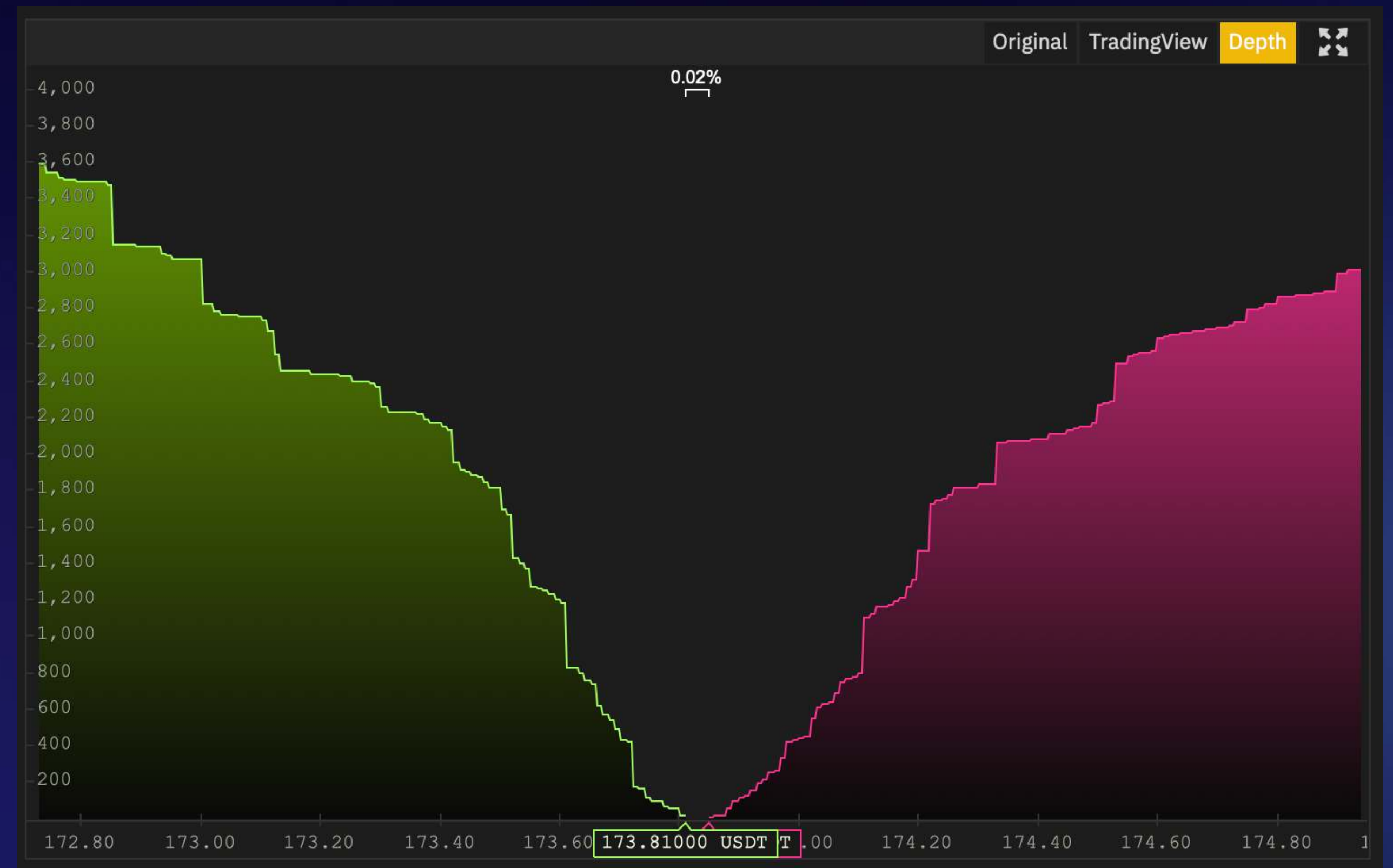
Price	Asks	Bids
153		3 ETH
152		31 ETH
151		13 ETH
150		5 ETH
149	20 ETH	
148	11 ETH	
147	58 ETH	
146	103 ETH	
145	23 ETH	

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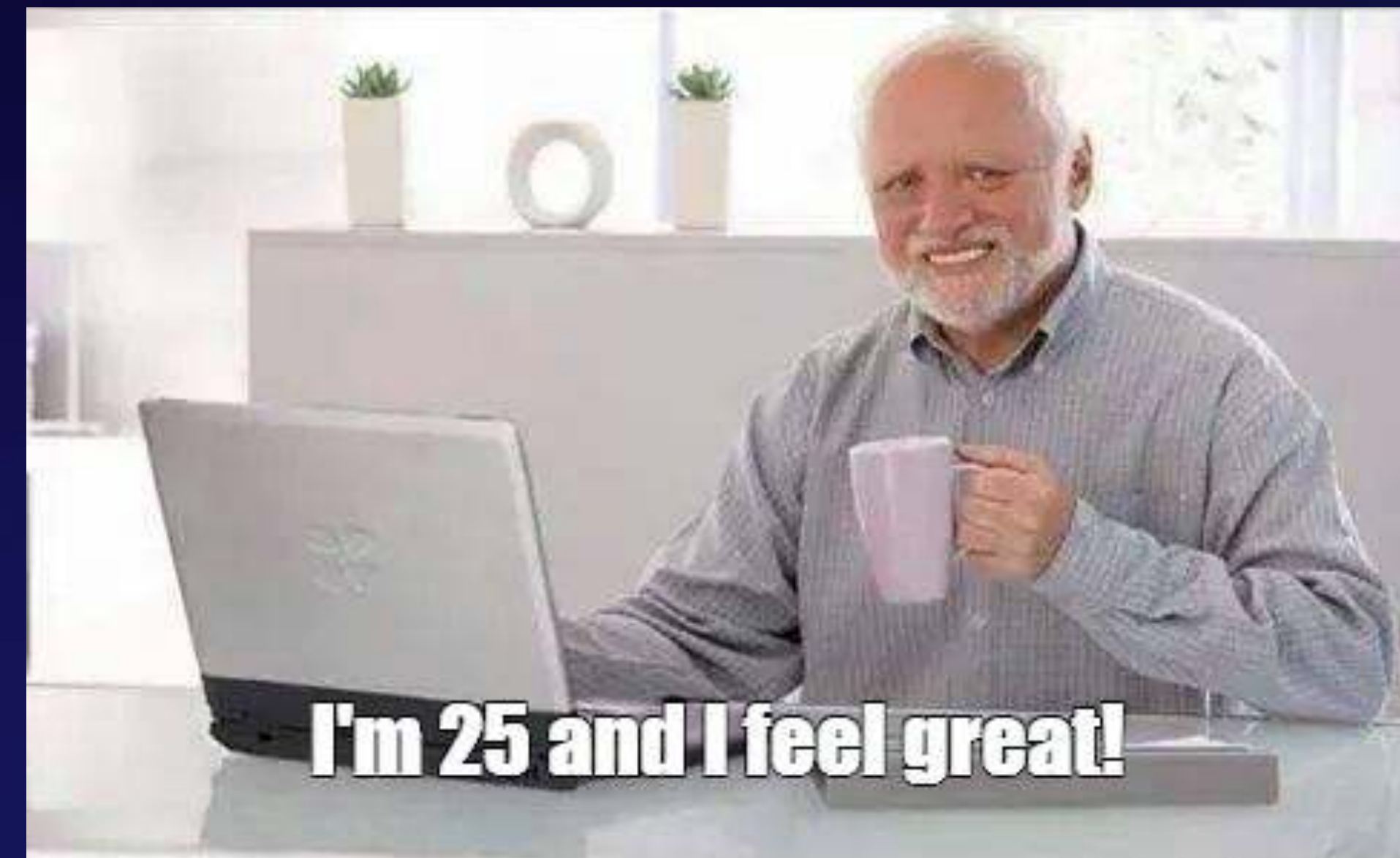
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ETH-DAI



