The Duck and the Fox

History and provenance

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Lady in the Lake

The duck-and-fox problem is a retelling of the *Lady in the Lake* pursuit-evasion problem: a slower swimmer inside a circle tries to reach the boundary before a faster pursuer restricted to that boundary.

Von Moll and Pachter's 2024 research paper identifies Martin Gardner's 1965 *Scientific American* presentation as an early source and explains the classical escape condition before studying the full game [1]. Their article provides a precise continuous-time model and distinguishes the escape condition from further questions about optimal time and play.

Which result the solution uses

The elementary "get opposite, then dash radially" strategy is useful but not optimal. The accompanying solution gives it first, then derives the sharper speed threshold. It assumes instantaneous observation of the fox's motion and the ideal ability to change direction, as in the feedback model.

This history credits a documented popularization and a modern technical treatment. It does not claim that the 2024 authors first discovered the classical speed threshold, or that the animal wording originated with Gardner.

Sources

[1] Alexander Von Moll and Meir Pachter, Complete Solution of the Lady in the Lake Scenario (2024), arXiv:2401.14994.

https://arxiv.org/abs/2401.14994

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