

CQE n=1→n=5 Falsifier Kit (Notebook Version)

Purpose

Provide a pencil-and-paper protocol that anyone can run to test four falsifiable predictions about the n=1..5 lift, without code or jargon.

What you need

- Printed 4x4 boards (see Worksheets).
- Pencil + eraser.
- A watch or phone (to count steps mod 13).
- This sheet.

Four Predictions (Falsifiers)

Code	Prediction
F1	At n=5 there are exactly eight inequivalent insertion classes (by rotation/flip with mirrors); exactly one of the ei
F2	At n=4 all lawful sequences settle to a single palindromic rest (up to rotation/flip).
F3	Replay determinism: repeating the same choices yields the same final board and the same log hash.
F4	Rotation/flip of an n=5 outcome maps within its class orbit (no new classes appear).

Simple Rules of Play

1. Draw a 4x4 grid. Lightly draw mirror lines between rows B/C and columns 2/3.
2. Moves happen in steps $t = 1, 2, 3, \dots$. Commit only when $t \bmod 13 \in \{0, 5, 8\}$.
3. Local rule: prefer the move that lowers conflicts with neighbors (same number adjacent) and keeps mirror balance.
4. Mirror rule: if a choice breaks symmetry, try the mirrored spot; pick the lower-defect of the pair.
5. Counters: keep tiny counters that wrap mod 2, 4, and 8; avoid jumps that skip the next expected counter value.
6. Defect score = neighbor conflicts + mirror flip needed + counter nudge (lower is better).

Protocol A — n=1..4 to Palindromic Rest

- Place 1 at a central line cell (any orientation).
- Place 2 with its mirror partner using the rules; commit on an allowed tick.
- Place 3 then 4, always favoring lower-defect options; perform tiny local repairs if they strictly lower the defect score.
- Stop when no local repair lowers defects. Mark this board as n=4 REST. Record a one-line summary of choices (the Step Log).

Protocol B — n=5 Enumeration (16 Trials)

- Make 16 light copies of your $n=4$ REST board (one per cell).
- For each trial $k=1..16$, insert a single '5' at that cell. Allow at most one local repair if it strictly lowers defects.
- Record whether the board re-palindromes. Photograph or sketch the final looks.
- Group the 16 results by rotation/flip look-alikes (use color pens). You should obtain exactly 8 distinct classes; verify exactly one of these canonicalizes to a palindrome.

Replay Determinism Check (F3)

Re-run Protocol A with the same choices and tick schedule. Compute the SHA-256 of your Step Log text; it must match the prior run's hash.

One-Page Quick Sheet

- Allowed commit ticks: 0, 5, 8 (mod 13).
- Keep counters mod 2, 4, 8 (don't skip).
- Pick the lower defect: conflicts + mirror + counter nudge.
- $n=4$ must settle to a palindromic rest (up to rotation/flip).
- $n=5 \rightarrow$ exactly 8 classes; exactly 1 palindromic.
- Replay must reproduce the same log hash.