Orderbook-based DEXes Recap

It's almost the same as in traditional finance



Liquidity-based DEXes

Turn your portfolio into liquidity

1. Bancor.network:

- BNT – token in the middle

2. Uniswap.exchange:

- Auto-rebalancing ETH-XXX

3. Balancer.finance:

- Multi-dimensional Uniswap

4. Curve.fi:

- Uniswap-like for stable coins

«*Smart contract is
an order **Maker***»

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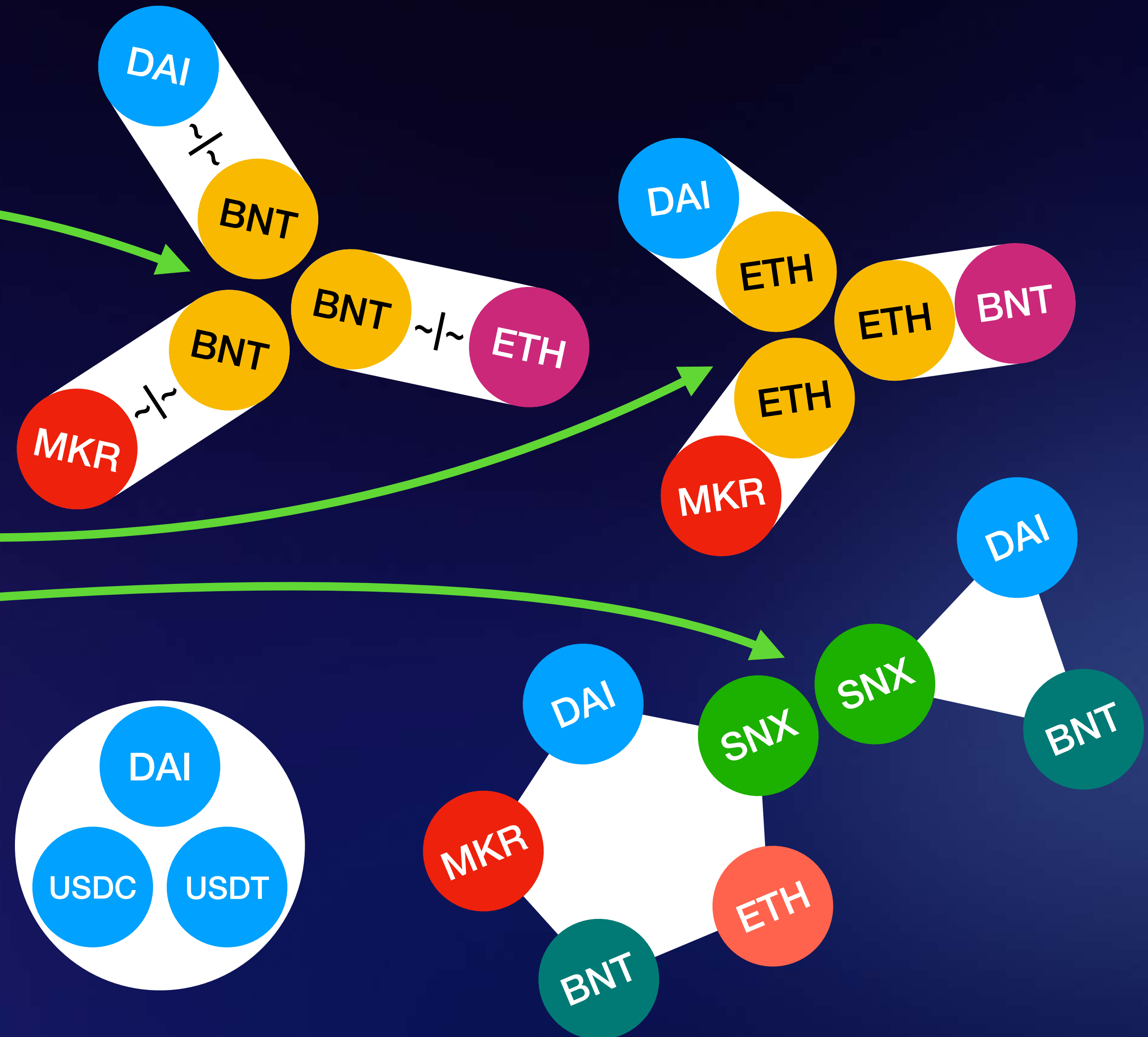
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$$price = \frac{Reserve\ Balance}{Total\ Supply \times Reserve\ Ratio}$$

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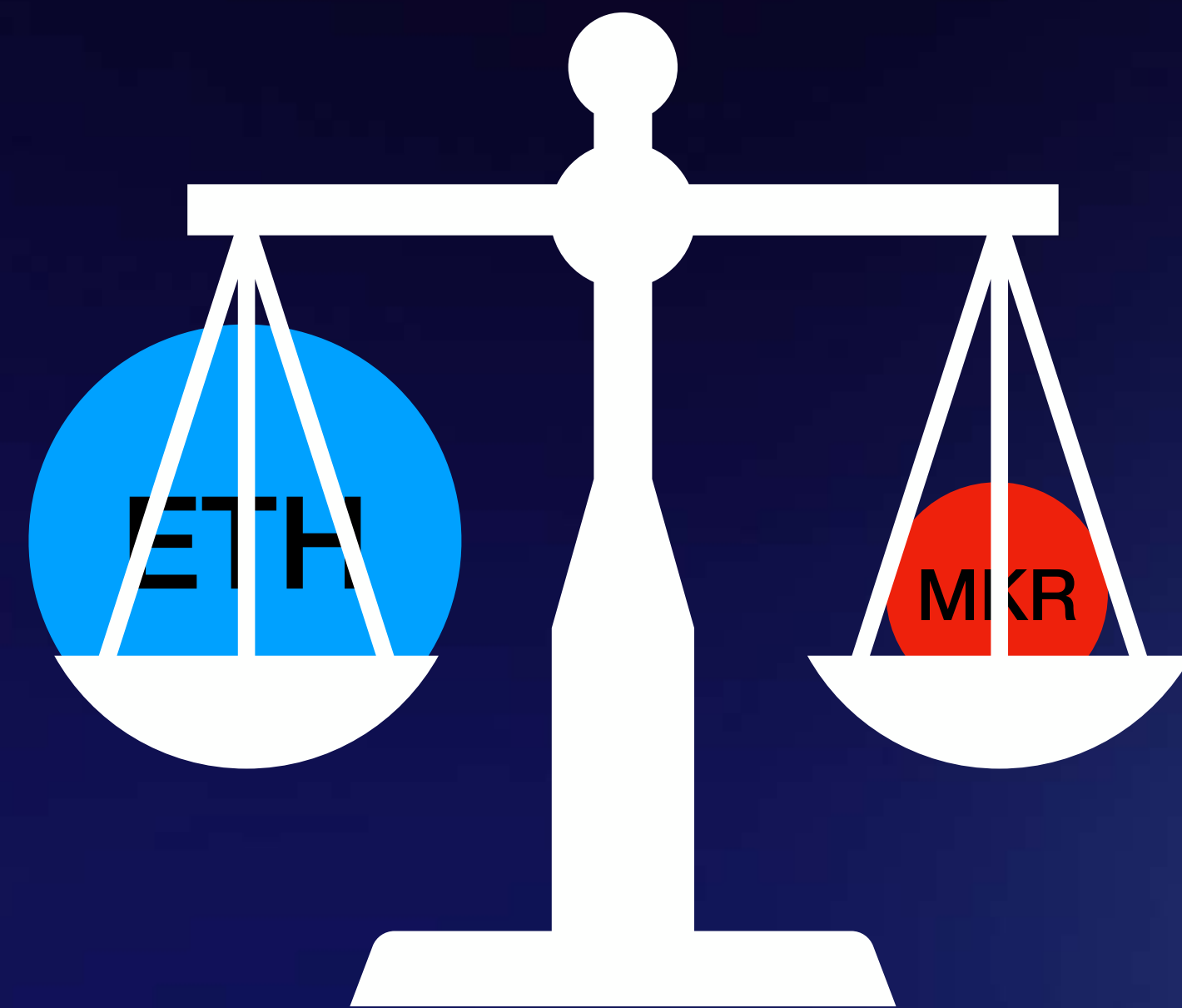
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$$xy = \text{const}$$

