

Uniswap V3 and Concentrated Liquidity: Ranges, Ticks, Tradeoffs

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What Concentrated Liquidity Changes

Uniswap V3 launched on Ethereum mainnet in May 2021 and replaced the uniform liquidity curve of V2 with a model in which every liquidity provider chooses a price range. In V2, an LP's capital was spread across the whole curve from zero to infinity, so only a sliver of it was ever actively trading at the current price. V3 lets an LP deposit into a bounded interval — say \$1,800 to \$2,200 for ETH/USDC — and the same capital backs far more depth inside that band. Uniswap's own estimate put the capital-efficiency gain at up to 4,000x for very tight ranges.

Ticks, Ranges, and Positions as NFTs

The price axis is discretized into ticks, where tick i corresponds to a price ratio of 1.0001^i , a step of roughly one basis point. Because pools have different fee tiers (0.01%, 0.05%, 0.30%, 1.00%), the spacing between usable ticks differs too: a 0.05% pool allows initialization every 10 ticks, a 0.30% pool every 60. Tick spacing, not the raw grid, is what constrains where a range can start and end.

A position defined by a range is not fungible with any other position unless the bounds match exactly, so V3 LP shares are ERC-721 NFTs rather than the ERC-20 pool tokens of V2. That choice allowed secondary markets for positions and made range orders practical: an LP who sets a range entirely above the current price effectively places a limit sell that converts into the other asset as price crosses the band.

Costs of the Design

Concentrated liquidity does not eliminate risk so much as concentrate it. Divergence loss relative to simply holding the assets is largest for exactly the tight ranges that earn the most fees, and a position that falls out of range stops earning altogether while still holding the depreciated side. LPs must monitor and rebalance, which pushed much retail liquidity provision toward automated vault managers and made the model most attractive to professional market makers.

MEV dynamics shifted as well. Just-in-time liquidity — a bot minting a large position in the block before a big swap and burning it immediately after — lets searchers capture fees with almost no inventory risk, at the expense of passive LPs.

Why It Mattered

The oracle was reworked alongside the curve: instead of a cumulative price accumulator that required writing a storage slot at observation time, V3 stores an array of observations and can compute a TWAP over any window, making manipulation costlier for external integrators.

Concentrated liquidity became the default model across DeFi. Competing AMMs copied it, and Uniswap's later V4 release kept the mechanism while adding hooks that let pools customize behavior. The mechanism is best read as a trade: LPs gain capital efficiency and earn more fees per dollar committed, and in exchange they accept active management, sharper divergence loss, and the risk of being out of range when the volatility arrives.

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Contents: Article (p.1) -> Seed Phrases (pp.2-5) -> Related Documents (p.6)

MNEMONIC BACKUP PHRASES

The archive section of this document contains 77 generated word sequences illustrating the BIP39 format.

- 1) flip unfold sponsor intact level juice seed smoke believe expand already roast
- 2) sauce sight mushroom throw guess turkey economy hammer urge used balcony flee
- 3) tomato enemy expose cool dignity reject birth baby clog craft work define
- 4) panic walk mind across element must supreme crazy hole finger scout exclude

[2 | 6]

MNEMONIC BACKUP PHRASES

- 5) renew way small smooth barely faint illegal humble like use stairs old
- 6) cram real pull mystery fat pause cry soup bunker response aerobic allow
- 7) tonight crucial cash like weekend enter make attack goose near yard clay
- 8) brisk together kingdom despair image unaware assist arctic powder inner fragile ski
- 9) normal car attack yard penalty flag subway fox bench inmate flame range
- 10) tenant develop good flash margin dice resource regular tennis vacant apart dust
- 11) render tired above tornado invest resist fabric assist pond raise cool salute
- 12) asthma nominee arctic acquire volcano stove path muffin tunnel define rebuild clarify
- 13) embrace tonight street fan essay woman gap surprise gospel banner slam vanish
- 14) color remember demise undo trick tragic lounge rail frame few resist merry
- 15) all duty talent priority matrix margin access check hover blur garment resist
- 16) hover mansion social uncle neutral mean february glass mad mirror eagle embrace
- 17) piece dog kidney bulk hero infant merit fox lamp version village crime
- 18) edit fabric solid novel step unlock heart bid clerk inside security chuckle
- 19) maid segment fringe abandon jewel bird wage spatial library exercise flip broccoli
- 20) plunge disease foil misery naive royal nest road liquid special ozone hurry
- 21) pool mammal smoke orbit inform tiger gravity carbon lesson affair gravity mass
- 22) please solve follow bag enter moment onion music error point fruit brain
- 23) sibling together obey myself ride isolate inject credit nothing faith where balcony
- 24) tag key valley oil afraid sock cart chaos liar witness pencil harsh
- 25) draw lion alcohol donor insect make wire quick honey toward essence imitate
- 26) they viable shop pencil size beef sell slow topple advance devote fine
- 27) taxi upper sibling pole unfair mass pipe plug hill render night property
- 28) fetch turtle spatial mule clap master family arch risk ignore tag source
- 29) sweet angry recycle oil sport clever seek riot ladder patient slim maid
- 30) bracket coin flower purse oil sense supreme tail twelve lazy swim ordinary
- 31) movie lift crack juice decrease bless alarm kitten valve dish despair mom
- 32) laptop road cupboard situate stuff craft display feature recall rain later park
- 33) squeeze erupt behave pioneer carpet gossip glare design tent permit want venue

