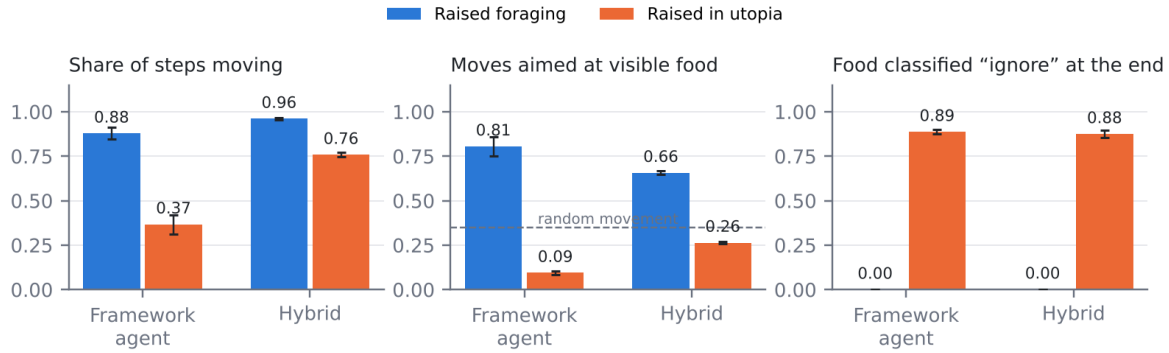
Raised in a utopia: a simulated test of UnBehavior's mechanism

Chris Biro · Applied Evolutionary Ethology series · simulation testbed, Experiment 6 · October 2026

Question. The Applied Evolutionary Ethology framework defines behavior as choosing among possible actions in response to a stimulus, in an attempt to optimize outcomes for current interests. It predicts that an individual raised where nothing it does changes what happens to it will (1) stop treating the things its needs depend on as significant, and (2) keep repeating actions until they become habits — and that those habits, not lost knowledge, carry a lasting cost once consequences return. This is the individual-level mechanism the series proposes for Calhoun's Universe 25.

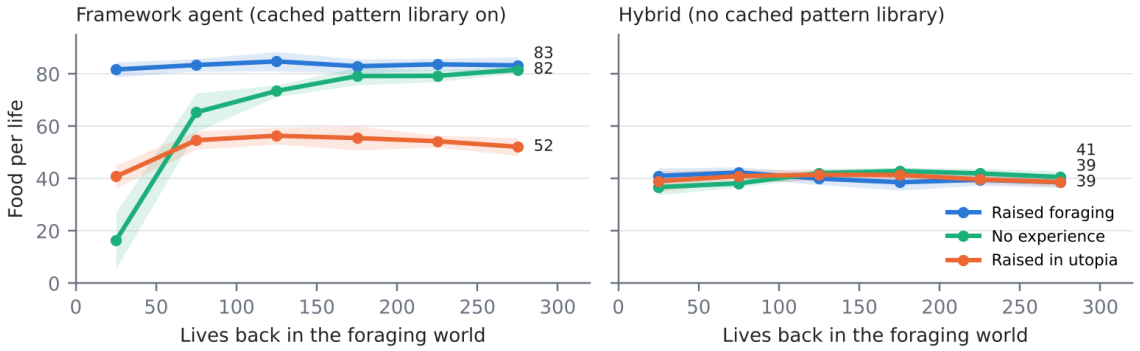
Set-up. Agents live in a 15×15 world with food, recurring clutter and shelter, and no predators or hazards, matching Universe 25. They see only unlabeled feature patterns and learn from the impact of their actions on their energy. They are raised for 300 lives in a utopia (energy held full whatever they do; eating gains nothing), in the same world where they must forage, or not at all; then all live 300 lives foraging, meeting identical worlds. Nothing tells any agent how to act. Two agents, 10 independent runs each: a framework agent (rapid significance classification, the six-step decision, and a cached pattern library that turns repeated actions into habits) and a hybrid that has the same significance classification but a learning neural network in place of the habit library. Under the author's rule, an action repeated where nothing results still builds a habit.

1. In utopia, food becomes background



End of the 300 raising lives; means of 10 runs with 95% intervals. Both agents came to classify food as something to ignore — the prediction holds whether or not the agent can form habits.

2. When consequences return, the lasting cost comes from habits



Food found per life after returning to the foraging world, 50-life blocks; means of 10 runs with 95% bands. Framework agent, last 50 lives: 52 ±3 raised in utopia, 82 ±1 with no experience, 83 ±3 raised foraging. Hybrid: 39 ±2, 41 ±2 and 39 ±2.

What this shows. Every agent raised in utopia relearned food when it mattered again (classified "pursue" by the end). The framework agent nevertheless stayed about 30 food per life below agents with no experience at all, for all 300 lives — a cost larger than having learned nothing. Three results locate the cause in habits built where nothing resulted: with its habit library on, the framework agent shows the deficit; with the library switched off (3 runs), utopia-raised agents reach about 74–85, like fresh ones; and the hybrid, which has no habit library, shows no deficit across 10 runs.

What it does not show. This is one individual: no population, reproduction or social learning, so Calhoun's social observations need a population model. Whether repetition with no outcome builds habits is a framework rule, settled by the author after both versions had been run; under the alternative rule the deficit was smaller and more variable (59 ±13 food per life; one run of ten never learned food at all). The hybrid finds about half as much food overall as the framework agent, so each is compared only with itself; a deficit of the framework agent's relative size would still be about 13 food per life for the hybrid, far outside its spread. Learning rates and thresholds are engineering placeholders, not measured values. An earlier experiment that kept a predator and hazards in the world (Experiment 5) is superseded here for this question.

Materials. Code, per-life results for every run and a full development log (each design decision, its reason, and every error found and corrected) are openly available at https://doi.org/10.5281/zenodo.23690120 · Chris Biro · chris@libertywings.com · ORCID 0009-0006-0370-4961