The Scaffolder's Playbook

Beyond Prompt Engineering to Workflow Architecture

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First Edition

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ABOUT THE AUTHOR

Bertrand Lee holds a B.S. in Electrical and Computer Engineering (College and University Honors) from Carnegie Mellon University, USA.

He started at Creative Technology, writing its first open-source Linux audio driver for the Sound Blaster Live! family and working with kernel developers to get it upstreamed. At Microsoft he was principal author of the USB Video Class specification — including the Extension Unit mechanism that let vendors add their own controls without breaking the generic driver — co-founded the USB Video Device Working Group with partners including Logitech, stayed through specification 1.0 in September 2003, and built Windows' UVC driver. Twenty-three years later it is still a reason a webcam works when you plug it in: Windows, macOS and Linux provide built-in class support for compliant UVC devices, and Android supports external UVC cameras on conforming devices. It turns up well beyond webcams — conferencing systems, dashcams, drones, medical endoscopes, the tracking cameras inside VR headsets.

His path into natural-language processing began at VoiceBox, building in-car voice assistants years before phones made them familiar — statistical NLP and grammar-driven parsing on embedded automotive hardware, before deep learning changed the field. He later led video-platform engineering at Panopto, in Seattle and Hong Kong.

In 2018, two decades into his career, he went back to school for the methods that had displaced the ones he knew: four months full-time at a machine learning bootcamp. As a Smart Nation Fellow at GovTech he then led the team that built VICA, the Singapore government's

conversational-AI platform, which replaced the earlier Ask Jamie chatbots. He chose its NLP engine by benchmarking eight commercial platforms against a common test set rather than by reputation. Engine-agnosticism was a requirement set for the platform; he built the plugin architecture and migration tooling that made it achievable, letting the engine be swapped without a rebuild. VICA launched in December 2020.

He was not an outsider who learned AI, but a domain expert who went back to being a beginner in the technique. That is why these patterns were discovered rather than theorized — and why none of it is a prerequisite. The argument is not that the author is exceptional, but that the method can be handed to anyone.

He lives in Singapore, runs BrightRaven.ai, an AI consulting firm, and gives pro bono talks on AI in Singapore schools.

More: linkedin.com/in/bertrandlee · "A Conversation with Bertrand Lee," GovTech Tech News

A note on how this book was written. The experiences, judgment, and patterns in this book are the author's own — discovered, tested, and vetted across real projects, not theorized. The prose itself was drafted collaboratively with AI, working from his direction and firsthand accounts, then reviewed and revised by him before publication. If that distinction matters to you as a reader — and this book's own argument about honest disclosure suggests it might — you now have it stated plainly rather than left for you to guess.

PREFACE: Why I Wrote This Book

I wrote this book because a frustration with my own investing and long-term financial planning — tracking requirements that span years, reconciling records scattered across accounts — accidentally taught me something too useful to keep to myself. The fix was simple: stop treating the AI like an oracle, start treating it like a durable external store. I took a spreadsheet that had grown into a mess of notes and made the model organize its own memory into a structured, human-auditable ledger. It worked. That day, I stopped one-shotting.

This book does two jobs at once: it's a manual for techniques that already work, and a method for finding the ones that don't exist yet. Those aren't in tension — the techniques here exist to train a discovery reflex, not just to be copied. Learn the foundations, improve on them, and put your own back into the commons.

This is workflow engineering, not prompt engineering — and the difference matters. Prompt engineering optimizes one question for one better answer; it operates at the level of the *turn*. Workflow engineering operates *above* the turn: the memory that outlives a conversation, the file that survives a thread, the check that fires on a future edit, the reconciliation that runs weeks later. It's the same move software engineers call a design pattern — a recurring solution to a recurring problem that you don't invent so much as *notice*. Work this way long enough and you'll realize you've been using a structure that already has a name, or you'll have quietly named one yourself. This book catalogs the ones I noticed. Its bigger job is teaching you to notice your own.

If you want the definitive treatment of the layer below this one, it already exists: DAIR.AI's Prompt Engineering Guide

(promptingguide.ai) catalogs prompting technique thoroughly and keeps it current. This book starts where that one stops — not at the prompt, but at everything that has to survive after the answer arrives.

The method is not "assume the machine can do anything." That assumption feels bold; it isn't — it's how you get confidently wrong output you never catch, because you stopped checking. What I actually do: assume nothing about the ceiling, push hard to find it, verify what comes back. Ambition and verification aren't opposites here — they're the same discipline. Push boldly to discover, trust nothing unverified. Every technique in this book came out of that push-then-test loop, not out of a theory about what AI should be able to do.

I didn't arrive at these patterns once, in one place. The same architecture showed up independently across three domains I run this way — personal investing, a serious medical episode, stewardship of a personal collection — each one rediscovering the same four moves: a living document as the source of truth, a second mind checking the first, mistakes converted into standing rules, a bright line where the human decides. **Be precise about what that evidence actually supports:** three domains, one practitioner, is cross-domain reappearance within a single mind — not independent convergence, and not proof the method transfers to you. Treat it as a hypothesis worth testing, not a guarantee.

This project is a contribution to an open-source commons, and the larger hope is to help start one (see "Where This Goes"). A contribution earns credibility by reconciling to actuals, not by sounding right. I mark what's durable versus perishable, and I check claims against independent review, because two systems agreeing is not the same

thing as a claim being true. I'm asking you to hold your own contributions to the same bar.

Scope: three platforms, and only three. The patterns here are written for, and where possible verified on, **ChatGPT, Google Gemini, and Claude** — chosen because between them they cover the full capability set the patterns depend on: persistent project memory, file upload and generation, multimodal input, code execution, connectors to external stores. Everything else — DeepSeek, Perplexity, Meta AI — is out of scope. Not a judgment of quality; an application of this book's own rule: if a pattern hasn't been tested and verified on a platform, the book doesn't claim it works there. An untested platform gets treated as a hypothesis, not a promise — and if you verify one, that's a real contribution back to the commons.

One correction to make plainly: platform capabilities are the least durable thing in this book, and free tiers are not paid tiers. What a platform can't do this quarter, it may do next quarter — and the reverse. Every capability-dependent pattern carries a dated, tier-specific note (see the Platform Compatibility appendix), and you should re-check it against your platform's current state before you trust it. There's a pattern in this book for exactly that check — [SCF-07], Connector Discovery: ask your platform what it can actually do, don't assume from memory.

A final constraint, and the one that earns all the rest. This book pushes you to push AI systems hard — but that's only earned through the rigor of the audit, not a substitute for it. In medicine, law, and money, the line is absolute and non-negotiable: the AI prepares your questions; it does not make your decision. You and your credentialed professional do that. Skip the audit and the boldness is just

recklessness wearing a better outfit. Keep it, and it's a disciplined workflow.

One more thing I didn't expect: how it would feel. Building these systems put me back into a state I hadn't felt in twenty years — the flow of my early days as a software engineer, looking up to find the whole day gone. I wasn't optimizing prompts; I was architecting a system, and architecture absorbs you in a way a single answer never does. I'm not promising you'll feel it too — flow is personal, and these tools frustrate as often as they deliver — but it's the honest reason I kept going, and it's worth naming: the payoff lives in the building, not in the asking.

There is a second thing I didn't expect, and it explains where most of these patterns actually came from. Very few were designed. They were noticed — a figure I couldn't trace back to its source, a file that reported success and hadn't saved, a rule followed on Monday and quietly dropped by Thursday. Each time, I worked the fix out *with* the model that had just made the mistake, and then handed the result to the rest of what I've come to think of as my team: the separate threads I keep for separate domains, each one inheriting a correction it never had to earn for itself.

What made that work was a division of labour I've not had with a machine before. I brought the creativity, the domain judgement, and the reality checks — the insistence that a claim be true rather than merely plausible. They brought technical depth and a breadth of reference no person can hold. Neither half would have produced this catalogue alone, and I'm fairly sure neither half could have. The closest word I have for it is a mind meld, which I'm aware sounds like exactly the kind of overclaim this book warns against. I'll defend it anyway:

the patterns in here are the residue of that collaboration, not a report about it.

How to Self-Classify (borrowed from skill-rating systems like pickleball's DUPR)

Rating systems like DUPR don't ask how long you've played or how confident you feel — they ask what you can actually do, against opponents who can do the same. Borrow that logic here. Classify yourself by what you've *done*, not by time spent or how expert you feel.

Proficiency frameworks for AI exist — Anthropic's AI Fluency work, and several published level ladders. This is not one of them. The tiers here are a reading order for a catalog, not an assessment: they tell you which patterns will make sense next, not how good you are.

1. **Beginner.** You've used a chat AI for straightforward questions and drafts — or maybe this is your first real conversation with one at all; either way, you're in exactly the right place. *Self-check:* have you ever made the model interview you before it answers, or asked it to argue against your own draft instead of approving it? If you haven't tried either, start here — the Beginner section is built for exactly this gap.

2. **Intermediate.** You use AI daily for real work — documents, day-to-day tasks — but nothing you've built with it outlives the conversation that created it. *Self-check:* if this chat ended right now, would anything of value survive in a file you control? If no, the Intermediate section closes that gap.

3. **Advanced.** You've built at least one durable, file-based system: a memory registry, a spreadsheet with self-checking guards, a handoff brief a stranger could pick up cold. *Self-check:* could a brand-new AI thread, with zero chat history, continue your project today from a file alone? If

yes, you're here — the Advanced section is your home base.

4. **Elite.** You govern a system rather than build one: verification is structurally independent of the work being verified — not just promised, but enforced. *Self-check:* do you have a standing rule that no model can grade its own output, and has that rule ever actually caught a real error? If yes, the Elite section (gated, and now you know why) is where you already live. **Six of its seven patterns work in a single chat window**; only [GOV-07] needs more than one thread, and says so.

The four tiers above are a reading order. They end there.

One honest note matching the registry's own tags: every numbered pattern is assigned to Beginner, Intermediate, Advanced or Elite. The first three are what a single practitioner does or builds alone; the Elite patterns are labeled Elite, not because they're harder in the same sense, but because they describe *governing a system*, not building one — the pyramid's gated top rung.

And then there's a different axis entirely

Pattern Finder is not a fifth tier. It's a *role* — something you do with competence, rather than a measure of how much you have. You've noticed a recurring solution to a recurring problem in your own practice, one that isn't in this book, and written it down so someone else can use it. The section at the end is a short guide to doing exactly that.

You don't graduate into it, and you don't need to be Elite to get there. A beginner who notices something real and writes it down clearly has done the thing. Someone who has read every pattern here and never found one of their own hasn't — and that's a perfectly good place to stay.

It's also not the only role. Two others show up in practice, and this edition doesn't cover them: **Team Builder**, if your work splits across enough domains that you end up running more than one thread; and **Thread Grower**, if you deepen a single thread over months until it holds context a fresh one couldn't. Most people will only ever wear one of the three hats, and one is enough. The collective name for wearing any of them is **Scaffolder** — which is where this book gets its title.

Here's how to build that infrastructure.

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To Gemini (Google), ChatGPT (OpenAI), and DeepSeek — the AI co-reviewers whose independent review rounds challenged, tested, and sharpened every pattern in this catalogue.

INTRODUCTION

There is a colleague available to you now who has no fear of your reaction, no stake in your good opinion, and no memory of the argument you had last week. That absence — call it **The Zero-Stakes Critic** — is not a limitation of the tool; it is the whole advantage. A human reviewer calibrates criticism against the relationship it might damage. An AI has no relationship to protect, which means it can be exactly as blunt as the problem requires, every time, without cost. This book leans on that advantage constantly — see [ONR-02] for where it first shows up as a technique, and watch for it again wherever a pattern asks the model to argue against you rather than agree with you.

How This Book Is Organized

The book is arranged by skill tier, because that is the order to read it in. Four tier sections — Beginner, Intermediate, Advanced, Elite — each resting on the one below. A fifth section, **Pattern Finder**, contains no patterns: it teaches contribution, and it is a role rather than a rung.

Read one section, then stop. Come back when it feels automatic. You do not need to read this book front to back, and you shouldn't: a beginner who pushes to the end spends most of their time on infrastructure for problems they haven't hit yet, and the patterns read as ceremony rather than as answers.

