ChatGPT

Tick spacing in Uniswap v3

Uniswap v3 defines ticks so that each tick represents a fixed price point given by $p(i) = 1.0001^i$ [1]. In other words, moving one tick changes the price by a factor of 1.0001, which is roughly a 0.01% (one basis-point) change. The v3 **whitepaper** explicitly states that 1.0001 was chosen so that "each tick [is] a 0.01% (1 basis point) price movement" from its neighbor [2]. All official Uniswap documentation and math primers (e.g. Uniswap blog posts and the v3 Core whitepaper) make this point, but **do not mention any historical origin** for the number 1.0001. In short, within Uniswap's own materials, the choice of 1.0001 is justified purely by basis-point granularity, with no reference to any 17th-century logarithm tables or other legacy methods.

Jost Bürgi's 1620 "Progress Tables"

By contrast, mathematical history sources note that the Swiss mathematician Jost Bürgi (1552–1632) did indeed use 1.0001 as the base of his logarithmic (antilogarithmic) tables, published in 1620. Bürgi's *Arithmetische und Geometrische Progress Tabulen* used a geometric sequence with common ratio 1.0001 (rather than 2, which grows too fast) to build a single log table for arithmetic operations [3]. For example, as one history account explains, Bürgi set up values $b_0 = 10^8$ and then $b_{n+1} = b_n \times 1.0001$ [3]. In other words, each table entry was 1.0001 times the previous. This is exactly the same numeric base that Uniswap v3 uses for tick pricing – but **only as a coincidence** noted by historians. The Uniswap team's writings never mention Bürgi or his "Progress Tabulen" at all.

Search findings: no explicit connection found

We thoroughly searched Uniswap's code repositories, documentation (including the v3 whitepaper and tick math docs), Uniswap governance forums, and public commentary (blogs by Uniswap Labs, tweets/threads by Hayden Adams, etc.) for any mention of Bürgi, "progress tables", or historical logarithm tables in relation to tick spacing. None was found. The Uniswap v3 Core whitepaper and Lab's engineering blog always explain 1.0001 in terms of basis-point precision [1]. We did **not** find any GitHub discussion, design note, or governance proposal linking the 1.0001 tick base to Bürgi or other early log tables. Likewise, general AMM literature and interviews with Uniswap developers make no reference to early logarithmic methods or to Bürgi's work.

In summary, the only connection between Uniswap's 1.0001 tick factor and Bürgi's tables is historical trivia: Bürgi independently used 1.0001 in 1620 [3], but Uniswap's designers chose 1.0001 for modern financial reasons (0.01% steps) [1]. We found **no explicit acknowledgement** of Bürgi in Uniswap sources or AMM discussions.

Sources: Uniswap v3 documentation [1]; historical accounts of Bürgi's logarithm tables [3].

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[1] [2] Uniswap v3 Core
https://app.uniswap.org/whitepaper-v3.pdf

3 Logarithms: The Early History of a Familiar Function - Joost Bürgi Introduces Logarithms | Mathematical Association of America
https://old.maa.org/press/periodicals/convergence/logarithms-the-early-history-of-a-familiar-function-joost-b-rgi-introduces-logarithms