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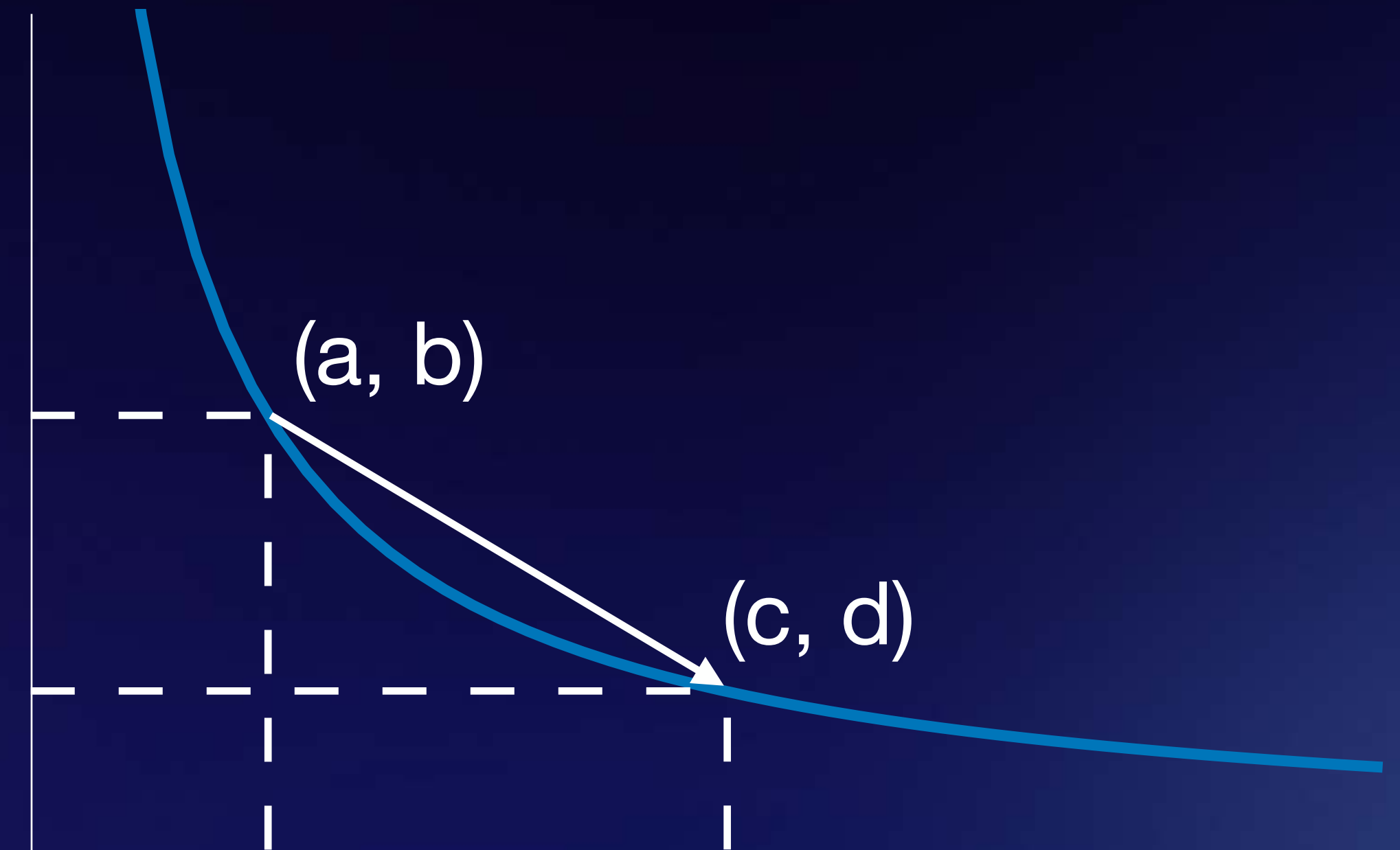
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$$ab = cd$$

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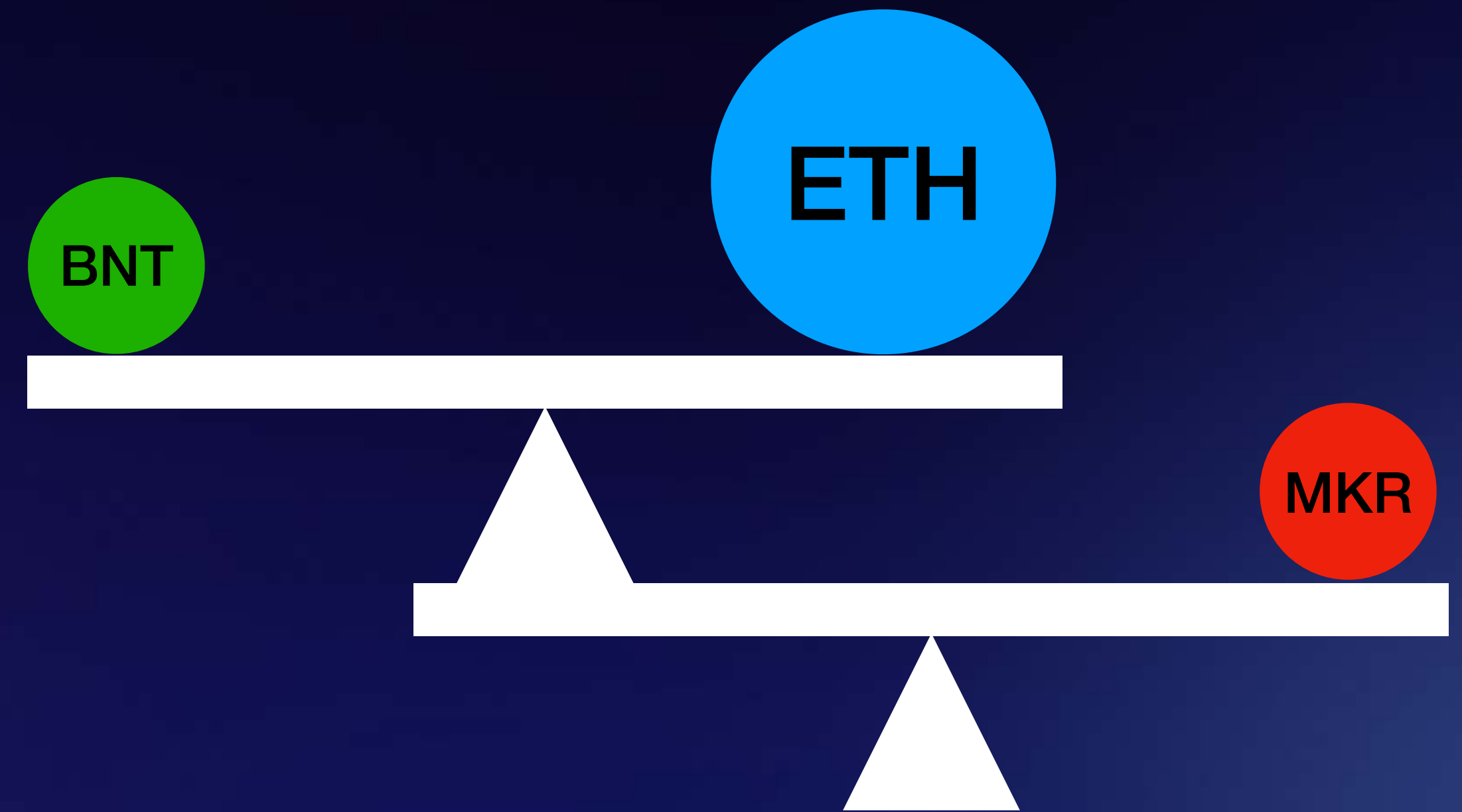
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$$\prod x_i^{w_i} = \text{const}$$

