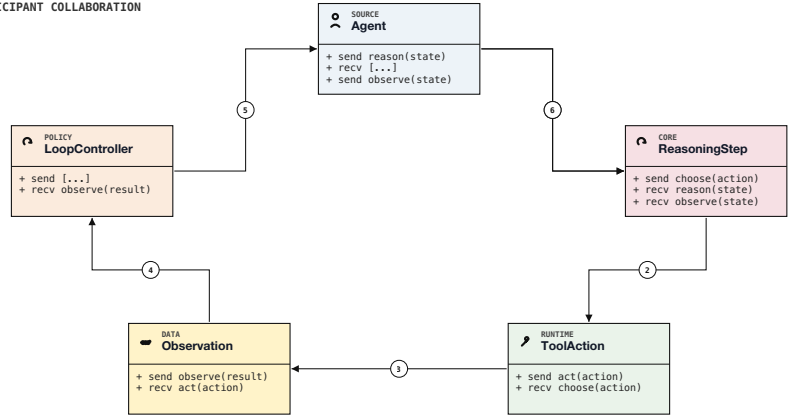
R01 Reason–act–observe (ReAct)

Reasoning · A² A1 · cycle role collaboration

Interleave reasoning and external actions.

STRUCTURE · PARTICIPANT COLLABORATION



PATTERN INTERFACE

context
An agent can reason and use an external action interface.

trigger
The model emits reasoning followed by an action request.

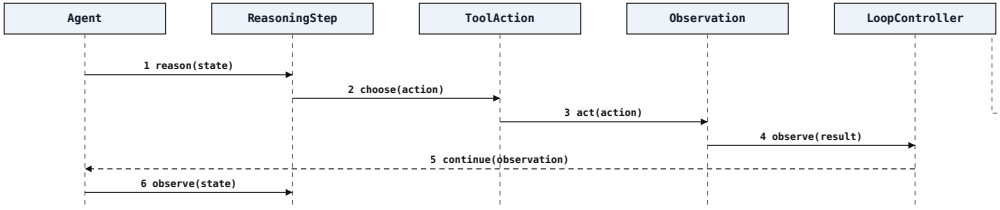
structure
Parsed action, execution result, and observation fed into the next cycle.

effect
External evidence enters the reasoning trajectory before the next action.

CONTRACT ANNOTATIONS

requires	Action and observation schemas are stable enough to parse.
ensures	Every executed action has an attributable observation or execution error.
invariant	Model reasoning is not treated as environment evidence.
violation	Invalid action, unavailable tool, or parse error is exposed to the loop.

INTERACTION



MESSAGE TRACE 1 reason(state) → 2 choose(action) → 3 act(action) → 4 observe(result) → 5 continue(observation) → 6 observe(state)

Evidence: 39/41 repositories, 35/36 families; 39 trajectories (19 multi-checkpoint); exact audit: not sampled.

Variation: Prompt protocol, typed tool call, XML or text parser, and observation compression.

Negative control: Chain-of-thought text without external action is not ReAct.