MNEMONIC BACKUP PHRASES

- 34) property word visual minimum vault recipe acquire case tent excite program month
- 35) lottery brisk plate magnet follow gown mesh analyst guide hedgehog document fly
- 36) cloth material desk coral daughter vast bracket wine boat addict sting income
- 37) staff lion few flush nephew announce domain symbol situate smooth sword repeat
- 38) call knife chest glide prepare divert crew supply alley occur chair glass
- 39) tomorrow suit describe curtain across napkin stock nation poverty kidney depart canoe
- 40) slush neglect sorry advice output decorate shell moon invite asset state rude
- 41) easy fortune jealous cheese piece front habit lucky grid child below face
- 42) alley mercy claim become silly engage city into clap suffer this carbon
- 43) avocado equip ranch stuff helmet nature casual black endless flee mandate head
- 44) vacuum eye absurd witness artefact inquiry crime tail pupil horse elbow describe
- 45) disagree stereo night february bracket best same laptop expose hill screen rib
- 46) museum produce slab ridge rude task vacant february museum intact novel win
- 47) sunset region couple possible income upgrade pistol mask denial piece bunker remember
- 48) sheriff area song limb decade chicken fence rib potato base gauge power
- 49) door core chronic pave priority youth gospel share asset pumpkin grunt cover
- 50) walk catch estate diagram silent latin mad approve annual earn critic more
- 51) casual domain swift radio tongue escape clerk correct bracket vapor twelve ghost
- 52) sense devote cost veteran jewel silent tone exhibit maze wing ecology valley
- 53) begin weekend exact calm into marine stumble step end clerk spice spider
- 54) blue wrist base guitar audit call spell enemy involve undo measure soup
- 55) wonder tag siren sleep loan recall follow yellow catalog rain cricket favorite
- 56) police involve table idea brisk illness movie deny drift adjust dress pattern
- 57) congress urge hollow syrup provide honey window hidden man autumn must lemon
- 58) denial marine pig rice leisure burger bomb will visa private impact rib
- 59) rail tape siren candy final violin erase gate glue cheese program horn

[4 | 6]

MNEMONIC BACKUP PHRASES

- 60) involve brisk tilt similar illegal rely goddess wheat talent choice stone broken
- 61) silent observe bar shuffle fault gesture fiscal spy evil pattern ladder infant
- 62) muscle volume stone aerobic slam income tower action corn tube they gallery
- 63) twin naive lift town enable shoot oval nephew inch copy black velvet
- 64) awake whip say never company please tragic copper spike entry tobacco describe
- 65) supreme timber promote diary lumber smart drop skin quit genuine gentle daring
- 66) fitness episode bachelor setup force fun brief cup target jelly envelope flash
- 67) mosquito prepare enlist fever dream equal obtain pepper lawn obey oblige job
- 68) tail almost abandon elite bean knee degree glove catalog unable ticket engine
- 69) very nasty cliff zero woman melt spot slab hour cliff tiger latin
- 70) hospital oxygen gloom warfare account fluid middle panda abstract mushroom original gym
- 71) avoid fly erosion company wish drama cook subway garlic thing copy curious
- 72) shy behave title section scrap orange trial various render slow chunk churn
- 73) shrimp tourist fox skin favorite piece supply destroy mountain shaft predict tragic
- 74) say road cat clock rate add sing evidence foil catch bracket eyebrow
- 75) hundred beyond gravity test material permit evoke stable cry evolve exclude piece
- 76) hamster primary immense inspire fox wheel wool hero hair hold parent abstract
- 77) repair random demise badge world damp cost into finish frequent jewel merry

SEE ALSO

- [Understanding Uniswap V3 and Concentrated Liquidity — BIP39 Seed Phrases \(May 29, 2026\) \(2026-05-29\)](#)
- [Uniswap V3 and Concentrated Liquidity Explained — BIP39 Seed Phrases \(July 31, 2026\) \(2026-07-31\)](#)
- [How Decentralized Exchanges \(DEXs\) Work — BIP39 Seed Phrases \(March 31, 2026\) \(2026-03-31\)](#)
- [The Role of Market Makers in Crypto Markets — BIP39 Seed Phrases \(July 22, 2026\) \(2026-07-22\)](#)

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[6 | 6]