

Murgu Collatz Unicity

Infinite Upward Connections — Unique Downward Path to Unity

Ion Murgu's Table2To3 Framework

Corrected & Verified — June 2026

Core Principle

Every positive integer has **infinitely many upward Collatz connections** (preimages), but possesses **exactly one unique downward path** to Unity (1).

This is the essence of **Murgu Collatz Unicity**.

Upward vs Downward

- **Upward** = Finding preimages (many numbers can flow into a target).
- **Downward** = Normal Collatz procedure — always unique.

Example 1: LET2 Number = 5

A. Upward Connections (Preimages)

| Exponent | Multiplier | Preimage | Type |
|----------|------------|----------|------|
| 1 | 2 | 3 | LDN |
| 3 | 8 | 13 | LET1 |
| 5 | 32 | 53 | LET2 |
| 7 | 128 | 213 | LDN |
| 9 | 512 | 853 | LET1 |

B. How they reach 5 (Unique Downward Paths)

| Preimage | Path until reaching 5 |
|----------|--|
| 3 | 3 → 10 → 5 |
| 13 | 13 → 40 → 20 → 10 → 5 |
| 53 | 53 → 160 → 80 → 40 → 20 → 10 → 5 |
| 213 | 213 → 640 → 320 → 160 → 80 → 40 → 20 → 10 → 5 |
| 853 | 853 → ... → 5 |

Unique continuation from 5: 5 → 16 → 8 → 4 → 2 → 1

Example 2: LET1 Number = 7

A. Upward Connections (Preimages)

| k | Multiplier | Preimage | Type |
|---|------------|----------|------|
| 0 | 4 | 9 | LDN |
| 3 | 16 | 37 | LET1 |
| 6 | 28 | 65 | LET2 |
| 9 | 40 | 93 | LDN |

B. How they reach 7 (Unique Downward Paths)

| Preimage | Path until reaching 7 |
|----------|---|
| 9 | 9 → 28 → 14 → 7 |
| 37 | 37 → 112 → 56 → 28 → 14 → 7 |
| 65 | 65 → 196 → 98 → 49 → 148 → 74 → 37 → ... → 7 |
| 93 | 93 → 280 → 140 → 70 → 35 → ... → 7 |

Unique continuation from 7: 7 → 22 → 11 → 34 → 17 → 52 → 26 → 13 → 40 → 20 → 10 → 5 → 16 → 8 → 4 → 2 → 1

Conclusion

Multiple different numbers (LDNs, LET1, LET2) can reach the same target, each through its own unique history. But from that target onward, there is only one single deterministic path to Unity.

This is the elegant truth revealed by **Murgu Table2To3**.

Based on Ion Murgu's Table2To3 Framework • Corrected June 2026