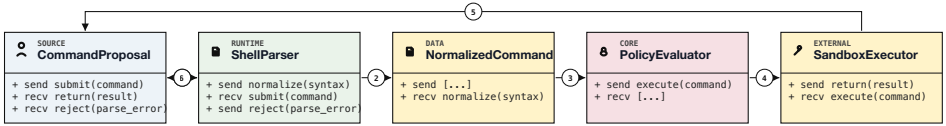
P21 Syntax-aware command permissioning

Primitive · A² A2 · guard role collaboration

Inspect command structure before execution.

STRUCTURE · PARTICIPANT COLLABORATION



PATTERN INTERFACE

context
An agent proposes a shell command with security-relevant structure.

trigger
The command is about to be parsed, classified, or executed.

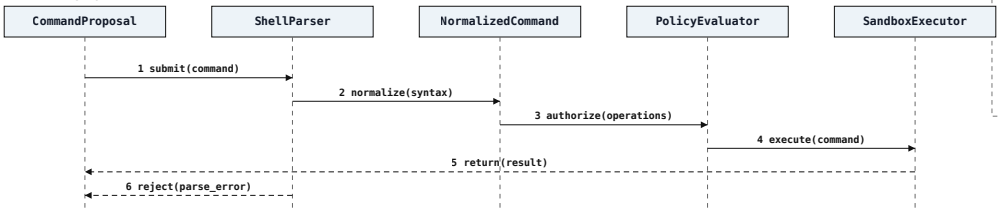
structure
Shell parser, normalized command tree, policy evaluator, and execution handoff.

effect
Authorization uses parsed operations and a parse failure cannot fall through to execution.

CONTRACT ANNOTATIONS

requires	The command is representable by a parser or rejected before execution.
ensures	Every subcommand and redirection is covered by a policy decision.
invariant	Parsed intent and executed command refer to the same normalized operation.
violation	Unsupported syntax fails closed or requests explicit review.

INTERACTION



MESSAGE TRACE `1 submit(command) → 2 normalize(syntax) → 3 authorize(operations) → 4 execute(command) → 5 return(result) → 6 reject(parse_error)`

Evidence: 2/41 repositories, 2/36 families; 2 trajectories (2 multi-checkpoint); exact audit: 3 supported, 1 unresolved, 3 rejected.

Variation: Tree-sitter or shell AST, policy language, command aliases, and escalation.

Negative control: A substring denylist is not syntax-aware permissioning.