Within a tier, patterns are grouped by category — the ID prefix: `ONR` On-Ramps · `SCF` Foundation · `PRAC` Practices · `ARC` Architecture · `GOV` Governance · `SAFE` Safety. A category can appear at more than one tier, because some safety rules are the first thing a beginner needs while others are advanced infrastructure. If you

want the category view instead of the tier view, the **Patterns at a Glance** appendix lists all fifty that way.

IDs are permanent and never renumber. Display order is cosmetic, and a pattern's number tells you nothing about where it sits or how hard it is. Gaps in the numbering are expected and carry no meaning — a retired or never-written ID is left empty rather than backfilled.

Pattern Finder, the fifth section, has no patterns at all. It isn't a harder degree of the same skill — it's a change in what you produce, from applying this catalog to adding to it, and it sits on a different axis from the four tiers. See "How to Self-Classify" in the Preface.

Try it right now, not just read about it: you can upload this file directly into a ChatGPT, Gemini, or Claude conversation and ask it to walk you through any pattern, or even test one on a real task with you on the spot. The book is written to be handed to the tool it describes — see "Where This Goes" for the fuller version of this idea.

Most of this has a lineage. Very little here is unprecedented in computing — the moves have names in distributed systems, software engineering and security, some of them decades old. Where a pattern has a known ancestor, its entry says so in a **Lineage** line. That isn't a hedge. Knowing that your memory registry is paging, or that your one-writer rule is leader-based replication, tells you where to look when it breaks and what someone else already learned the hard way. What's uncommon isn't the mechanism — it's who's doing it by hand, alone, in a chat window.

The form is borrowed, and the debt is worth naming. A pattern catalog — a recurring problem, a recurring solution, a name you can say out loud to another

practitioner — comes from architecture by way of software engineering, and most directly from the *Design Patterns* book of 1994. What that book did for object-oriented design, this one attempts for working with an AI in a chat window: not new inventions, but recurring moves given names, so they can be recognised, taught and argued about. The names are the point. A technique you cannot name is one you cannot deliberately reach for.

And this book covers one part of the problem, not all of it. Its subject is workflow and architecture — how work is structured, where state lives, what checks exist and who runs them. **It is not a book about prompting.** Wording, phrasing, few-shot examples, chain-of-thought and the rest are a real and separate craft, well covered elsewhere, and a reader who wants to be good at this needs both. Where a pattern here depends on how something is asked, it says so and points onward. **Treat this as the architecture half of a two-part education, and read something on prompt engineering alongside it.**

There may be more on the way. A more comprehensive guide — something closer to a hitchhiker's guide to the whole galaxy of working with AI, beginner to fluent, in one place — is the kind of problem this author can't leave alone. Nothing here promises it, or when. But if this book closes one gap for you, know that the others are visible from here too.

And pattern catalogs for AI already exist — prompt-pattern collections in the academic literature, design-pattern books for people building applications and agents, UX pattern libraries for people designing chat interfaces. All of them are written for builders. This book is for the person on the other side of that interface: no code, no framework, no API key, just a chat window and work that

matters. That is a different problem with a different failure set, and it is the gap this book is trying to fill.

A second marker, ★, means don't skip this one. It flags the few patterns that quietly unlock several others. The Swap Disk Protocol ([ARC-01]) is the clearest example: once your project has durable, file-based memory, a dozen Advanced patterns become easy instead of theoretical.

The One Principle Underneath Everything

Reliability is a property of the system, not the model alone. A capable-but-fallible model becomes a reliable collaborator *for bounded tasks* when it is anchored inside durable, human-auditable artifacts — memory in files, errors turned into guards, verification built into the workflow — its outputs are independently checkable, and a human decides. The model's capability sets the ceiling on what any workflow can achieve; the system determines how close you get to that ceiling, and how safely you fail when you don't. Process cannot turn an incapable model into a reliable one; it makes a capable one's work *compound* across sessions and its errors catchable.

Running underneath every pattern is one governing rule, which is why it is stated here as a principle rather than filed as a technique:

> **The verifier must be independent of the verified** — where *independent* means the check does not share the failure that produced the error. A model cannot reliably check its own work: it shares its own blind spots, and asked whether it succeeded, it will tend to say yes. So every check that matters is run by something *outside* the thing being checked: a human, a different model, a frozen reference, a mechanical diff against stored actuals. Independence of the *evidence* matters more than a different brand of model — a mechanical diff against the stored bytes is independent even when the same agent wrote them, though it establishes integrity against that baseline, not that the baseline is *correct*; where correctness is claimed, reconcile against an independently established, known-good reference. A second model is not

independent merely by being a different product; it may share training data and blind spots. Self-review is *insufficient as final assurance*, not worthless. This is the reason the techniques work, not one of the techniques.

Why a second channel, and not a second look. The failure this guards against isn't that a model lies. It's that a model's account of what it just did is generated the same way as everything else it generates — from the conversation, not from an inspection of the world. Ask whether a file saved and you get a fluent, plausible answer that was never checked against a file system. The report and the reality are produced by different processes, and only one of them involves looking.

So a write is not done until a *different* read confirms it: a different tool, a direct metadata lookup, the folder listing itself. And "a different model" is not automatically independent — two models can share a blind spot. Independence is a property of the evidence channel, not the brand.

BEGINNER

Ten patterns, readable in one sitting. Every one can be used within a single conversation, with no persistent project infrastructure — though a few use ordinary upload, image or voice features.

Read this if you have used a chat AI for questions and drafts — or if this is your first real conversation with one. The test is not how long you have used it: have you ever made the model interview you before it answers, or asked it to argue against your own draft instead of approving it? If neither, you are in exactly the right place.

Skip it if both of those are already habits. Come back for a refresher whenever a conversation goes badly and you cannot say why.

★ means: read this one even if you skip the rest.

Read this section and stop. When these feel automatic — when you make the model interview you before it answers without having to remember to — come back for Intermediate. There is no benefit to reading further before then, and some cost: the later sections describe infrastructure that only makes sense once you have hit the problems it solves.

The Interview Primitive

*Try asking it to interview you first. (cross-reference: `[ONR-01]` ·**Beginner**)*

Ask “plan a family trip to Japan” and you get a generic, tourist-trap itinerary built on surface assumptions. Before you let the model answer anything real, make it interview *you* first.

- **Analogy:** A good tailor measures you before cutting the cloth; a bad one hands you something off the rack and calls it fitted.
- **Benefit:** Surfaces the gaps in your own thinking — a budget you forgot to mention, a mobility limit, a dietary need — before you’ve committed to a plan built on a wrong guess. Costs one extra reply; saves redoing the whole thing.
- **Apply:** End your first prompt with *“Before you answer, ask me the top three clarifying questions you need to tailor this to my situation.”*
- **Guardrail:** The model organizes your options; you know your life. You keep authority over the decision.
- **Related:** → Structured Elicitation Before Action

The Adversarial Framing Shift

*Ask it to tear your draft apart, not approve it. (cross-reference: `[ONR-02]` ·**Beginner**)*

Drafting a hard email — pushing back on an unreasonable deadline — the instinct is to paste it and ask "does this sound okay?" Because these tools are trained to be helpful and polite, they'll tell you it does. In a high-stakes moment, an assistant that always agrees is a liability.

- **Analogy:** Ask a friend "does this look okay?" and you get "yes." Ask "what would my harshest critic say?" and you get it while you can still fix it.
- **Benefit:** Trades one uncomfortable moment (reading a critique of your own draft) for catching a tone problem or a misread before it reaches the person who'll actually judge you on it.
- **Apply:** *"Critique this aggressively. Don't tell me why it works — tell me what's wrong, what I've missed, and how it could backfire."*
- **Guardrail:** It spots tone and logic gaps; it doesn't know your workplace politics or your manager's temperament. It's a peer reviewer, not the decider.
- **Related:** → Active Interrogation & Steering

The Blind-Spot Inquiry

*Ask what you forgot to ask. (cross-reference: `[ONR-03]` · **Beginner**)*

Applying for a permit, prepping for a specialist appointment — the real danger isn't the question you asked badly, it's the one you never thought to ask at all. An AI answers exactly what you type; it won't volunteer the gap in your plan unless you make it hunt for one.

- **Analogy:** A good doctor answers the question you asked, then the one you didn't know to ask.
- **Benefit:** Turns everything the model has seen before — thousands of similar situations — into a checklist built for your blind spots specifically, not just the ones you knew to ask about.
- **Apply:** *"Thinking about everything we've discussed, what important questions or hidden risks should I raise with my specialist that I haven't thought of?"*
- **Guardrail:** The boundary that matters most in daily use: this prepares you for your professional, it does not replace them. Describe your situation in general terms; keep identifying numbers out.
- **Related:** → Active Interrogation & Steering

Direct Grounding: Don't Explain — Show

*Show it the document instead of describing it. (cross-reference: `[ONR-04]` ·**Beginner**)*

"I have a bank statement with a $50 late fee, but I don't know why" hands the model a memory of a document instead of the document — and memory misreads dates, skips fine print, drops the one line that mattered. Stop summarizing what you think you saw. Show it the original.

- **Analogy:** Describing a rash over the phone versus showing the doctor — one is your memory of the thing, the other is the thing.
- **Benefit:** Removes an entire category of error at the source — the model reasons from the real document instead of your recollection of it, so its answer can't be wrong for a reason you introduced.
- **Apply:** Photograph or upload the actual page. *"Read this directly and tell me why I was charged this fee; highlight the exact rule on the page."*
- **Guardrail:** Redact account numbers, NRIC, address before uploading. The AI explains; you decide what to do — and if it matters, read the part it points to yourself to confirm.
- **Related:** → Explicit Source-Grounding

Multi-Modal Equity: Talk to the Tool

*Speak to it when typing is the barrier. (cross-reference: `[ONR-05]` ·**Beginner**)*

For someone who isn't comfortable typing, or whose first language isn't the interface's, the keyboard itself is the barrier — not the technology behind it. Someone in a hospital, working through a health plan written in an unfamiliar language, can simply speak instead: describe the situation, ask the question, hear the answer back.

- **Analogy:** An office that only takes written forms turns away anyone who finds writing hard. One with a counter you can talk to serves everybody.
- **Benefit:** Opens the tool to exactly the people who need it most and are least served by a keyboard-first design — non-typists, non-native speakers, anyone for whom syntax was never the point.
- **Apply:** Use the voice feature in your own language: *"I'll speak to you in [language]; explain these terms to me simply."*
- **Guardrail:** Speaking to the AI is the same as typing to it — your words are still sent and stored. Don't say more than you need to, and not where others can overhear. A preparation tool, not a clinician.
- **Related:** *(none yet — its natural parent, deliberate modality/language routing, isn't its own pattern; flagged as a possible future entry)*

Encryption Is Not the Answer

*Protect the account, not the file. (cross-reference: [SCF-10] ·**Beginner**)*

Worried about AI and privacy, the instinct is to reach for encryption. But you can't use data you can't decrypt — and encryption does nothing against the actual threat: someone who steals your login. To them, you're already unlocked.

- **Analogy:** A wall safe does nothing if the burglar walks in wearing your face and knows the combination.
- **Benefit:** Redirects real effort from a comforting non-solution to the two things that actually reduce risk — account security and data minimization.
- **Apply:** Protect the account, not the file. Strong, unique passwords; two-factor or passkeys; and above all, hand over less data in the first place.
- **Guardrail:** This isn't "encryption is useless" in general; it's "encryption is the wrong answer to *this* fear." A stolen, authenticated session walks straight past it.

Email Is the Master Key

*Your inbox opens every other lock you own. (cross-reference: [SCF-11] ·**Beginner**)*

You connect an AI assistant to your calendar without a second thought — then, without thinking much harder, do the same for your inbox. That second connection is categorically different: email is the password-reset channel for *every other account you own*, so an assistant with email access effectively holds the keys to everything else too.

- **Analogy:** Lending your house key is one thing. Lending the cabinet where every other key hangs is another.
- **Benefit:** Protects the one account whose compromise cascades into all the others, by treating it as categorically different from the rest.
- **Apply:** Think of connector access as a sensitivity gradient: Calendar < Cloud Storage < Email. Grant the least that does the job.
- **Guardrail:** Deliberately *not* connecting your email is a feature, not a limitation. The convenience you give up is small; the blast radius you close off is your whole digital life.

