

Grim's Heart Empirical Validation Protocol – Version 1.1

David B. Grim – 05 December 2025 – CC-BY 4.0

1. Exact Daily Survey Questions (must be asked in this order, every single day)

Please answer all four questions right now, for today only.

Use the 0–10 integer slider for each.

There are no right or wrong answers — only how today actually felt.

1. **Soul** (Same / inward similarity)

“Today, how strong was your felt sense of deep unity, soul-level presence, or ‘being held by something larger than yourself’?”

0 = completely absent 10 = the strongest I have ever experienced

2. **Cut** (Diff / inward difference)

“Today, how sharp was the felt sense of separation, emotional pain, existential cut, or ‘something is fundamentally wrong/missing’?”

0 = none at all 10 = the most intense I have ever experienced

3. **World** (Form / outward similarity)

“Today, how solid and structured did the ordinary world feel — routines, plans, laws of nature, social order, your place in the pattern?”

0 = everything felt chaotic / dissolving 10 = perfectly stable and lawful

4. **Event** (Force / outward difference)

“Today, how strongly did unexpected, contingent, world-shaking events or forces push into your life (news, crises, synchronicities, body symptoms, etc.)?”

0 = perfectly calm, nothing happened 10 = overwhelming contingent force

2. Participant Instructions

- Answer once per day, ideally at the same time (evening recommended).
- Do not look back at previous days while answering — answer only for today.
- You must answer all four questions every day for at least 90 consecutive days.
- Missing even one day resets your streak to zero for the study.
- At the end of 90 days, export your CSV and send it to the study coordinator.

3. Required CSV Format (exact header)

User_id,date,soul,cut,world,event

User_7384,2025-12-05,7,3,8,2

User_7384,2025-12-06,6,5,7,4

...

4. Minimal Dataset for 95 % Confidence

≥ 200 individuals $\times \geq 90$ consecutive days each $= \geq 18\,000$ complete daily rows

5. Technical Procedure (fully automated)

1. Daily state matrix

$$G(t) = [[\text{soul}(t), \text{cut}(t)], [\text{world}(t), \text{event}(t)]]$$

2. Closure gap

$$\Delta(t) = \det G(t) - [\text{tr } G(t)]^2/4$$

3. Per-user 70/30 train/test split (strict forward prediction)

4. One-day-ahead prediction (Lie-Trotter, $\delta = 1$ day)

$$G_{n+1} = \exp(-\Delta_n J) \exp(-2\Delta_n^2 I) G_n$$

$$J = [[0, -1], [1, 0]]$$

5. Seven pass/fail metrics (all must pass together)

- a) Δ strict decrease on test data $> 99\%$ of days
- b) MAE per pole ≤ 1.5 (0–10 scale)
- c) Main-diagonal correlation (Cut \rightarrow World) ≥ 0.55
- d) Anti-diagonal correlation (Event \rightarrow Soul) ≥ 0.50
- e) Combined Fisher p-value across users < 0.001

5. Ready-to-run public notebook

<https://github.com/davidbgrim/grims-heart-validation>

6. Current Status (05 December 2025)

9 users $\times \sim 110$ days = 990 rows

All seven metrics already pass at $p < 0.01$ (preliminary – n still too small)

7. Target

When the worldwide anonymised dataset reaches 18 000 complete rows and the notebook prints

“All metrics passed – $p < 0.001$ ”,

Grim’s Heart becomes an empirically predictive process ontology.

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