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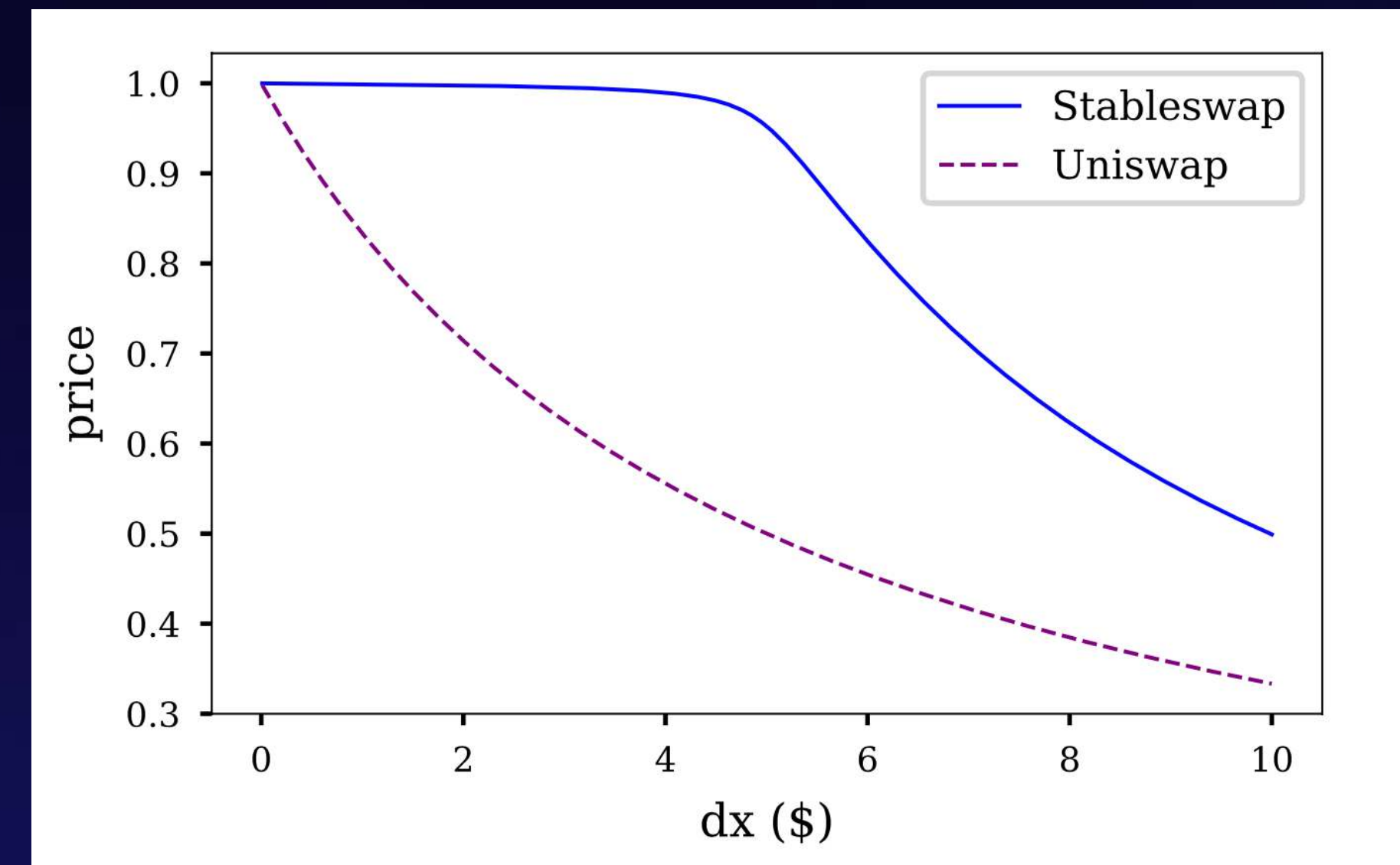
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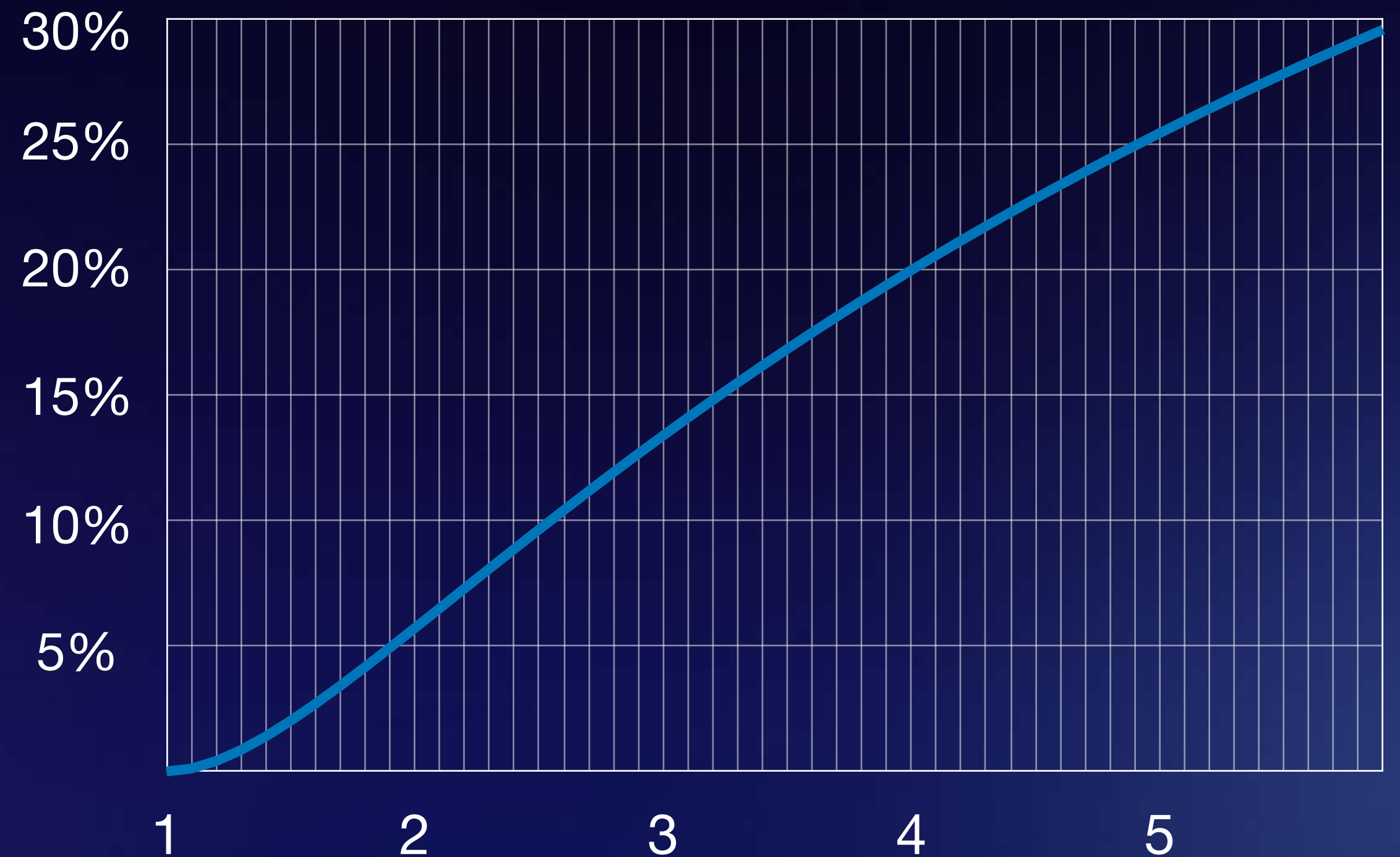


$$\prod x_i = \left(\frac{\sum x_i}{n} \right)^n$$

Impermanent Loss (IL)

Impermanent what?