The Data Ingestion Boundary

*Decide what never gets typed or uploaded in the first place. (cross-reference: `[SAFE-01]` ·**Beginner**)*

The excitement of "just upload the document" or "just speak to it" has to arrive paired with an instinct for what *not* to hand over in the first place. You control what goes into the box.

- **Analogy:** You don't hand over the whole wallet to prove you're over eighteen — you show one card.
- **Benefit:** Prevents a leak at its only fully preventable point — before it's ever typed or uploaded — rather than trying to contain it afterward.
- **Apply:** Redact identifying detail — passwords, full NRIC, account numbers, other people's private data — before pasting or uploading. Share only the part needed for the question.
- **Guardrail:** This is a Beginner rule precisely because Direct Grounding and Multi-Modal Equity send beginners toward uploading documents and speaking aloud — the boundary has to arrive with the capability.

Temporal Drift Verification

*Give it today's date instead of trusting its memory. (cross-reference: `[SAFE-03]` ·**Beginner**)*

A model's training cutoff means it will answer a "what's current" question with total confidence and total staleness, and give no visible sign of which one it's doing.

- **Analogy:** Asking someone just back from a year off-grid what the weather's like. Confident answer; last year's weather.
- **Benefit:** Catches an entire class of confidently-wrong answers before they're acted on, for the cost of one extra instruction.
- **Apply:** For anything current, supply today's date and tell the model to search rather than answer from memory. *"Today is [date]. Don't answer this from memory — search, and tell me the date on whatever source you use."*
- **Guardrail:** A Beginner rule because one-shot users often don't know a cutoff exists.

Time-Grounding: The Clock It Doesn't Have

*Never let it guess what day it is. (cross-reference: [SAFE-04] ·**Beginner**)*

This is Temporal Drift Verification's sibling, and the distinction matters: that pattern is about *stale knowledge* (the model doesn't know what changed since training). This one is about the *clock itself*. A base model has no clock of its own; the product wrapped around it may or may not supply one — a device time zone, a system-injected date, a live search tool. Which of those you have is not visible from inside the conversation, and web searches often return cached pages rather than fresh ones. When the model can't establish the date, it doesn't stop. It fabricates a plausible one.

- **Analogy:** A stopped clock still has hands. It still points somewhere. It looks exactly like a working one until you check it against something else.
- **Benefit:** Kills an entire class of confident, invisible staleness — the wrong date that looks exactly like a right one.
- **Apply:** For anything time-sensitive, never accept a bare answer. Give it today's date yourself, or make it show you the dated source it's reading. Verify the date, the time zone and the freshness channel rather than assuming any one of them exists or is correct. If it can't produce one, treat the time as unknown. *"Before you answer: what is today's date, and how do you know it? If you can't establish it from a dated source, say so instead of estimating."*
- **Guardrail:** The dangerous case isn't the obvious error. It's the *roughly-correct* fabrication, because occasional accuracy builds false trust. One good guess earns three unearned ones.

- **Related:** → Temporal Drift Verification (its sibling)

INTERMEDIATE

Twenty-one patterns for work that has to outlive the conversation that created it.

> **Read this if** you use AI daily for real work but nothing you build with it outlives the conversation that created it. The test: if this chat ended right now, would anything of value survive in a file you control? If the answer is no, this section closes that gap.
>
> **Skip it if** your work already lands in files you own and can hand to someone else. A refresher costs little; the patterns here are the ones most often half-adopted.

★ means: read this one even if you skip the rest of the section. In this tier the most load-bearing pattern is the Swap Disk Protocol ([ARC-01]) — it gives your work durable memory outside any conversation, and a dozen later patterns assume you have it.

Assumes the Beginner section. If you skipped ahead, skim it first — it is ten patterns and it will not take long. Grouped below by category: **Foundation** is workflow and lifecycle hygiene, **Practices** is established discipline applied with unusual rigour, and **Architecture** begins where a single conversation stops being enough.

Foundation

Debugging a Spreadsheet Like Production Code

*Find every cause before you fix anything. (cross-reference: `[SCF-09]` ·**Intermediate**)*

A formula breaks, you patch the one cell you noticed, and three other broken cells sail on untouched — because you fixed a symptom, not the cause. Spreadsheets are where non-developers actually live, and they deserve the same discipline a programmer gives code.

- **Analogy:** The plumber who paints over the damp patch and leaves the burst pipe. You'll be calling again next month.
- **Benefit:** Converts a silent, spreading spreadsheet error into a loud, located one — before it corrupts a decision you make off the numbers.
- **Apply:** Find *all* the root causes first, before fixing anything. Then fix each one behind a check that proves it's fixed. The standout technique is an **assertion cell** — a formula that shouts ("COLUMN MOVED") the moment a column silently shifts out from under your other formulas. *"Don't fix anything yet. List every distinct root cause you can find in this sheet, and for each one tell me what check would prove it's fixed."*
- **Guardrail:** A check you've never seen fail is a hope, not a control. Deliberately break it once to confirm it actually fires.
- **Related:** → Self-Installing Guards

Prune the Ceremony Your AI Can't See

*Name the ritual it can't see itself performing. (cross-reference: [SCF-12] ·**Intermediate**)*

An AI given a standing instruction ("check the files at the start of each session") can misfire it on *every* turn — because from the inside, it can't tell a fresh start from a continuation. Worse, the repetition reads to the AI as diligence. It cannot perceive its own ritual.

- **Analogy:** A colleague who introduces himself fully every morning. Not thorough — genuinely unable to tell you've already met.
- **Benefit:** Removes empty ceremony that would otherwise accumulate unchecked, because the only party who can see it is you.
- **Apply:** Part of your job as the human is to watch for and name repetition the AI is structurally blind to. When a step fires that doesn't need to, say so, and scope the instruction to its real trigger. *"You've run that check on every turn this session. Scope it: run it only when [trigger], not on continuations."*
- **Guardrail:** This isn't the AI being careless. It's a genuine blind spot: ritual and diligence look identical from inside the loop. The pruning has to come from outside it.

Treat "I Can't" as a Claim to Test

*Treat "I can't" as a claim to test. (cross-reference: [SCF-13] ·**Intermediate**)*

You reconnect a tool, open a fresh thread, or upgrade an app, and ask the AI to do something it did easily last week — it tells you it can't. Often, it's wrong: a stale self-image, not a real limit. An AI's model of its own abilities is perishable and frequently out of date, especially right after anything changed.

- **Analogy:** The shop assistant who says "we don't stock that" without looking. Sometimes true; it costs nothing to make them check the back.
- **Benefit:** Recovers capabilities you'd otherwise leave on the table because the AI misdescribed itself — a real cost, paid silently.
- **Apply:** Treat "I can't" as a claim to test, not a fact to accept. Probe the capability directly with a small disposable attempt. If it fails, read *why* — a permission problem is different from a genuine absence. *"Don't tell me whether you can — try it on something disposable and show me what actually happened, including the error if it fails."*
- **Guardrail:** The flip side of Time-Grounding's lesson: the model is an unreliable narrator of *itself*, in both directions. Don't trust the "no" any more than you'd trust an unverified "yes."
- **Related:** → Time-Grounding ([SAFE-04])

Test the Whole Channel, Not Just the Step

*Test the assembled workflow on something disposable before you trust it on something real. (cross-reference: [SCF-14] ·**Intermediate**)*

You attach a document to your AI session and the model replies with a confident, detailed summary — and three exchanges later you notice the reply makes no reference to anything in the document, because the upload failed silently. Or you write a file to cloud storage, get a confirmation ID back, verify the metadata — and discover nine days later that what landed on the server is not what you composed. Every individual step confirmed itself. The property *does the assembled chain produce what I intended* was never tested as a whole.

- **Analogy:** A building whose wiring, plumbing and fire doors each passed their own inspections — but nobody ran the fire drill that would have shown the door doesn't seal the hallway in a real fire.
- **Benefit:** Catches the failure class where every step individually succeeds but the assembled chain fails — which produces no error message and is therefore invisible until you check the end-to-end output.
- **Apply:** Before using a workflow on real work, run it once end-to-end on a small, disposable test and check the final result, not just the intermediate confirmations. "Upload succeeded" is a step result. "The model read what I uploaded" is a chain result. They are not the same claim. *"Before we use this on the real task: run it on this dummy input and tell me what came out at the end — not just whether each step reported success."*
- **Guardrail:** A successful end-to-end test confirms the channel worked once, under those conditions.

A different model, a different connection, or a larger payload can produce a different result. Re-run the channel test whenever something in the chain changes.

- **Related:** → Treat "I Can't" as a Claim to Test ([SCF-13]), → Both of You Can Be Wrong ([PRAC-01])
- **Lineage:** End-to-end testing versus unit testing — the integration testing discipline in software engineering. The specific failure mode here (step-level confidence with chain-level failure) is the integration gap.

One Thread Per Topic, Like a Standing Specialist

*Keep one thread per topic, like a standing specialist. (cross-reference: `[SCF-01]` ·**Intermediate**)*

Mix legal questions into your finance thread and the context bleeds both ways — the thread starts sounding like neither advisor, competently. Keep one durable thread per domain, each treated like a standing specialist.

- **Analogy:** Nobody asks their accountant about a rash.
- **Benefit:** Keeps each thread's context pure and its persona stable, instead of slowly blending into a generalist that's mediocre at everything.
- **Apply:** One durable thread per domain, treated like a standing advisor; don't conflate.
- **Guardrail:** Segmentation minimizes token bloat and drift; it doesn't substitute for the memory registry that lets a fresh thread inherit context.
- **Related:** → Match the Model to the Job

Match the Model to the Job, Not Habit

*Match the model to the job, not habit. (cross-reference: `[SCF-02]` ·**Intermediate**)*

Default to one model out of habit and you'll either overpay for a simple task or underpower a hard one — and a model asked "are you the right choice for this?" will rarely say no.

- **Analogy:** You don't take the motorway car to the corner shop. And the salesman is the last person to ask which car you need.
- **Benefit:** Matches spend to task difficulty instead of habitually overpaying or underpowering, and catches a model recommending itself out of built-in bias.
- **Apply:** Route the judgment to a *different* AI lineage: describe your workflows and real cost constraints, **require it to search the current model lineup and pricing live**, and ask for the best fit-for-purpose balance with reasoning shown. *"Here's my workflow and my cost constraints. Search the current model lineup and pricing, then tell me which model fits which task and why — including where a cheaper one would do."*
- **Guardrail:** A competitor model has mild structural bias; treat its recommendation as a second opinion to reconcile against the provider's own current pricing page.
- **Perishability (as of 1 Jul 2026, SST — illustrative, expected to change):** Opus 4.8 leads on the hardest long-horizon reasoning/coding; Sonnet 5 is at rough parity on most knowledge work at lower cost. *Memorize the method, not the models.*

- **Related:** → Cross-Model Create-and-Review

Don’t Trust What It Says About Itself

Don’t trust it when it tells you how much it remembers.
*(cross-reference: `[SCF-03]` ·**Intermediate**)*

Ask a model “how full is your context window?” and you’ll get a confident-sounding number that has nothing to do with reality — it’s a guess, not a readout. Trust what you can observe instead.

- **Analogy:** Asking someone late in the evening how sober they are. The answer is confident, and the answer is not evidence.
- **Benefit:** Catches quality decay before it produces a bad answer you act on, rather than after.
- **Apply:** Trust behavioral signs of decay (dropped constraints, forgetfulness) over the model’s self-report; do a clean handover the moment continuity slips.
- **Guardrail:** Self-reported context health is unreliable — the same self-attestation trap that runs through this whole book.
- **Related:** → The Swap Disk Protocol

Communication Style Adjustment

*Ask for the tone you need, not the default one. (cross-reference: `[SCF-04]` ·**Intermediate**)*

You need a blunt, skeptical read on a decision, and the model hands you warm, hedged, helpful-generalist prose instead — because that's its default register, not because it can't do better. Ask for the register you need instead of accepting whatever arrives.

