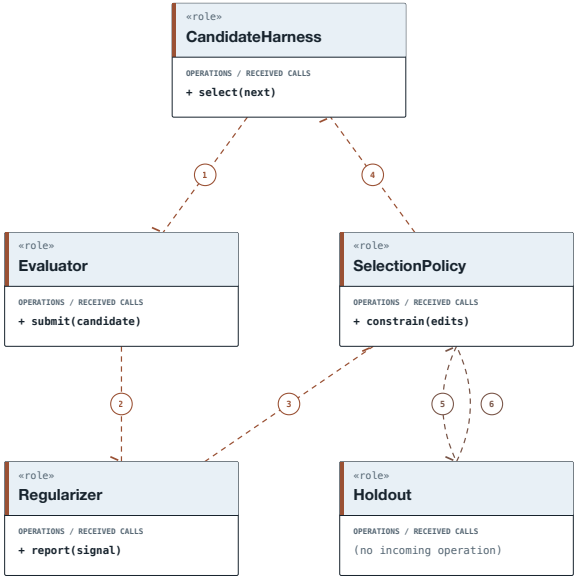
E03 Regularized harness improvement

Evolution / UML CLASS VIEW / ANALYTICAL MODEL

Limit overfitting during repeated edits.

UML CLASS VIEW

dashed arrow: call dependency · brown: return/failure · analytical, not an observed trace



POINTCUT / PATTERN INTERFACE

CONTEXT	Multiple harness edits are proposed over repeated rounds.
TRIGGER	An evaluator accepts or rejects an edit.
STRUCTURE	Validation split, regularization signal, edit budget, and final holdout.
EFFECT	Selection controls complexity and overfitting before final evaluation.

CONTRACT / REQUIRED BEHAVIOR

REQUIRES	Acceptance and final evaluation data have distinct roles.
ENSURES	Accepted edits include the screening evidence that justified them.
INVARIANT	Final holdout is not used for iterative selection.
VIOLATION	Leakage or unstable gain stops acceptance or downgrades the claim.

RELATIONSHIPS / ANALYTICAL CALLS

number · caller → callee · message

1 CandidateHarness → Evaluator submit(candidate)
2 Evaluator → Regularizer report(signal)
3 Regularizer → SelectionPolicy constrain(edits)
4 SelectionPolicy → CandidateHarness select(next)
5 SelectionPolicy ↩ Holdout final_eval()
6 Holdout ↩ SelectionPolicy verdict()

VARIATION / TEST / NEGATIVE CONTROL

VARIATION	Holdout, critic, complexity penalty, edit budget, and pruning.
TEST_OBLIGATION	Test leakage detection, repeated selection, complexity penalty, and holdout.
NEGATIVE_CONTROL	Best-of-many tuning on the test metric is not regularized improvement.