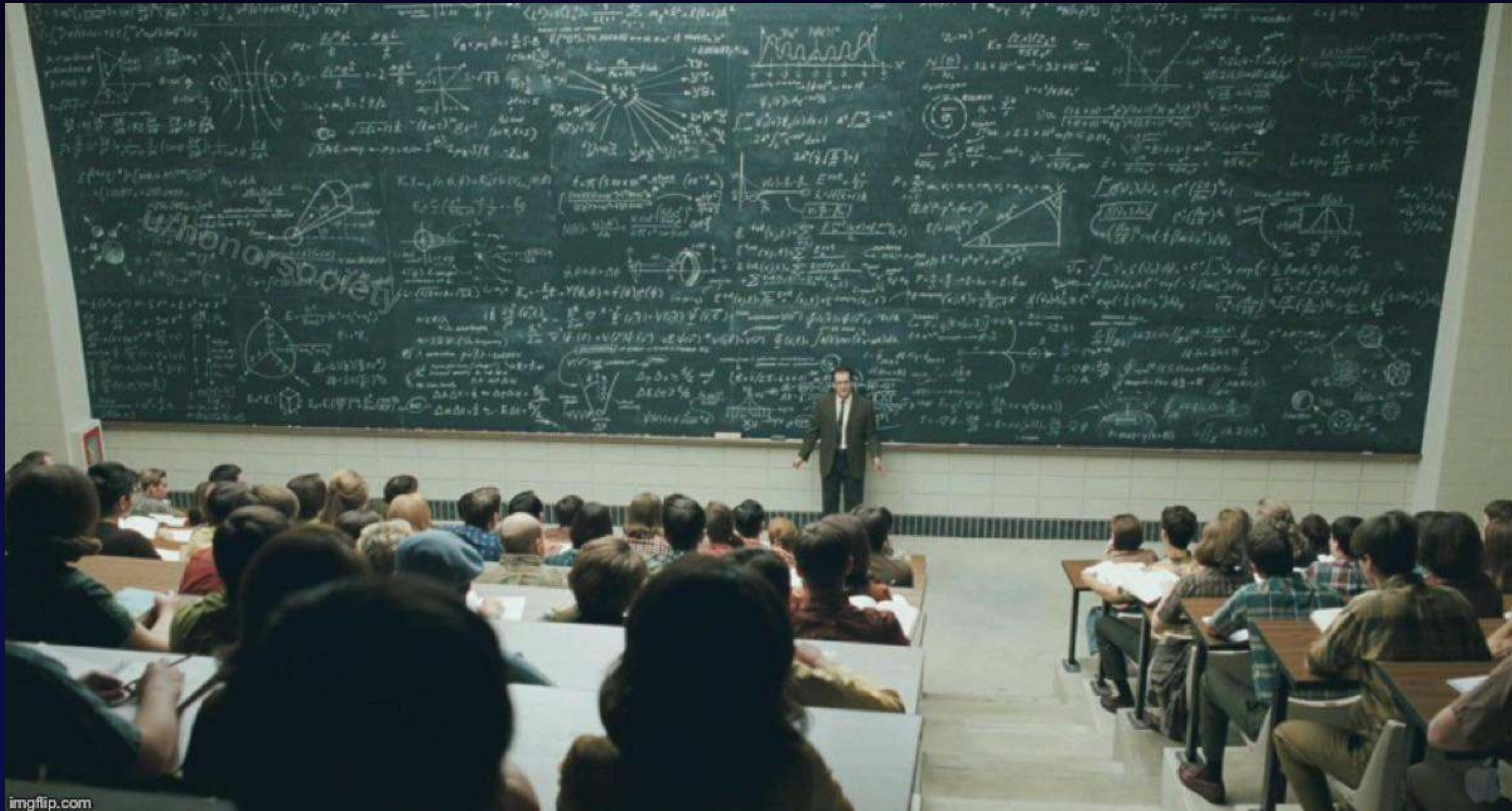
- 1.25x price change = 0.6% loss
- 1.50x price change = 2.0% loss
- 1.75x price change = 3.8% loss
- 2x price change = 5.7% loss
- 3x price change = 13.4% loss
- 4x price change = 20.0% loss
- 5x price change = 25.5% loss



$$IL = \frac{2\sqrt{k}}{1+k} - 1$$

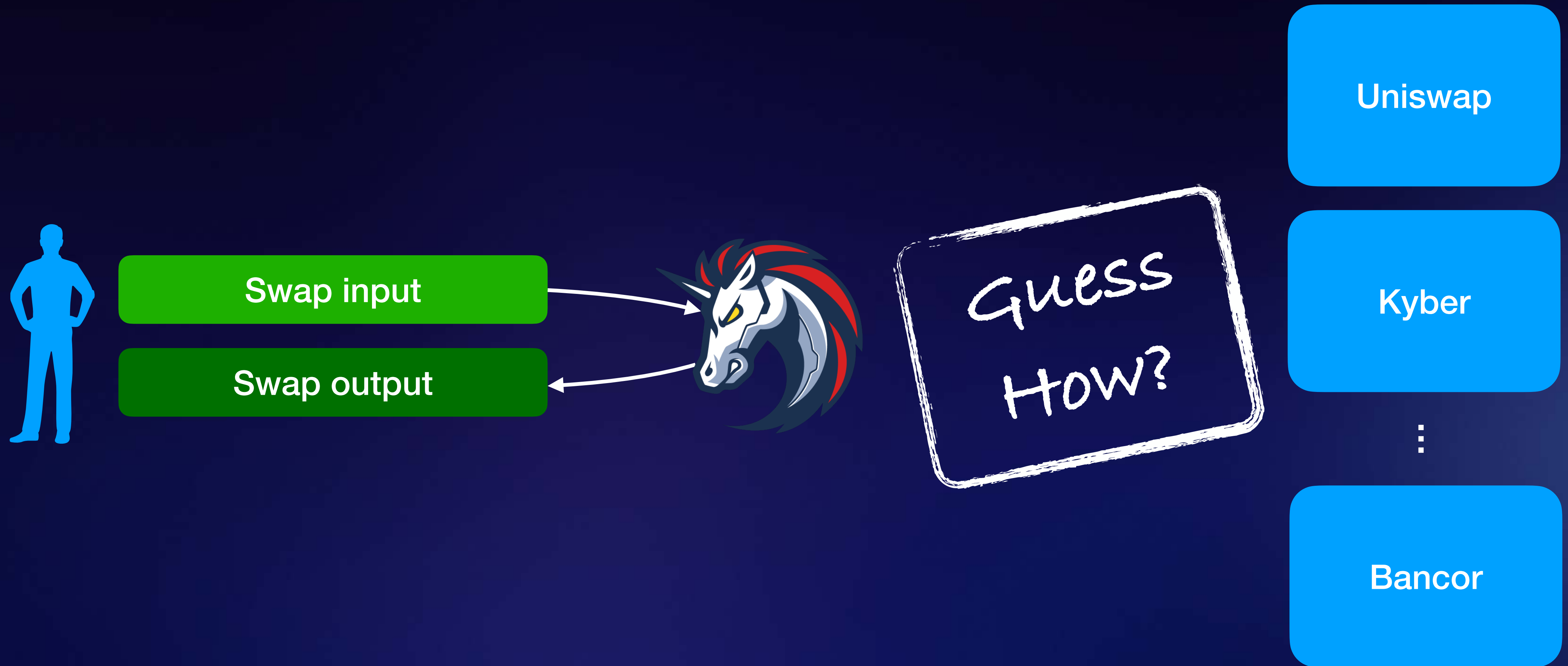
Liquidity-based DEX Recap

Sounds complicated?