- **Analogy:** A waiter's default is cheerful. If you want the honest verdict on tonight's fish, you have to ask for it plainly.
- **Benefit:** Gets the right kind of answer on the first try, instead of a generically helpful one you then have to re-ask in the tone you actually needed.
- **Apply:** Command the register directly rather than accepting the default. *"Answer as a skeptical analyst, not an assistant. No hedging, no encouragement — tell me what's weak."*
- **Guardrail:** Changing the register changes the delivery, not the reliability. A model told to be blunt produces blunt-sounding prose whether or not the claim underneath deserves it — skepticism in the tone is not skepticism in the sourcing. Ask for the tone you need, then check the content exactly as you would have anyway.

Asymmetric Resource Substitution

*Paste text instead of a picture whenever you can. (cross-reference: `[SCF-05]` ·**Intermediate**)*

You screenshot a page of plain text and upload it as an image, burning one of a handful of daily image slots — when pasting the same words as text would have cost nothing. Spend the scarce channel on content that genuinely needs it, not on content that had a cheaper option available.

- **Analogy:** Using the last stamp in the drawer for a message you could have phoned in.
- **Benefit:** Stretches a thread's useful life further before hitting a hard cap, by not spending a scarce quota on content that had a cheaper channel.
- **Apply:** If content can be read as text, paste the text rather than uploading an image of it; ration scarce image slots for genuinely un-extractable visuals.
- **Guardrail:** Extends a thread's useful life *further*, not indefinitely — text still accumulates tokens toward the same limit.
- **Perishability (as of 2026, illustrative):** the specific caps and their asymmetry are interface-specific and change.

Flat-File Text Injection

*Attach big text as a file, don't paste it. (cross-reference: `[SCF-06]` ·**Intermediate**)*

You paste a genuinely large document straight into the chat box, and the formatting mangles or the interface silently truncates it. The same content attached as a plain file sails through untouched.

- **Analogy:** Nobody reads a fifty-page contract down the phone. You send it over.
- **Benefit:** Avoids the silent formatting corruption or hard rejection a giant inline paste risks, for the cost of one extra click.
- **Apply:** For bulky text payloads, attach as a file rather than pasting inline.
- **Guardrail:** Perishable — interface-specific behavior, as at 2026.
- **Related:** → Reader vs. Machine: Choosing the Output Format

Workflow-Anchored Connector Discovery

Describe your actual task and ask what can do it for you.
*(cross-reference: `[SCF-07]` ·**Intermediate**)*

You spend twenty minutes manually copying data between two tools before it occurs to you to ask whether a connector already does this — it did, and nobody had ever surfaced it to you. Describing the actual friction surfaces it; asking generically "what can you do" doesn't.

- **Analogy:** Ask a hardware shop "what do you sell?" and you get a shrug. Describe the dripping tap and you get the part.
- **Benefit:** Replaces manual busywork with a native integration you didn't know existed, often in the same conversation where you first hit the friction.
- **Apply:** *"I'm working on [workflow]. What connectors, integrations, or tools do you have that could do this more efficiently?"*
- **Guardrail:** Discovering a live data connector doesn't retire source-grounding — a live feed is still a source to reconcile, not a trusted endpoint to automate without oversight.
- **Perishability (as of 2026):** the specific capabilities are date-sensitive; the durable move is the probe.
- **Related:** → Match the Model to the Job

Park a Task So You Don't Lose Your Train of Thought

*Park a task in a list instead of losing your train of thought. (cross-reference: `[SCF-08]` ·**Intermediate**)*

A task surfaces mid-conversation and you have two bad options: derail to handle it now, or hold it in your head and probably lose it. The work queue is the third option — capture it into the persistent artifact and keep going.

- **Analogy:** A note on the fridge, not a promise to yourself that you'll remember. The fridge is still there tomorrow.
- **Benefit:** Keeps your current thread of thought intact while nothing gets silently dropped — the task waits in a durable ledger instead of your memory.
- **Apply:** Mid-flow, *"put this in our work queue at [low / mid / high / top] priority."* Notice the phrase is fixed. That is deliberate: *"remember this if it's important"* hands the model a judgement about how much you meant it, and that judgement is least reliable exactly when the stakes are highest. A phrase you chose in advance removes the inference step. The queue lives as a section in the working file, not in the chat.
- **Guardrail 1 — it must live in the persistent artifact, not chat memory.** A queue kept only in the conversation dies with the thread — "add to queue" quietly becomes "mention and forget."
- **Guardrail 2 — priorities are the human's call, and they drift.** The model records what you assign; it shouldn't silently re-rank. Review periodically — a mid-priority item from months ago may now be dead or urgent.

- **Related:** → The Swap Disk Protocol, The Self-Correcting Feedback Loop

Practices

Both of You Can Be Wrong

*Trust each other's work — but both of you check it. (cross-reference: `[PRAC-01]` ·**Intermediate**)*

An AI-drafted expense reconciliation looks clean — tidy formatting, plausible totals — until a human catches a transposed account number the model never flagged. The following week, having learned to trust the tool, the same human misses an error the AI would have caught instantly. Two failure modes bookend this relationship: trusting everything the model produces, or trusting so little you barely use it. Both come from the same mistake — assuming only one party can be wrong. Build the working relationship on the premise that both of you err.

- **Analogy:** Two people counting the till at closing. Not because either is dishonest, but because two counts catch what one misses.
- **Benefit:** Errors get caught in both directions — it catches your slips, you catch its guesses — instead of either blind faith or so much second-guessing the tool isn't worth using.
- **Apply:** The AI owns mechanical work; you do final review and supply what it can't access.
- **Guardrail:** This is peer review, not command-and-obey or blind faith.
- **Related:** → Cross-Model Create-and-Review (the same idea applied *between* two AIs)

Active Interrogation & Steering

*Push back the moment something feels off. (cross-reference: [PRAC-02] ·**Intermediate**)*

A model states a growth rate off by an order of magnitude in the same even, confident tone as everything else in the answer — nothing about the delivery signals the error, only the number itself does, if you're checking. The first output is a draft, not a verdict — but it's easy to forget that once the tone reads confidently. The moment a number looks off or the answer drifts toward pleasant filler, that's the signal to intervene, not to move on.

- **Analogy:** The mechanic quotes a figure that sounds wrong. Ask in the garage, not after you've paid.
- **Benefit:** Catches a problem while it's cheap to fix — one follow-up question — instead of discovering it after you've already acted on the answer.
- **Apply:** Question the calculation, demand the source, redirect to the lane — as soon as something feels off, mid-conversation. *"Stop there. Show me how you got that number, and what source it came from."*
- **Guardrail:** The steering is yours to do; the model won't reliably self-correct without it.
- **Related:** *(lineage)* ← The Adversarial Framing Shift, The Blind-Spot Inquiry

Canonical-File Discipline

*Keep exactly one file that's the real one. (cross-reference: [PRAC-03] ·**Intermediate**)*

This book's own production hit "which copy is real?" more than once — two versions of the same file, both plausible, both confidently believed to be current, disagreeing on a detail nobody caught until later. The fix is boring and absolute: exactly one current version, ever.

- **Analogy:** One signed will, in one drawer. Photocopies round the house are how families end up in court.
- **Benefit:** Eliminates an entire category of confusion — arguing about which copy is right — because there's only ever one possible answer to check against.
- **Apply:** Version-stamped filenames; retire superseded copies immediately; keep the live version singular. If the model's memory and the file disagree, **the file wins.**
- **Guardrail:** This is what stops "which one is real?" drift across long projects.
- **Related:** → The Swap Disk Protocol

Structured Elicitation Before Action

*Make it ask questions before it starts the real work. (cross-reference: [PRAC-04] ·**Intermediate**)*

The Interview Primitive works on a casual first question. This is its fuller form for a real decision: hand the model the actual constraints and source material, then still make it interview you before it commits any of that to a draft.

- **Analogy:** A builder who starts laying bricks before asking where the door goes.
- **Benefit:** Catches a misalignment before the model spends real effort generating something built on a wrong assumption — cheaper to correct a question than to redo a draft.
- **Apply:** *"Don't write the report yet. Review these constraints and give me the top three clarifying questions you need for full alignment."*
- **Guardrail:** The discipline is answering the questions crisply, not skipping them.
- **Related:** *(lineage)* ← The Interview Primitive

Explicit Source-Grounding

*Feed it real documents, not memory. (cross-reference: [PRAC-05] ·**Intermediate**)*

Asked for last quarter's revenue, a model returns a specific, confident figure — sourced from nowhere, indistinguishable in tone from a number it actually looked up. A model asked to recall a figure will hand you back something plausible whether or not it's real. Reconcile to actuals, never to a book estimate — and when a number genuinely can't be grounded, say so, rather than let it pass for a fact.

- **Analogy:** Quoting a price from memory versus reading it off the invoice. Both sound equally certain out loud.
- **Benefit:** Keeps assumptions honestly labeled instead of laundered into facts, so nobody downstream mistakes a guess for something verified.
- **Apply:** Feed real documents. When a number can't be grounded, label it an estimate. *"Answer only from the attached documents. If a figure isn't in them, say 'not grounded' rather than estimating."*
- **Guardrail (approximate-data rail):** Where data genuinely can't be grounded to exact actuals — inferred from a screenshot, read off a plotted curve — state it as an estimate *with a confidence band.* The rule isn't "only use exact data"; it's "never let slick formatting invite more trust than the data justifies."
- **Related:** *(lineage)* ← Direct Grounding · → Recheck the Record Against the Original (the maintenance-time, whole-system form of this practice)

- **Lineage:** retrieval-augmented generation and evidence provenance. Lewis et al. (arXiv 2005.11401, 2020) named the move: pair the model with a non-parametric memory it can cite, rather than trusting what it recalls.

Pin Down Its Role So It Stops Drifting

*Pin down its role so it stops drifting. (cross-reference: [PRAC-07] ·**Intermediate**)*

You open a new thread for the same recurring task — say, reviewing your monthly budget — and the model that was a cautious, skeptical analyst last week greets you today as an eager cheerleader, praising a spending pattern it would have flagged before. Nothing in your prompt changed; the tone drifted on its own, and nothing tells you why. Pin the role explicitly, including what it is *not*, and hold it constant.

- **Analogy:** You hire a bookkeeper, not "a helpful person."
- **Benefit:** Predictable behavior across sessions — you stop re-explaining the boundaries every time you open a new thread.
- **Apply:** Hard-code a role prompt that defines the boundaries (e.g. "informative calculator and trend-spotter, not a decision-maker").
- **Guardrail:** The discipline is keeping it stable and precise, not rewriting it each session.

The Negative Must Be Earned

*"Nothing found" requires exhausted search — a first-page scan is not a result. (cross-reference: `[PRAC-10]` · **Intermediate**)*

You search for recent feedback, get nothing back, and conclude none has arrived — but the search returned the first page only and the feedback was on page two. Or you poll an inbox and find it quiet. The silence was real; the conclusion was manufactured from incomplete evidence.

The failure has a specific structure: a continuation token in a search result tells you nothing about whether more results exist behind it. A token with more behind it looks identical to a token with nothing behind it — only exhausted pagination tells you which one you have. "I received a token" means nothing; "I polled until there was no more token" means the search ran to completion.

- **Analogy:** A conductor counts passengers after checking only the first three carriages and reports the train is full.
- **Benefit:** Distinguishes a genuinely quiet channel from an unsearched one — two states that are otherwise identical in output.
- **Apply:** When any search or scan result matters, exhaust all pagination before asserting the result is complete. State the scope explicitly when reporting a negative: "I searched [X] through page [N] and found nothing" is different from "I searched [X] and found nothing." *"Before concluding nothing is there: paginate the full result set. Report what scope you searched and how many pages you consumed."*
- **Guardrail:** Pagination does not guarantee freshness. A complete result set from a minute ago may have new entries now. "Exhausted" means the

channel was fully read at that moment, not that it is permanently quiet.

- **Related:** → Canonical-File Discipline ([PRAC-03]), → Resolve Standing Instructions by Rule, Not by Name ([ARC-09])

Reader vs. Machine: Choosing the Output Format

*Match the format to whoever reads it next. (cross-reference: [PRAC-11] ·**Intermediate**)*

Handed a clean, well-written paragraph in a thread handoff, the next AI has to re-parse prose to extract the one number it actually needed — and gets it slightly wrong. A clean paragraph and a clean JSON blob can carry the same information, but only one of them survives being handed to a script, a second model, or a spreadsheet without being re-parsed first. Match the format to who — or what — reads it next.

