

Black and White Hats

History and provenance

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September 7, 2026

A sequential information puzzle

This is the sequential line-of-hats puzzle: later speakers hear earlier answers. It differs fundamentally from the simultaneous seven-color puzzle and from hat games in which people may pass.

Hat puzzles have a substantial recreational and mathematical literature; Hardin and Taylor give a historical introduction to several families [1]. I did not establish the first publication of this exact 100-person line version.

The coding connection

Its solution uses a parity bit: one announcement states whether a count is even or odd. Parity is also central to error-detecting and error-correcting codes; Hamming's 1950 paper is a foundational reference for that broader subject [2]. This connection does not imply that Hamming invented the hat puzzle.

The information model matters: everyone hears previous answers, but the first speaker does not know their own hat. The guarantee concerns 99 correct guesses for every arrangement, not a probability computed from unspecified random hats.

Sources

- [1] Christopher S. Hardin and Alan D. Taylor, An Introduction to Infinite Hat Problems, *The Mathematical Intelligencer* 30(4) (2008), 20–25.

<https://www.cs.umd.edu/~gasarch/TOPICS/hats/infinite-hats-and-ac.pdf>

- [2] Richard W. Hamming, Error Detecting and Error Correcting Codes, *Bell System Technical Journal* 29 (1950), 147–160.

<https://doi.org/10.1002/j.1538-7305.1950.tb00463.x>

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