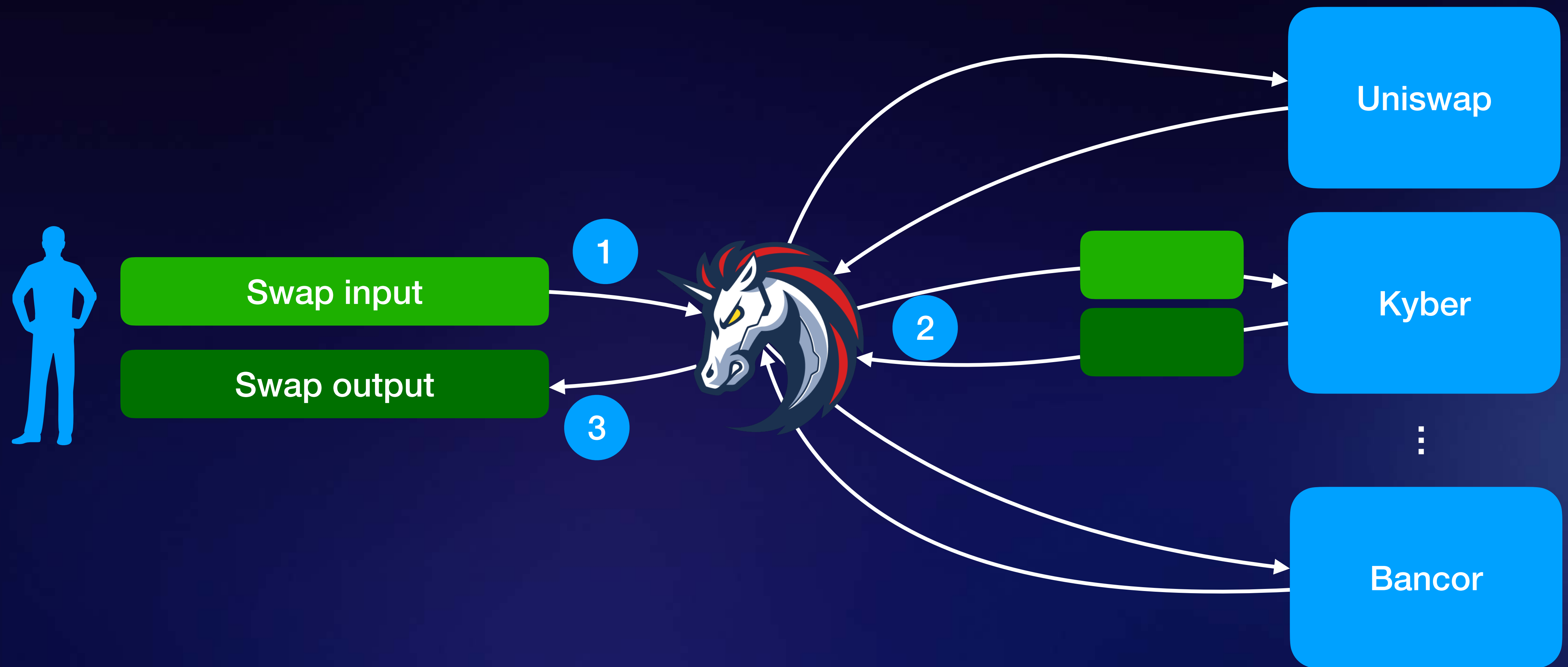
Aggregators

Unifies all the liquidity into single huge DEX



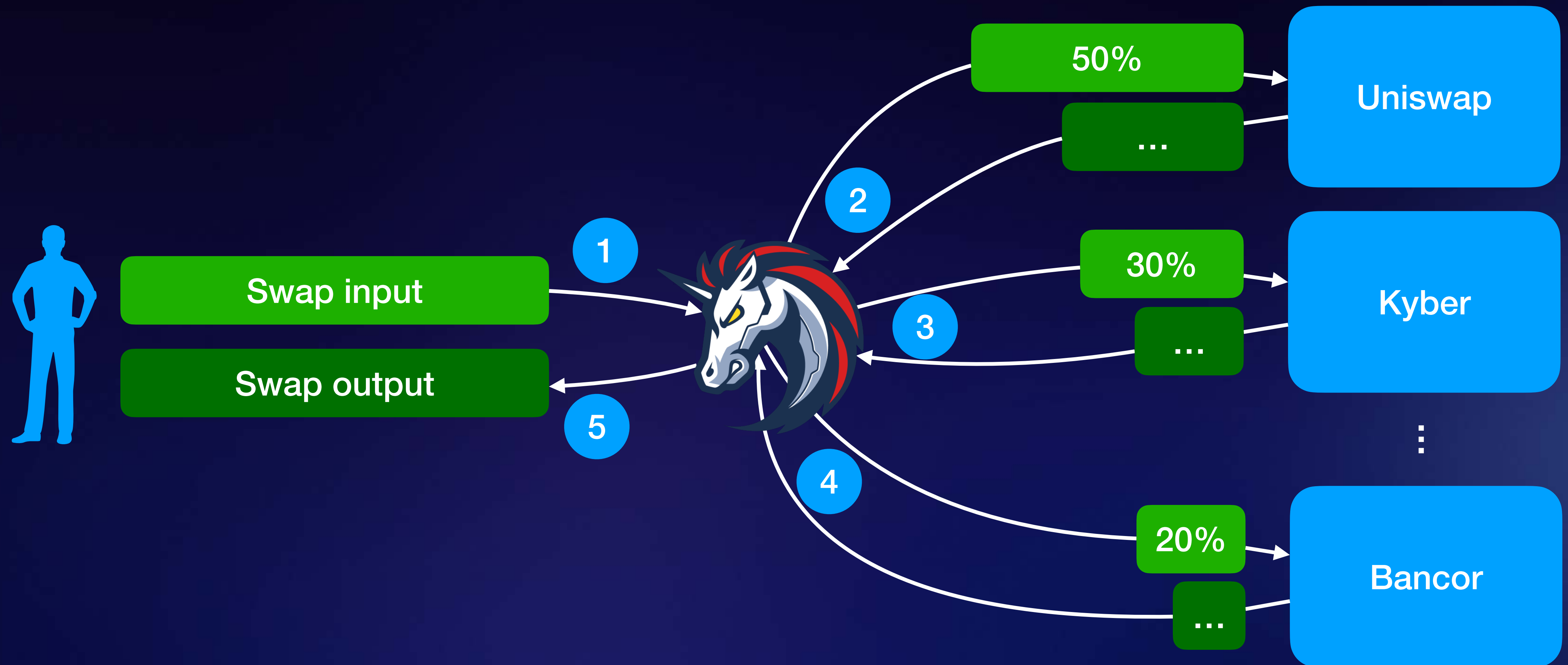
Aggregators

Pick best rate, isn't it the best strategy?