- **Analogy:** A recipe told to a friend versus written on a card for the kitchen. Same information; only one survives being handed on.
- **Benefit:** Portable, diffable, lossless output that survives being passed along, instead of a human-readable paragraph the next tool has to re-interpret.
- **Apply:** For hand-offs between AI threads, or output feeding a tool, request the machine-readable format explicitly — Markdown, CSV, JSON. *"Output this as [Markdown / CSV / JSON] — it's going to another thread, not to me."*
- **Guardrail:** Don't confuse "looks structured" with "is verified" — a clean JSON blob can still be wrong; format is transport, not truth.
- **Related:** → The Swap Disk Protocol

Architecture

Structured Handoff Briefs

*Write a short brief so the next thread doesn't start from zero. (cross-reference: `[ARC-06]` ·**Intermediate**)*

A fresh thread — or a human reviewer — opens a raw transcript dump and spends its first several exchanges re-deriving what actually matters from the noise. A purpose-built brief, scoped to exactly what *they* need, gets them working immediately instead.

- **Analogy:** The nurse handing over at shift change doesn't replay the whole day — just what the next shift must act on.
- **Benefit:** A fresh thread or human reviewer is productive from message one, instead of spending the first several exchanges reconstructing context that already existed.
- **Apply:** Ask the maintaining thread to produce a brief for the specific recipient — a kickoff brief for a fresh thread, or a scoped package for a human reviewer — containing what that recipient needs to act on, not everything that happened. *"Write a handoff brief for a fresh thread continuing this work: what's decided, what's open, what to read first. Not a transcript."*
- **Guardrail:** A brief is a summary, and summaries drop things. Treat it as orientation and re-read the canonical artifact for ground truth — the brief orients, the artifact is the source of truth.
- **Related:** → The Swap Disk Protocol (re-hydration), The Single-Writer Reconciliation Pattern (its write-path complement)

- **Lineage:** structured clinical handoff — I-PASS (Illness severity, Patient summary, Action list, Situation awareness, Synthesis by receiver), which carries moderate-certainty evidence of reduced medical error. Note its final step, which this pattern does not have: the receiver states their understanding back before the handoff counts as complete.

ADVANCED

Twelve patterns for durable, file-based systems that survive across threads, models and months.

> **Read this if** you have built at least one durable, file-based system — a memory registry, a spreadsheet with self-checking guards, a handoff a stranger could pick up cold. The test: could a brand-new AI thread, with no chat history at all, continue your project today from a file alone? If yes, this is your home base.
>
> **Skip it if** you cannot yet answer that test with a yes. Read Intermediate first — these patterns assume the files already exist.

★ means: read this one even if you skip the rest of the section. It flags the patterns that most change what the others can do.

This is where the book stops being about conversations and starts being about artifacts. Nearly everything here assumes you have hit the failure it prevents at least once; if a pattern reads as unnecessary ceremony, you probably have not yet, and it will keep.

Practices

The Decoupled Reference Audit

*Check the work against a copy nobody touched. (cross-reference: `[PRAC-06]` ·**Advanced**)*

Somewhere in this book's own production, a structural change was made, the model that made it declared the result correct — and it was wrong. That's the most

dangerous kind of mistake: one that survives its own author's review, because it looks checked and isn't. The fix wasn't a smarter model; it was a second, independent look.

- **Analogy:** Proofreading your own letter, you read what you meant. Someone else reads what you wrote.
- **Benefit:** Catches silent content loss that "looks fine" on a read-through — the error that survives because nothing ever compared it against a ground truth.
- **Apply:** After any structural change, run an external pass against a frozen, known-good copy — an actual diff, not a summary of one. *"Diff this against the frozen copy and list every difference. Don't summarize — show me the changed lines."*
- **Guardrail:** "I verified it," said by the party that made the change, is not verification.
- **Related:** → The Structural Unit Test
- **Lineage:** independent verification and validation — NASA's IV&V programme, following IEEE-1012, names three kinds of independence: technical, managerial and financial. Also separation of duties in audit practice.

The Disconfirmation Gate

*Make it argue the decision is wrong, before you commit. (cross-reference: [PRAC-08] ·**Advanced**)*

A work was bought on a gallery certificate; its authenticity was disputed only *after* the purchase, because nobody had adversarially stress-tested the attribution first. A model asked "is this sound?" finds support. Asked to prove it's unsound, it finds the flaw — before the money is spent, not after.

- **Analogy:** Before you buy the house, pay someone whose job is to find what's wrong with it — not someone hoping you'll buy.
- **Benefit:** Surfaces the flaw a "does this look right?" question would never catch — while it's still a review item and not a loss.
- **Apply:** Front-load it before any commitment. Each model (ideally more than one lineage) writes its most aggressive disconfirming case; the consolidated concerns become the human expert's review agenda. *"Argue that this decision is wrong. Give me the strongest case against it, not a balanced view."*
- **Guardrail:** The output is a review agenda, not a verdict — the credentialed human clears or condemns. Distinct from The Adversarial Framing Shift: that critiques a draft you've written; this stress-tests a decision you haven't yet made.
- **Related:** *(lineage)* ← The Adversarial Framing Shift · feeds → The Bright Line

The Unrun Check

*A verification that nobody performed does not get recorded as unperformed — it gets quoted. And a quoted figure is textually indistinguishable from a computed one. (cross-reference: [PRAC-09] ·**Advanced**)*

A system carries a control total — a byte count, a record count, a checksum — that has been restated correctly at every handoff. Every operator who touched it did their job: they copied the figure accurately and flagged the caveat that the automated verification route was closed. But the check was never run. The figure was inherited from whoever first stated it, propagated through five documents, and accumulated apparent authority that is entirely counterfeit. Repetition is not corroboration.

The failure is invisible from inside the artifact, and it survives arbitrarily many competent reviews — because all the reviews compared the figure to itself, not to what it was supposed to measure. The knowledge that the check could not be run, and the act of quoting its result, can coexist in the same paragraph for a long time.

- **Analogy:** An estate inventory prepared from memory, restated in three legal filings and accepted by the court — when the house was never entered and the furniture was never counted. Each filing accurately restated the last. None of them checked the house.
- **Benefit:** Breaks the propagation chain by requiring provenance — not just the figure, but the route that produced it and when that route last ran.
- **Apply:** For every declared invariant, record the route alongside the result: who computed it, how, and when. If the route is closed, record null and the

reason — never a plausible inherited number. When every automatic route is closed, escalate the check to a person rather than carrying the gap forward. *"Before citing this figure: what is its provenance? When was it last computed directly, and by what method? If the computation route is closed, mark it unverified — don't carry the inherited number forward as if it were fresh."*

- **Guardrail:** "The automated route is unavailable" is not a limitation to document — it is a request to make of a person. A caveat, once written down, does not perform the check.
- **Related:** → The Structural Unit Test ([GOV-02]), → Explicit Source-Grounding ([PRAC-05]), → Recheck the Record Against the Original ([ARC-07])
- **Lineage:** Audit trail discipline; control totals in financial accounting, where the function of a control total is specifically to detect tampering or transcription error — not to prove the underlying figures are correct.

Architecture

The Swap Disk Protocol: Give the AI a Permanent Notebook ★

*Give the AI a permanent notebook, not a fading memory. (cross-reference: [ARC-01] ·**Advanced**)*

Long threads decay two ways. **Attention dilution:** as the context window grows, the model attends to earlier material less reliably, and the middle of a long sequence goes functionally dark. **Truncation:** at the hard limit, the earliest tokens fall out entirely. Native profile memory doesn't solve this — delete an entry and there's no history,

and you don't control what it chooses to keep or how it organizes it.

- **Analogy:** A colleague with no memory of yesterday, and a filing cabinet you both keep. The cabinet is what makes them useful on Monday.
- **Benefit:** Project state outlives the conversation that created it. A fresh thread re-hydrates from a file you can read and audit, instead of inheriting a transcript that is quietly decaying.
- **Apply:** Keep three tiers, organized by access cost. **Hot** — the context window: immediate, but token-expensive and subject to dilution. **Warm** — a human-auditable `[Model_State_Registry]` grid, paged in at session start to re-hydrate a fresh thread. **Cold** — a cloud repository for bulky primary sources, paged in rarely and deliberately. Mandate a plain-text grid, never opaque JSON: `[ ID | Category | Topic | Detail | Date Set | Status ]`. And never overwrite — when a fact changes, write a *fresh row* and mark the old one `[SUPERSEDED: See ID XX]`, so the version history lives inside the work rather than beside it.
- **Guardrail (The Colleague's Caveat):** This solves cross-thread continuity; it does **not** stop decay inside an active thread. A document that stays in the transcript is still attended to less reliably as the thread grows — so seed a *fresh* thread the moment the current one shows decay, rather than trusting a long one to keep holding. Re-hydration restores working context, not full awareness: once the registry itself grows large, reading it back suffers the same mid-context degradation it was built to prevent. Keep it condensed.

- **Guardrail:** The read-back below is an *ingestion* check — did the state load correctly — not a source-grounding check. It cannot tell you whether the numbers in the ledger are true. Grounding is a separate gate ([PRAC-05] Explicit Source-Grounding).
- **Guardrail:** Compute the control total, don't hand-type it — a `COUNTIF` on the Status column — or the guard drifts silently. And the reconciliation count is performed by the model, which counts unreliably: treat it as a smoke alarm, not a hard constraint.
- **Guardrail:** A cold store with no live retrieval path is inert storage wearing the costume of architecture. If retrieval fails, halt rather than proceed.
- **Related:** → Self-Installing Guards (the same move applied to errors rather than memory), Explicit Source-Grounding, Canonical-File Discipline, The Single-Writer Reconciliation Pattern (the write-path: how multiple threads update this shared memory without corrupting it)
- **Lineage:** virtual memory and paging; hierarchical memory management. MemGPT (arXiv 2310.08560) proposes the same tiering for language models — but there the *model* pages its own memory; here you do, against a registry you can read.

The Initialization Scaffold — paste this when opening a fresh thread with your project files attached:

```
[ROLE & CONSTRAINTS]
You are a senior [Insert Project/Domain
Role] operating within a strict multi-
thread
architecture. Your task is to continue a
```

```
long-running project by re-hydrating your
working memory from the attached document
substrate.

[MANDATORY INITIALIZATION PROTOCOL]
Before executing any calculations,
analyses, or text generation, you must
execute a
formal state re-hydration. Do not perform
any other tasks in this turn.
Examine the attached file and locate the
section/tab labeled [Model_State_Registry].
Your first response must strictly consist
of the following four components:
1. TIMESTAMP: State the current version,
filename, and date stamp of the file you
are parsing.
2. CONTROL TOTAL AUDIT: Locate the META row
tracking total active entries. State that
value.
3. SEMANTIC LEDGER SUMMARY: Output a clean
text table listing the exact [ID], [Topic],
and
 [Detail] of every currently [ACTIVE]
memory row. Do not summarize or paraphrase;
 transcribe directly to verify complete
context ingestion.
4. METRIC RECONCILIATION: Count the rows
you just transcribed. State whether the
count
 matches the control total.

[CRITICAL INSTRUCTION]
If the transcribed row count does not match
the control total, or if you cannot locate
the
[Model_State_Registry], you are strictly
forbidden from beginning work. Output:
"[HALT: REGISTRY NOT VERIFIED]" and stop.
```

Self-Installing Guards

*Build a check that catches the mistake automatically. (cross-reference: `[ARC-02]` ·**Advanced**)*

A number was wrong once, you fixed that one cell, and moved on — then the same class of error recurred next month, because nothing was standing in its way the second time. Install a standing check instead — the smoke detector, not just the extinguisher.

- **Analogy:** A smoke alarm, not a resolution to be careful with candles.
- **Benefit:** Correctness stops depending on anyone remembering to be careful — the artifact itself catches the mistake, rather than relying on human vigilance that will eventually lapse.
- **Apply:** In a spreadsheet, a validation cell that flags when a figure drifts out of a sane band vs. a known-good reference; in a document, a checklist welded to the template.
- **Guardrail:** The guard is only real if something external triggers it — a self-checked guard shares the blind spot.
- **Related:** → The Self-Correcting Feedback Loop (its sibling for reasoning errors)
- **Lineage:** assertions, data validation, design by contract, and poka-yoke error-proofing.

