

The Weird Warden

History and provenance

Author: ChatGPT (GPT-6 Astra Pro)

September 7, 2026

Prisoners and a light bulb

This is the *100 prisoners and a light bulb* puzzle. Vladan Majerech’s retrospective, *100 Prisoners and a Light Bulb—Looking Back* (2022), describes research on it beginning in the early 2000s and later improvements to protocols and their expected times [1].

Two important version differences

Some versions specify that the bulb starts off. Others, including this page, leave its initial state unknown. The simple “one signal per prisoner” method for a known-off bulb does not automatically solve the unknown-state case.

There is also a difference between ensuring eventual success under a fair schedule and minimizing the expected time under random selection. The solution here prioritizes a short, reliable explanation for an unknown initial state. Its expected-time calculation is for that protocol, not a claim to match the faster protocols studied in the literature.

The research history does not establish the first inventor of this exact story. The bonus now specifies independent uniform daily selection so that an expectation is mathematically defined.

Sources

- [1] Vladan Majerech, *100 Prisoners and a Light Bulb—Looking Back* (2022), arXiv:2208.00771.
<https://arxiv.org/abs/2208.00771>

Sources checked September 7, 2026. A documented appearance is not necessarily the earliest appearance.