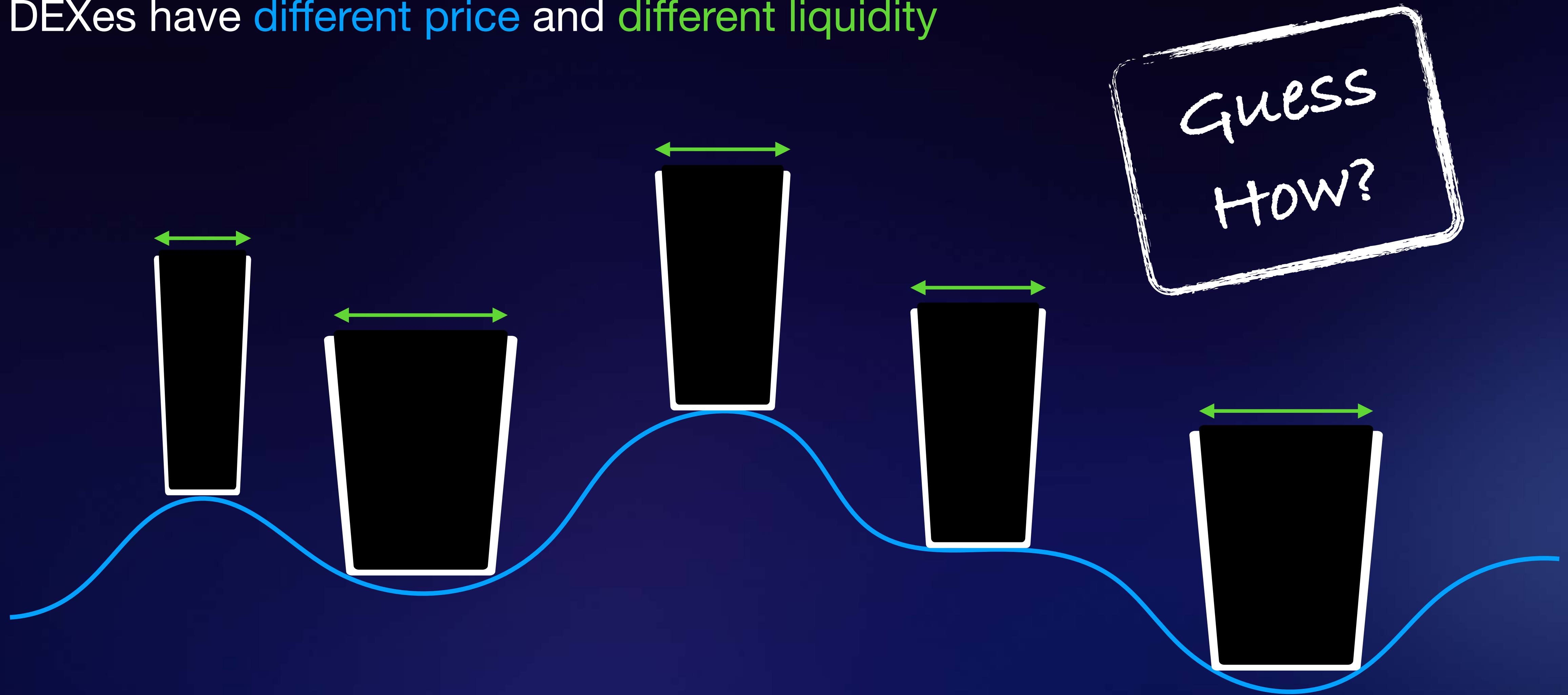
Aggregators – 1inch.exchange

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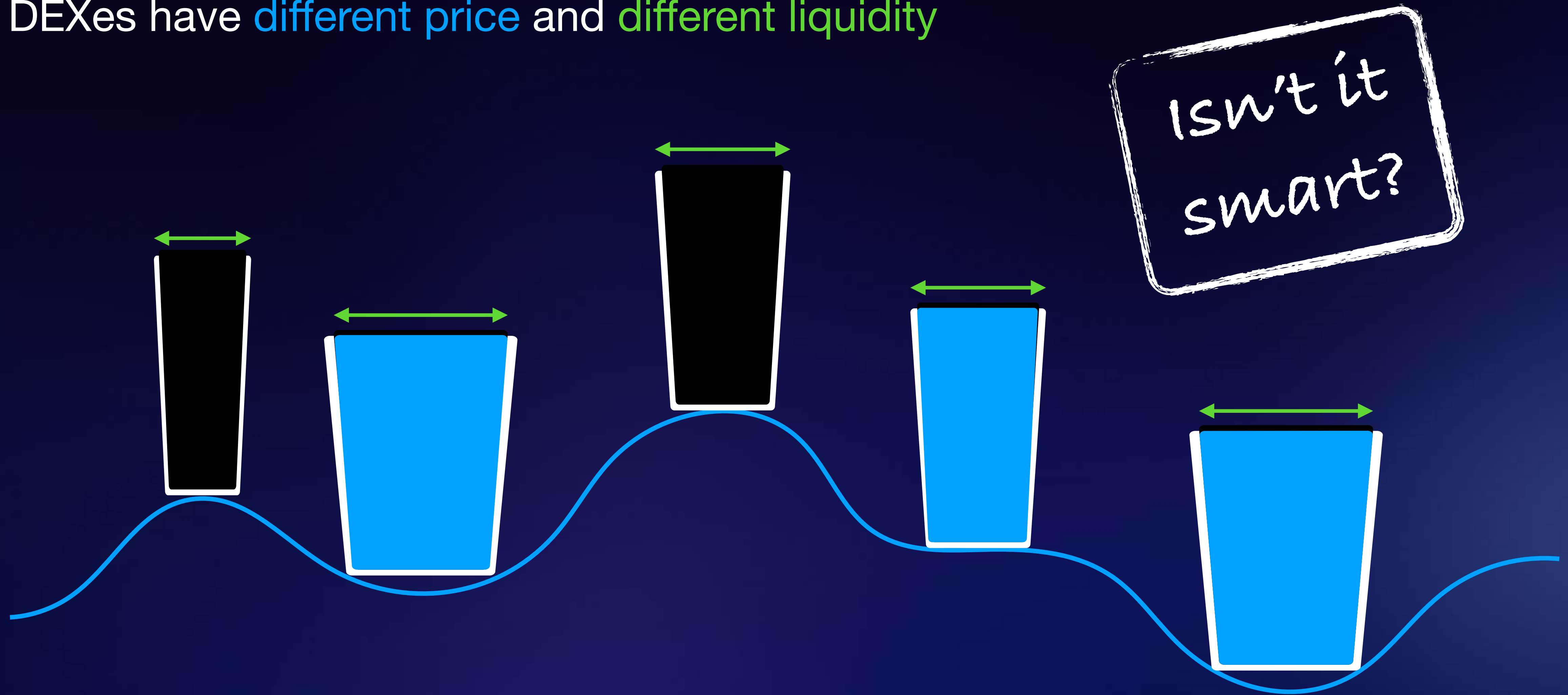
The art of aggregation