Have a Different AI Attack the First One's Work

*Have a different AI attack the first one's work. (cross-reference: [ARC-03] ·**Advanced**)*

This book itself was built this way. A single model reviewing its own output shares its own training blind spots — it doesn't know what it doesn't know. Route the draft to a genuinely different lineage and ask it to disagree, not polish.

- **Analogy:** A second opinion from the same doctor isn't one.
- **Benefit:** Catches errors invisible to the model that made them, because a different training lineage doesn't share the same blind spot.
- **Apply:** Draft with one model family; hand the output to another and instruct it to attack assumptions, hunt logic gaps, and find dropped constraints. *"This was drafted by a different model. Attack it: find the overclaim, the missing constraint, the case where it breaks."*
- **Guardrail:** This is *diversification* of error, not elimination. The reviewer can be confidently wrong and steamroll a correct point, and overlapping training means "both agree" is weaker evidence than it feels. Weigh the review; don't rubber-stamp it.
- **Related:** → Structured Mutual Verification, Match the Model to the Job
- **Lineage:** N-version programming and design diversity; multi-agent debate. ARIS (arXiv 2605.03042) makes cross-lineage adversarial review a default and names its failure mode: plausible unsupported success.

The Single-Writer Reconciliation Pattern

*Let only one thread write; everyone else just reads. (cross-reference: [ARC-04] ·**Advanced**)*

Two threads — or a thread and a human on another device — each edit their own copy of the same working file, and a week later nobody can say which version is authoritative: a stale copy overwrote a fresh one, and a change simply vanished. Cloud storage gives you *access*; it does not give you *concurrency control*.

- **Analogy:** One person holds the pen on the shared shopping list. Everyone else says what to add.
- **Benefit:** Eliminates the "whose copy is real" chaos of concurrent editing, by making disagreement a flagged event instead of a silent loss.
- **Apply:**

1. **One designated maintainer per artifact** — exactly one thread owns writes; others read freely but don't write.
2. **Uploads are change-requests, not replacements** — the maintainer diffs an incoming copy against the current master and applies only the actual deltas, rather than blindly adopting the incoming file as new truth.
3. **Surface conflicts explicitly** — never let last-write-wins destroy data.
4. **Version header + memory index** — every artifact carries a version/timestamp/owning-thread block.
5. **Separate files along governance lines** — don't merge artifacts with different decision rules.

- **Guardrail (reviewed-before-merge must be genuinely external):** The maintainer *self-approving* its own merge is a model verifying its

own work. The merge is authoritative only after a **human approves the surfaced diff, or the diff is mechanical.**

- **Guardrail (snapshots, not live state):** Reader threads see the snapshot they last ingested, not live updates — this is not real-time sync.
- **Related:** → The Swap Disk Protocol, The Decoupled Reference Audit, Canonical-File Discipline, Structured Handoff Briefs
- **Lineage:** the single-writer principle and leader-based replication. Raft (Ongaro and Ousterhout, USENIX ATC '14) calls it the strong leader property — entries flow only from the leader outward.

Archived Versions + Embedded Changelog

*Never overwrite the past — keep every version. (cross-reference: `[ARC-05]` ·**Advanced**)*

Keep only "the latest file," and one bad edit — a broken formula, an overwritten value, a good version quietly replaced by a worse one — can corrupt months of accumulated work with no way back. Trust in an AI-maintained system scales with your ability to undo it.

- **Analogy:** Keeping every draft of the contract, so when a clause reads strangely you can find the day it changed.
- **Benefit:** Gives you the ability to bisect back to a known-good version when something breaks, instead of losing accumulated value to an untraceable bad edit.
- **Apply:**

1. **Never destroy a superseded version** — archive the outgoing file; only the current version sits in the working folder.
2. **Versioned filenames** — date + version (`name_YYYYMMDD_v1`) so copies sort chronologically.
3. **Embedded changelog** — the file carries its own version history inside it, so it travels with the file even if the filename is lost.
4. **Bisect to debug** — the changelog points to the likely revision when something's wrong; the document-level equivalent of `git bisect`.

- **Guardrail (recoverability, not correctness):** Versioning protects against *detectable* breakage. It does **not** protect against *silent semantic drift* — a subtly wrong number that looks plausible and

never trips an error. Both recoverability and correctness are required.

- **Related:** → The Single-Writer Reconciliation Pattern, The Swap Disk Protocol, Canonical-File Discipline
- **Lineage:** version control, append-only and immutable history, changelogs, and bisection.

Recheck the Record Against the Original

*Recheck the record against the original document. (cross-reference: `[ARC-07]` ·**Advanced**)*

Re-reading the original receipts behind a working records file surfaced errors that had survived many document versions untouched — invisible from inside the file the whole time: an acquisition date silently transposed by a DD/MM-vs-MM/DD misread, repeated for months; records attributed to the wrong vendor entirely; a genuine title conflict flagged for the human rather than auto-corrected. Versioning had preserved all of it faithfully — including the parts that were wrong from day one. Only re-deriving the facts from their original sources caught them.

- **Analogy:** Checking the statement against the receipts, not against last month's copy of the same spreadsheet.
- **Benefit:** Catches the wrong-but-plausible value that every internal check missed, because internal checks can't see past their own copy of the fact.
- **Apply:** *"Re-read the source documents and compare them against the record. Flag anything that disagrees — don't correct it."*

1. **Keep source artifacts, linked** — every derived record points to its origin document.
2. **Periodically re-read the sources and diff against the document** — not the document against itself.
3. **Three-way output — correct / confirm / flag.** Genuine conflicts the source can't resolve are **flagged for the human, never overwritten.**

- **Guardrail (the correctness counterpart to versioning's recoverability):** reconcile-to-source

is only as good as the source's own legibility and truthfulness. 'Primary' is not automatically 'authoritative' — where sources legitimately conflict, the record needs an explicit per-field authority order, and unresolved conflicts are flagged for the human, never auto-resolved.

- **Related:** *(evolution)* from Explicit Source-Grounding (systematized here into maintenance-time architecture) · → Archived Versions (its correctness pair), The Swap Disk Protocol
- **Lineage:** audit trails. NIST's glossary defines a security audit trail as records that let you trace forward from original transactions to the record, and backwards from the record to its source transactions — this pattern in both directions. (NIST CSRC glossary, *Security Audit Trail*, sourced to NISTIR 5153 from DoD 5200.28-STD — `csrc.nist.gov/glossary/term/security_audit_trail`, checked 28 Jul 2026.)

A Copy You Edit Isn't a Backup

*A copy you edit isn't a backup. (cross-reference: [ARC-08] · **Advanced**)*

You duplicate a working file for safety, then keep editing both copies — and six months later they silently disagree, and neither one is obviously the backup. Making backup copies feels safe, but a copy you edit is a liability, not a backup. The resolution: match the copy to the risk you're actually guarding against.

- **Analogy:** A spare tyre in the boot is a backup. One you also drive on is just a second tyre, wearing out differently.
- **Benefit:** Explains *why* the one-canonical-copy rule exists, not just that it does — and tells you the exact case where a backup is safe (cold, never edited).
- **Apply:** Keep exactly one authoritative copy where the danger is *drift* (anything you actively edit). Keep backups only where the danger is *deletion* — a cold copy nobody ever edits, which therefore can't drift. If you must duplicate a live thing, make each copy carry its own sync obligation in writing.
- **Guardrail (irreversible step last):** When you must merge or retire a copy, archive the originals first and confirm the archive before you delete anything. If the archive write fails, the deletion simply doesn't happen — keep the redundant copy rather than lose the content.
- **Related:** → Canonical-File Discipline, Archived Versions + Embedded Changelog
- **Lineage:** the 3-2-1 backup convention; production-versus-recovery separation.

Resolve Standing Instructions by Rule, Not by Name

Tell it to find the latest file — don't name one file forever.
*(cross-reference: `[ARC-09]` ·**Advanced**)*

A standing instruction that hard-codes a specific filename ("always read `project_v4.md`") rots the moment a `v5` appears. The instruction should carry a *rule* for finding the current file, never a frozen pointer to one version.

- **Analogy:** "Take the top folder from the in-tray" keeps working. "Take the blue folder" stops the day someone buys green ones.
- **Benefit:** Keeps a standing instruction correct across every future version, instead of silently pointing at a stale file after the first update.
- **Apply:** Write standing instructions to resolve at read-time — "read the latest version by date and revision," not "read this exact file." And verify a saved file landed by looking it up *directly* by its identity, never through a search index, which lags.
- **Guardrail:** A search index is a convenience, not a source of truth — it can show you yesterday's state. For "did this actually save correctly?", look the file up directly.
- **Related:** → Canonical-File Discipline
- **Lineage:** late binding and indirection; symbolic links and aliases.

The multi-agent memory spine. Seven patterns together let an AI-maintained document system survive months of multi-thread use without drifting into incoherence: the Swap Disk Protocol is *storage*; Structured Handoff Briefs is the *read-path*; the Single-Writer Reconciliation Pattern is the *write-path*; Archived Versions is *history*; Recheck the Record

Against the Original is *correctness*; A Copy You Edit Isn't a Backup is *redundancy discipline*; Resolve by Rule Not Name is *pointer hygiene*. The same spine production software relies on — storage, read, write, version history, redundancy, pointer resolution, and reconciliation to ground truth — applied to documents an AI maintains. Treat an AI-maintained document like production code *and* like an audited ledger: one writer, reviewed changes, versioned history, rollback, and periodic reconciliation back to source, because a faithfully-preserved wrong number is still wrong.

Safety

The Decoupling Charter (The Bright Line)

*The AI preps the questions; a professional makes the call. (cross-reference: `[SAFE-02]` ·**Advanced**)*

In medicine, law, or money, a confident-sounding wrong answer is the expensive kind. This pattern draws one hard line the model is never allowed to cross on its own: it prepares your questions; it never makes the decision.

- **Analogy:** A well-briefed patient asks better questions and still doesn't write the prescription.
- **Benefit:** Turns "be careful" from a hope into something the workflow actually enforces — the safeguard survives even on a day you're tired or rushed.
- **Apply:** Build the line into the artifact itself, not a verbal reminder — a gate row nothing may pass without independent human clearance; a decision column the model never scores; a check that flags

when its own confidence is building past a real objection.

- **Guardrail:** This governs the model checking *itself* — it never adjudicates between two people, and it's not a substitute for the credentialed professional.
- **Related:** → The Disconfirmation Gate

ELITE — GATED

Seven patterns for governing a system rather than building one.

> **Read this if** you govern a system rather than build one — where verification is structurally independent of the work being verified, not merely promised. The test: do you have a standing rule that no model grades its own output, and has that rule ever caught a real error? If yes, this section is where you already live.
>
> **Skip it if** not. It is gated for a reason: these patterns cost more than they return until something you rely on has already been wrong without anyone noticing. Six of the seven work in a single chat window.

★ means: read this one even if you skip the rest. Elite patterns govern a system — they are most valuable once something you built has already gone wrong without anyone noticing.

Six of the seven work in a single chat window. Only [GOV-07] needs more than one thread — it says so in its prerequisites. Gated for the discipline they assume, not for the infrastructure they require.

Deliberately gated. These grant the most power and carry the most risk, and every one of them assumes the verification discipline of the previous sections is already second nature. The distinguishing test is in the Preface: do you have a standing rule that no model grades its own output, and has it ever caught a real error? If not, these will read as plausible and be applied wrongly.

The Self-Correcting Feedback Loop

Turn every mistake into a rule that prevents it next time.
*(cross-reference: `[GOV-01]` ·**Elite**, Gated)*

The model miscalculates a growth rate, you correct the one number and move on — and next week it makes the identical reasoning error on a different question, with no memory the first one ever happened. Require a root-cause analysis and a standing preventive directive written back into the registry instead — Self-Installing Guards, applied to reasoning errors.

- **Analogy:** The kitchen that writes "check the oven is off" on the door after one near-miss, instead of asking everyone to be more careful.
- **Benefit:** Converts a one-time fix into permanent immunity for that class of error, instead of relying on someone remembering to avoid it.
- **Apply:** When the model errs, require an RCA and a preventive directive written back into the registry. *"Before we move on: why did that error happen, and what standing rule would have prevented it? Draft the rule; I'll decide whether it goes in."*
- **Guardrail:** The model's self-RCA is an introspective *draft*, not truth — models are poor at diagnosing why they erred. The human reviews, refines, and commits the directive as policy. **Never let the model auto-commit its own rules.**
- **Related:** → Self-Installing Guards

The Structural Unit Test

*Check the work against a reference it never touched. (cross-reference: `[GOV-02]` ·**Elite**, Gated)*

This book's own production kept catching the same failure: a model checked its own structural edit against an index it had also just written, declared everything fine, and was wrong — auditing yourself against your own work is circular. Treat the document substrate like a codebase with unit tests: enforce integrity against a reference the model had no hand in shaping.

- **Analogy:** Counting stock against the original delivery note, not against the list you wrote while unpacking.
- **Benefit:** Catches structural corruption — a dropped entry, a broken cross-reference — the moment it happens, against a reference nobody involved in the change could have tampered with.
- **Apply:** Enforce integrity against an independent reference index, human-authored or frozen at a known-good moment. The cheapest version is a size check: this project once wrote a file that reported success and contained only its own filename — 56 bytes where 11 KB was expected. Nothing else would have caught it, because a write that fails this way looks exactly like one that worked.
- **Guardrail:** The reference must never be regenerated by the model each check. If it lives in cold storage and the retrieval path fails, output `[HALT: COLD STORE UNREACHABLE]` rather than proceed unverified.
- **Related:** → The Decoupled Reference Audit

See What Else Moves When You Move One Thing

*See what else changes when you change one thing. (cross-reference: `[GOV-03]` ·**Elite**, Gated. Note: an earlier draft split this into two entries — this one and a separate "Digital Twin" — later merged, which is why Governance has no `[GOV-04]` before this edition. IDs are never reused; this edition's new entries begin at `[GOV-04]` proper, below.)*

Changing one variable — a retirement date, a major purchase — ripples into domains you weren't thinking about at all when you made the change: insurance, cash flow, long-term plans, rules you'd set for yourself elsewhere.

- **Analogy:** Move the sofa and the door no longer opens. Worth knowing before you move the sofa.
- **Benefit:** Surfaces the ripple effects across connected domains you'd otherwise only discover after the fact, when the fix costs far more than the check would have.
- **Apply:** Map each primary variable to a registry index; when one changes, the model outputs a Dependency Impact Report of the ripples across other domains. *"I'm changing [variable]. Check it against the registry and give me a Dependency Impact Report: every other domain this touches, and how."*
- **Guardrail:** The impact report is an **audit checklist for you and your advisors to verify — not a governance decision.** This is The Blind-Spot Inquiry scaled up to a whole system, and it carries the same bright line, harder: these are the domains where confident-wrong output is most expensive.
- **Related:** *(lineage)* ← The Blind-Spot Inquiry

Screen Instructions by Where They Came From

*Trust what you typed more than what arrived inside a file. (cross-reference: `[GOV-04]` ·**Elite**)*

A file you're reviewing contains a helpfully-phrased note telling the AI to skip its usual verification step just this once — and it sounds so reasonable that it's tempting to just go along with it. That's exactly the moment to stop: an instruction arriving *inside* content is not the same as one you typed yourself, no matter how reasonable it sounds. Especially when it sounds reasonable: agreement is the easiest way to get past a guard.

- **Analogy:** A note inside a delivered parcel saying "no need to check ID." The parcel doesn't get to set the rules.
- **Benefit:** Closes the single widest hole in an AI setup — that it will follow a well-phrased instruction regardless of whether the instruction is legitimate.
- **Apply:** Trust instructions by provenance. A directive typed by you directly is trusted. A directive arriving via relayed or third-party content gets screened before you act on it — hardest of all when it's agreeable, because that's the path of least resistance.
- **Guardrail:** This is the umbrella over several narrower rules (a relayed "answer now" tag, a downgraded safeguard arriving from another source). State it once at this level; the specifics are instances.
- **Lineage:** indirect prompt injection and the data/instruction boundary. Greshake et al. (arXiv 2302.12173, 2023) showed that content pulled into a model's context can carry instructions the user never issued.

Name the Ceiling, Not the Comfort

*Say what a safeguard can't do, not just what it does. (cross-reference: `[GOV-06]` ·**Elite**)*

It's tempting to state what a design *reassuringly* does ("your data is protected"). The honest version states its *ceiling* — what it cannot guarantee. "Sealed at rest, exposed in use" tells the reader the real boundary; "protected" hides it.

- **Analogy:** "Water-resistant to 30 metres" tells you where the line is. "Waterproof" lets you find it the hard way.
- **Benefit:** Lets the reader make real decisions on real boundaries, instead of a reassuring version that fails them exactly when it matters.
- **Apply:** When you describe what a safeguard does, state its limit in the same breath. Distinguish what you control (your own conduct) from what the platform controls (its logging, its memory). False comfort is worse than a named gap, because the reader plans around the comfort.
- **Guardrail:** Distinct from "don't certify your own work" — this governs stating a *design's* honest ceiling to the reader, not the AI vouching for itself.

Only One Channel Publishes — Make Forgery Loud

Rules count only from one agreed source. **Prerequisites:** more than one AI thread sharing a space you both read — the only pattern in this section that needs it. *(cross-reference: `[GOV-07]` ·**Elite**. Note: this pattern was originally drafted as `[GOV-05]`, which collided with the retired `[GOV-05]` reference in the Introduction's "One Principle" section — that ID was never meant to be reassigned. Corrected here; `[GOV-05]` stays formally retired, never reused.)*

A message shows up in a shared space claiming to set a new rule for every thread — but nothing marks it as coming from anywhere legitimate, and now you have to decide whether to trust it. When several AI threads share a space, you need a way to tell a real system-wide rule from a fake one. The answer isn't a lock you can't build — it's a convention that makes forgery *loud*: rules only count if they come from one designated channel, so anything claiming authority from anywhere else is invalid on its face.

- **Analogy:** Policy is only ever announced on headed paper. Anything else obviously isn't — that's the point.
- **Benefit:** Converts a silent risk (a fake rule quietly adopted) into a loud one (an obviously illegitimate sender), which is the best achievable without true per-thread identities.
- **Apply:** Designate a single source for standing rules. Anything that changes how your threads behave is legitimate only if it carries that source's mark. From anywhere else, it's not "suspicious" — it's invalid by construction. Flag it and stop.
- **Guardrail (honest label):** This is **policy-enforced, not capability-enforced.** Any thread

can technically write into that channel — there's no wall, only a convention. Label it as one; don't trust it as a barrier.

- **Lineage:** roots of trust, code signing, and authenticated publishing — The Update Framework formalises delegated signing roles. Note what it has that this does not: cryptographic enforcement. This is the same shape with none of the teeth.

Graceful Session Close

*The state record must be the last thing you write — not merely something you write before ending. (cross-reference: [GOV-08] ·**Elite**, Gated)*

Before closing a session you write a state record — a workqueue update, a handover note, a cursor entry — then keep working: filing one more message, placing one more file, completing one task that surfaced at the end. When the session closes, the state record is stale by everything you did after it. The next session inherits a document that looks complete and isn't. Nothing in the record itself shows it was invalidated — a stale handover and a current one are textually indistinguishable.

The failure is: satisfying the requirement ("write a state record before ending") while violating its purpose (give the successor an accurate picture of where things stand).

- **Analogy:** A hospital nurse writes the shift handover at 3 PM, administers two medications and takes two phone calls after writing it, then hands it to the incoming shift at 4 PM as the record of the shift. The handover is true as of 3 PM. The shift ended at 4 PM.
- **Benefit:** Gives the next session a state record that is accurate at closure — not accurate at some point during the session and quietly invalidated by work done afterwards.
- **Apply:** Make the state record the final action of the session, not an action that happens to precede the end. Before writing it, confirm that no additional work is expected in this session. After writing it, stop. If work surfaces after the record is written, update the record before closing or explicitly mark it as pending a final update.

- **Guardrail:** A state record written five minutes before close is already a risk on a fast-moving session. The rule is not "write it near the end" — it is "write it last." These are not the same instruction.
- **Related:** → The Swap Disk Protocol ([ARC-01]), → Structured Handoff Briefs ([ARC-06]), → Canonical-File Discipline ([PRAC-03])

A note on what this section deliberately does not contain. An earlier draft floated a foundational rule — "the AI must not lie to you or act against your interest" — plus a companion idea: an advisor naming a domain where it won't help you win, because someone else's wellbeing outranks the goal. Both are real and defensible. Both stayed **out** of this book, deliberately: they're internal operating principles for how one reader's own AI threads should treat *them* specifically — not a technique this book can honestly generalize to every reader. Build your own multi-thread practice long enough and you'll probably want an equivalent rule. Set it yourself; don't inherit ours as law. The omission is deliberate, not an oversight.

PATTERN FINDER

Not a fifth tier. A role — something you do, rather than a measure of how much skill you have. Beginner through Elite are degrees of the same skill, using these tools well. This is a change in what you produce: you stop applying this catalog and start adding to it.

There are no numbered patterns here, because the whole section is one move — noticing your own, and writing them down well enough that a stranger can use them. This is the shortest section in the book and the one it was written for.

You are already doing the hard part

If you worked through the earlier sections on real problems, you have almost certainly already solved something the same way twice without noticing it was a pattern. That is the entire raw material. A pattern is not an invention; it is a **recurring solution to a recurring problem that you notice you keep reaching for.** The Gang of Four did not invent twenty-three ways to structure software — they watched what good engineers already did and gave the moves names. The naming is the contribution. Yours will come the same way: not from sitting down to design a pattern, but from catching yourself mid-workflow and thinking *I've done this before.*

The signal to watch for is repetition plus friction. You build the same guard into a second spreadsheet. You write the same kind of handoff note for the third time. You warn a fresh thread about the same failure you warned the last one about. The third occurrence is usually the moment it becomes visible as a shape rather than a chore.

How to write one up

You already have a simplified version of the template. Entries in the catalog also carry a stable ID, a tier, a category, Related links and, where one is known, a Lineage note — but the core is deliberately short:

- **A one-line summary** in plain language: what the pattern does, framed as an instruction. “Move project memory out of the chat and into a file you control.”
- **A human analogy**, if one fits: the everyday version of the same move. It is the fastest way to make a technical pattern land, and it tells you whether you actually understand the shape or only the mechanics.
- **The problem**, in a sentence or two — the recurring friction, described concretely enough that a reader recognises their own version of it.
- **Benefit** — what you get, and what it costs you if you skip it.
- **Apply** — how to actually do it, specific enough to act on. If a prompt is part of it, include the prompt. **Not every pattern has one:** a pattern you invoke by typing carries a prompt; a pattern you *build* — a file convention, a governance arrangement, a way of writing — does not. Inventing a prompt for the second kind misrepresents what it is. An empty Apply is a problem; an Apply with no quoted prompt often isn’t.
- **Guardrail** — where it fails, what it does *not* protect against, the honest ceiling. This field is the one most people skip and the one that makes a pattern trustworthy. A pattern with no stated limit is a sales pitch, not a technique.

If you cannot fill in the Guardrail, you have not tested the pattern hard enough yet. Go use it until it fails, then write down how.

Four checks before you call it a pattern

Is it actually yours, or is it already named? Search first. Much of what feels novel in a consumer-chat workflow has decades of prior art in software engineering, distributed systems, or security — and finding that lineage makes your write-up stronger, not weaker, because you can point at the established version and say *this is that, applied here*. Claiming novelty you don't have is the fastest way to lose a careful reader. Claiming it honestly — "uncommon in this specific context, well-known in that one" — is exactly what the Lineage notes in this book are for.

Does it survive abstraction? A real pattern works for someone other than you, in a setup simpler than yours. Strip out everything specific to your situation — your tools, your files, your particular project — and check that the shape still stands. Then state what it genuinely requires: *this needs a file you control*, *this needs access to a second model*, *this needs somewhere both threads can read*. If you can't name the prerequisites, you have a configuration, not a pattern. If you can, and someone else could meet them, you have a pattern — and the test is whether it transfers across at least two materially different contexts once those prerequisites are explicit. Note the tiers here: Beginner and Intermediate patterns hold to a harder bar, working in a bare chat window with nothing but the conversation. Advanced and Elite patterns openly require infrastructure. That is what the ladder is.