DEXes have different price and different liquidity



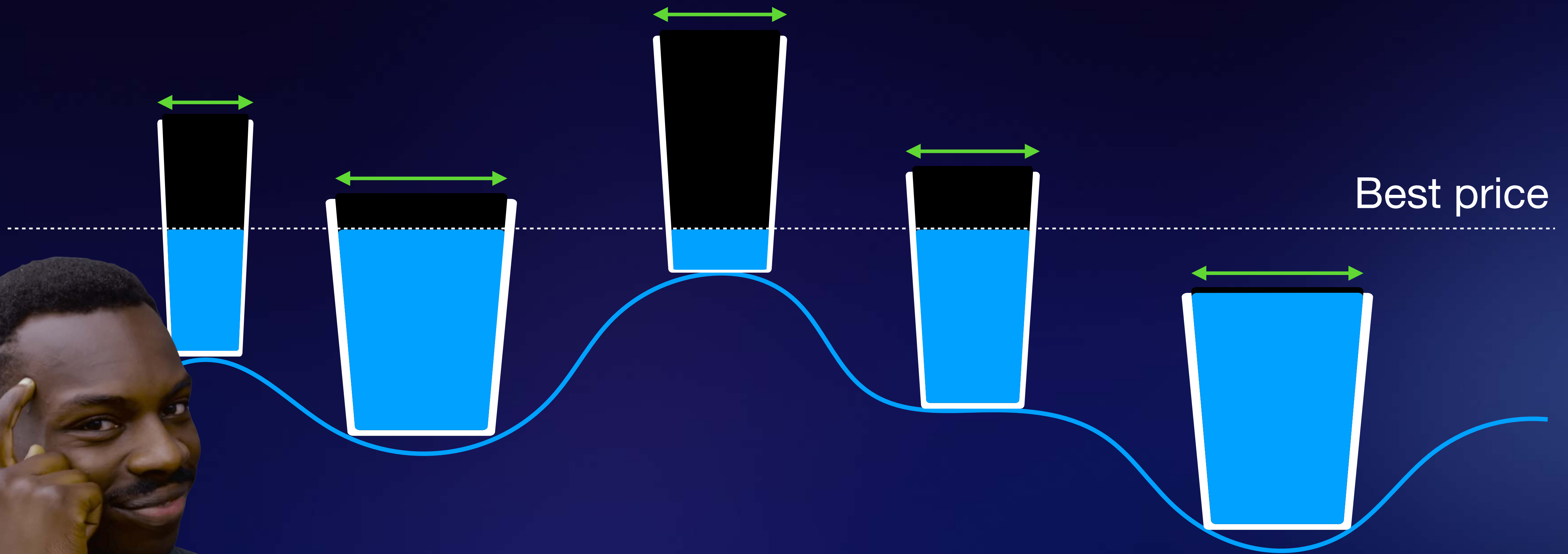
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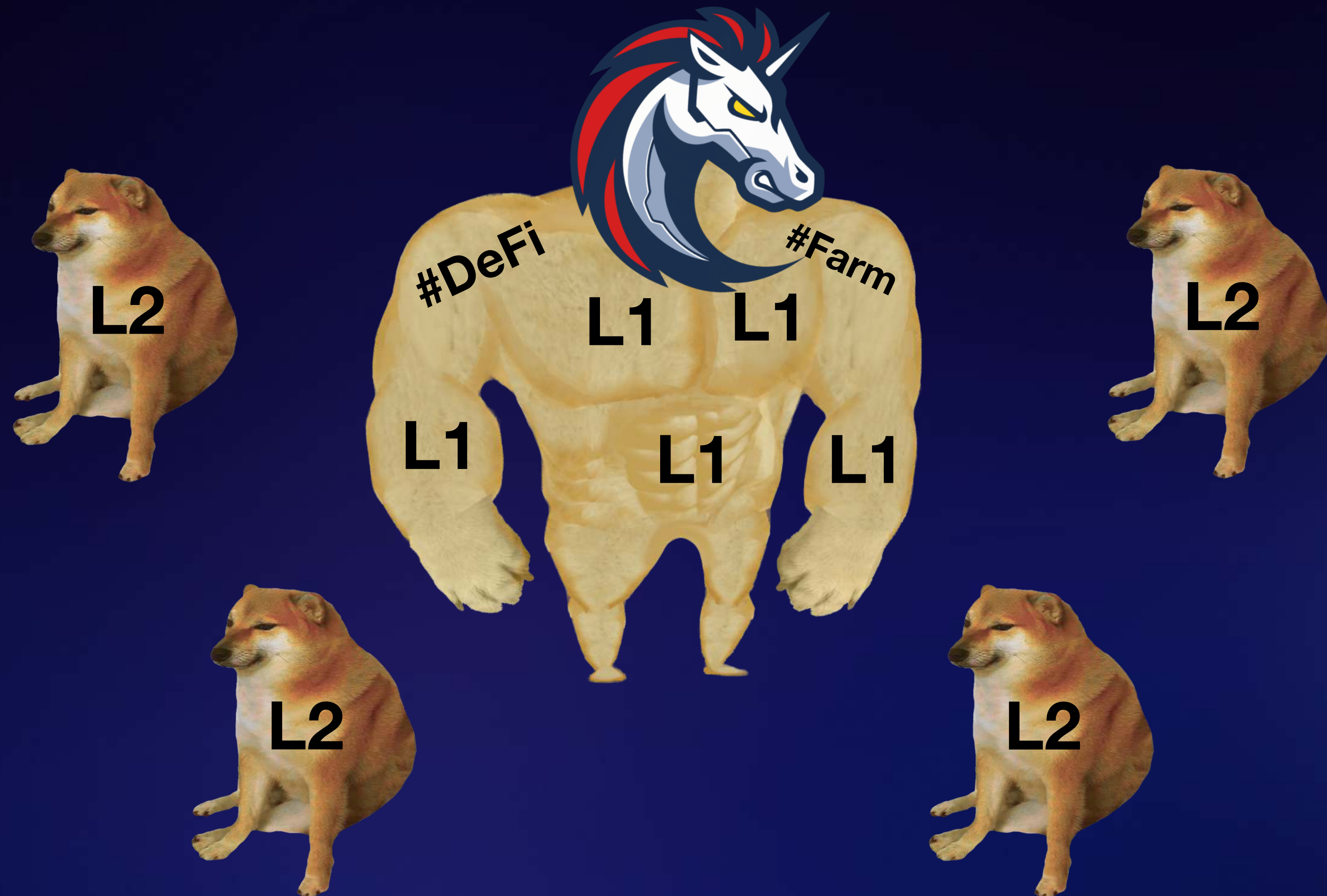
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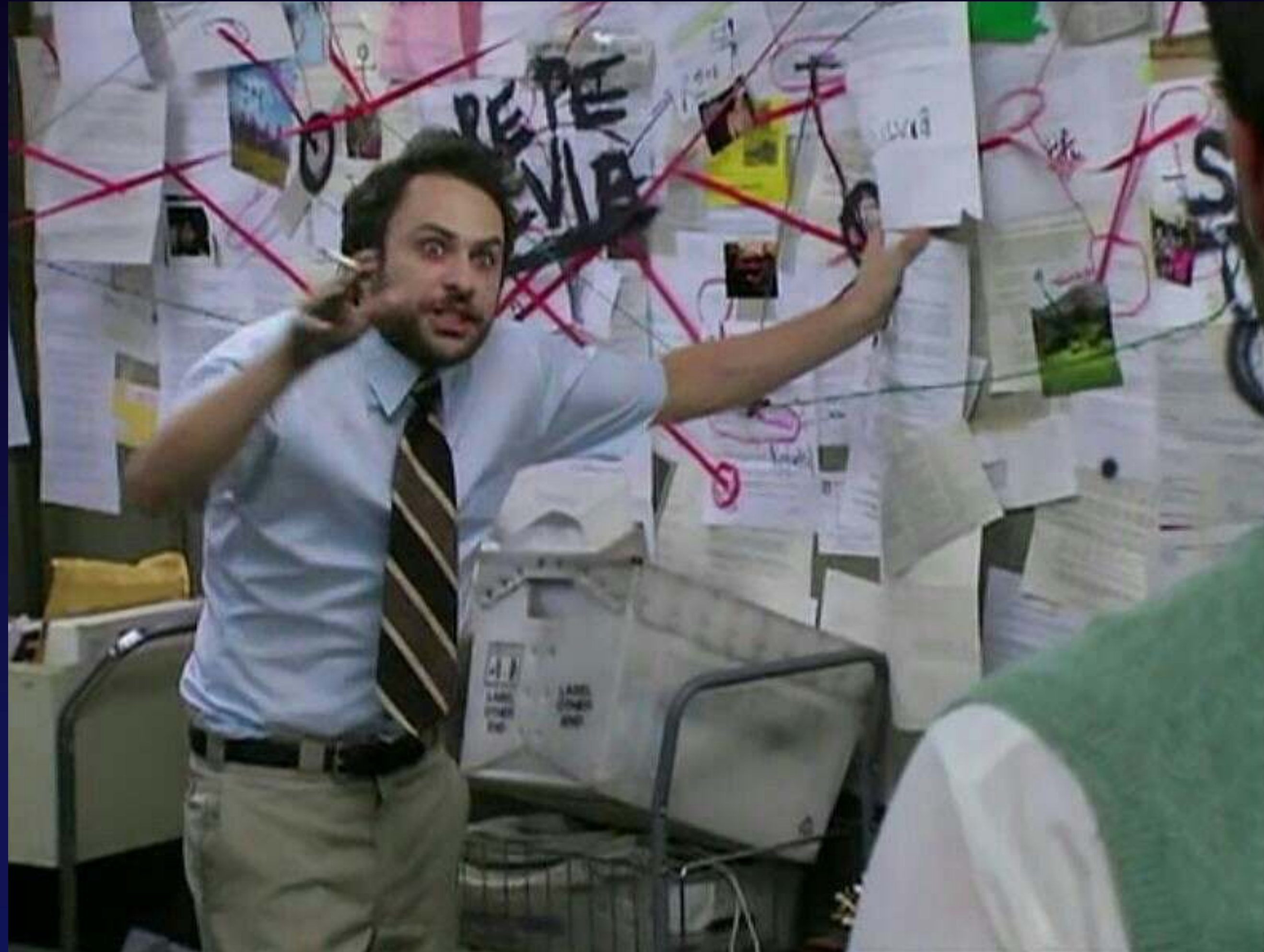
Aggregators – 1inch.exchange

Unifies all the liquidity into single huge DEX



Aggregators Recap

Ok, sounds reasonable



⚠ Attention!

Thanks for your attention



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Co-Founder and CTO
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