Would it survive an adversary? Hand the write-up to a different AI model than the one you built it with, and

instruct it to attack — find the case where the pattern breaks, the claim that's too strong, the guardrail you left out. This is [ARC-03] turned on your own work. A pattern that survives a hostile read has cleared one gate, not the last one. This book's own Introduction warns that a different model is not automatically independent — shared training data means shared blind spots, and agreement between two models is weaker evidence than it feels. Before you publish, add at least one channel that isn't another model: repeated real use, a mechanical test, a comparison against primary sources, or a domain expert.

Has it actually worked, more than once? The three checks above test whether the idea holds together. This one tests whether it has ever done anything — and the question splits, because two different kinds of pattern earn their place two different ways.

For a technique you deliberately deploy: name two occasions — real tasks, not demonstrations — where you reached for this and it changed the outcome.

For a diagnostic: nobody reaches for one. You notice afterwards that you failed to apply it. So name two occasions where **failing** to do this changed the outcome, and one where **catching** it did.

If you can only think of the time you invented it, you have a hypothesis. Say so when you publish it; a clearly labelled hypothesis is a useful contribution, and a hypothesis dressed as a tested pattern is the thing this book keeps warning you about.

Where this goes

The patterns in this book are a catalog, not a canon. The Gang of Four did not end object-oriented design when they wrote down twenty-three patterns; they started a practice

of *noticing and naming* that others carried far past the original list. That is the ambition here. The real product is not the fifty patterns — it is the reflex: work with these tools long enough and with enough discipline, and you will notice your own recurring solutions to your own recurring problems. When you do, name them, write them down, and share them.

Something close to this already exists one layer down. DAIR.AI's Prompt Engineering Guide is free, open-source and community-maintained, and it proves the form works — a shared catalog that stays current because many people contribute to it. What it catalogs is prompting technique. What does not yet exist is the equivalent for workflow architecture: the file conventions, the verification habits, the handoff formats.

I want this to become a commons. Imagine an *AI Stack Overflow* for usage patterns — a shared, community-maintained catalog where practitioners publish the architectures they have discovered, argue them, verify them, and improve them, so that the next person starts where the last one left off instead of rediscovering the same moves alone over months. A single person's catalog ages; a living commons compounds. That is the long game, and it only works if what people contribute is held to the same standard this book asks of itself: reconcile to actuals, mark what is durable versus perishable, keep the human as the decider.

Here is the honest line between vision and mechanism, because the book's own rule forbids selling the horizon as a shipped feature.

What works today. You can hand a fresh thread the whole of this system in one move: upload the book (or your own registry) as a file, tell the thread its role, and

instruct it to load the relevant patterns before it begins. From that first turn it can be instructed toward your documented standard rather than a stranger's — subject to the ingestion check actually passing. This is nothing new in kind — it is [PRAC-07] Scope, [ARC-06] the Handoff Brief, and [ARC-01] re-hydration, run together — and it works *precisely because* the model has no memory of its own to rely on. A month of daily use does not teach the model your patterns. The model on day thirty has learned nothing from you — and it may not even be the same model, since the provider can change the deployed version, its instructions, its memory or its tools beneath you. What has grown over that month is your skill and your artifact. So you load the file, every time, because the durable thing is what *you* built, not what the model remembers. That is this book's entire thesis, restated as its closing note.

What is still to be built. The more ambitious version — a new thread that autonomously pulls the latest community patterns from a shared source and applies them — needs two things that do not yet exist off the shelf: the commons itself, and a reliable live retrieval path from the thread to it (the [ARC-07] source-authority and retrieval-integrity caveat, at internet scale). Those are worth building toward. Until they exist, the human is the retrieval path and the curator — you decide which patterns load, because "pull all relevant best practices" is a judgment call, and a model asked to make it will grab the plausibly-relevant with the same confidence it grabs the right ones.

So: learn the patterns, discover your own, verify them, share them. Build the commons by contributing to it. That is where this goes — and it goes there one carefully-audited pattern at a time.

APPENDIX: Patterns at a Glance

A distilled, one-line-per-pattern index of all fifty patterns in this book, grouped by family. For the full write-up of any pattern — the motivating scenario, Apply, Benefit, Guardrail, Related — read the full entry in its tier section; this is the index, not the text.

> **Selection is a judgment call.** This is a recognition aid, not an auto-apply library — match the pattern to the actual problem in front of you; don't reach for one just because it's here. Read it the way you'd consult a table of contents, not the way a script executes a lookup. When unsure, read the full pattern in its section before applying it.

ONR — On-Ramps (Beginner)

- **[ONR-01] The Interview Primitive** — reach for this when you're about to ask for something important and haven't given the model enough of your actual situation to work with.
- **[ONR-02] The Adversarial Framing Shift** — reach for this when you want your draft critiqued, not approved, and suspect a direct "does this look okay?" will just get flattery back.
- **[ONR-03] The Blind-Spot Inquiry** — reach for this before a high-stakes meeting or process, to surface the question you didn't know to ask.
- **[ONR-04] Direct Grounding: Don't Explain — Show** — reach for this whenever you're about to describe a document from memory instead of just showing it the original.
- **[ONR-05] Multi-Modal Equity: Talk to the Tool** — reach for this when typing itself, not the technology, is the real barrier for someone.

PRAC — Practices (Intermediate–Advanced)

- **[PRAC-01] Both of You Can Be Wrong** — reach for this to set the working relationship up right from day one: both you and the model can be wrong, so both of you check.
- **[PRAC-02] Active Interrogation & Steering** — reach for this the moment an answer feels off mid-conversation, instead of waiting to catch it later.
- **[PRAC-03] Canonical-File Discipline** — reach for this whenever more than one copy of a working file could plausibly exist.
- **[PRAC-04] Structured Elicitation Before Action** — reach for this before a real, consequential piece of work begins, not just a casual first question.
- **[PRAC-05] Explicit Source-Grounding** — reach for this whenever a number or fact matters and shouldn't be recalled from memory alone.
- **[PRAC-06] The Decoupled Reference Audit** — reach for this after any structural change, to check the result against a copy nobody touched.
- **[PRAC-07] Pin Down Its Role So It Stops Drifting** — reach for this when you need a role to stay stable across sessions instead of quietly drifting.
- **[PRAC-08] The Disconfirmation Gate** — reach for this before committing to a real decision, to make the model argue it's wrong first.
- **[PRAC-09] The Unrun Check** — reach for this when citing a figure whose verification route was closed — to distinguish a computed result from an inherited number that was never checked.
- **[PRAC-10] The Negative Must Be Earned** — reach for this when a model reports that nothing is there, before treating absence as a clean result.

- **[PRAC-11] Reader vs. Machine: Choosing the Output Format** — reach for this whenever output is headed to another tool or thread, not just a human reader.

ARC — Architecture (Intermediate–Advanced)

- **[ARC-01] The Swap Disk Protocol: Give the AI a Permanent Notebook ★** — reach for this the moment a project needs to survive past one conversation.
- **[ARC-02] Self-Installing Guards** — reach for this to stop the same class of mistake from recurring, instead of just fixing today's instance.
- **[ARC-03] Have a Different AI Attack the First One's Work** — reach for this when a draft needs a genuinely different set of blind spots looking at it.
- **[ARC-04] The Single-Writer Reconciliation Pattern** — reach for this when more than one thread (or person) might edit the same working file.
- **[ARC-05] Archived Versions + Embedded Changelog** — reach for this so a bad edit is always recoverable, not just the current state.
- **[ARC-06] Structured Handoff Briefs** — reach for this when a fresh thread or a human reviewer needs to get productive fast, without re-deriving context from a raw transcript.
- **[ARC-07] Recheck the Record Against the Original** — reach for this periodically, to catch a wrong-but-plausible value that internal checks alone would never see.
- **[ARC-08] A Copy You Edit Isn't a Backup** — reach for this when deciding whether a duplicate file is a backup or a liability.

- **[ARC-09] Resolve Standing Instructions by Rule, Not by Name** — reach for this instead of hard-coding a specific filename into a standing instruction.

SCF — Foundation & Lifecycle (mostly Intermediate)

- **[SCF-01] One Thread Per Topic, Like a Standing Specialist** — reach for this to keep one thread per domain, rather than letting contexts bleed together.
- **[SCF-02] Match the Model to the Job, Not Habit** — reach for this instead of defaulting to the same model out of habit for every task.
- **[SCF-03] Don't Trust What It Says About Itself** — reach for this instead of trusting a model's own claim about how full its context window is.
- **[SCF-04] Communication Style Adjustment** — reach for this to get the register you actually need, instead of the model's default helpful-generalist tone.
- **[SCF-05] Asymmetric Resource Substitution** — reach for this before spending a scarce image-upload slot on content that could just be pasted as text.
- **[SCF-06] Flat-File Text Injection** — reach for this instead of pasting a large document straight into the chat box.
- **[SCF-07] Workflow-Anchored Connector Discovery** — reach for this before manually doing something a native integration might already do for you.
- **[SCF-08] Park a Task So You Don't Lose Your Train of Thought** — reach for this to park a mid-

conversation task without losing your current train of thought.

- **[SCF-09] Debugging a Spreadsheet Like Production Code** — reach for this when a spreadsheet error needs root-cause treatment, not a one-cell patch.
- **[SCF-10] Encryption Is Not the Answer** — reach for this when the instinct to "encrypt everything" is aimed at the wrong actual threat.
- **[SCF-11] Email Is the Master Key** — reach for this before connecting an AI assistant to email, the one account whose compromise cascades into everything else.
- **[SCF-12] Prune the Ceremony Your AI Can't See** — reach for this when a standing instruction is firing more often than it needs to, and only you can see it.
- **[SCF-13] Treat "I Can't" as a Claim to Test** — reach for this whenever a model claims it can't do something it did easily before.
- **[SCF-14] Test the Whole Channel, Not Just the Step** — reach for this when every step reported success but the end result is wrong — to check whether the pipeline itself delivered.

GOV — Governance (Elite, Gated)

- **[GOV-01] The Self-Correcting Feedback Loop** — reach for this to turn a caught mistake into a standing rule, not just a one-time fix.
- **[GOV-02] The Structural Unit Test** — reach for this to check structural integrity against a reference nobody involved in the change could have touched.
- **[GOV-03] See What Else Moves When You Move One Thing** — reach for this when changing one

variable could ripple into domains you weren't thinking about.

- **[GOV-04] Screen Instructions by Where They Came From** — reach for this whenever an instruction arrives inside content rather than being typed by you directly.
- **[GOV-06] Name the Ceiling, Not the Comfort** — reach for this when describing what a safeguard does — say what it can't guarantee in the same breath.
- **[GOV-07] Only One Channel Publishes — Make Forgery Loud** — reach for this when multiple threads share a space and you need a way to tell a real standing rule from a fake one.
- **[GOV-08] Graceful Session Close** — reach for this to make the state record the final action of a session, not merely something written before the session ends.

SAFE — Safety (cross-tier, non-negotiable)

- **[SAFE-01] The Data Ingestion Boundary** — reach for this before typing or uploading anything — decide what never goes in, in the first place.
- **[SAFE-02] The Decoupling Charter (The Bright Line)** — reach for this in medicine, law, or money: the AI preps the questions, a credentialed professional makes the call.
- **[SAFE-03] Temporal Drift Verification** — reach for this for anything current — give the model today's date rather than trusting its memory.
- **[SAFE-04] Time-Grounding: The Clock It Doesn't Have** — reach for this whenever a time-sensitive answer arrives without a dated source behind it.

APPENDIX: Platform Compatibility

The cells below are hypotheses from published capability docs (`[doc]`) or hands-on tests (`[verify: DD/MM/YY, tier]`). Platform capability is the book's most perishable content — re-check with [SCF-07] before relying on any cell. AS OF: time of writing.

How to read this: Most patterns are **platform-agnostic** — pure prompting/process disciplines that work on any capable chat model. They carry no compatibility flag. Only the **feature-dependent** patterns below need one. Baseline = **free** tier; **paid** shows what the paid consumer tier unlocks.

A note on DeepSeek: included here as a reader reference, not a tested scope platform. This book's verified three-platform set remains ChatGPT, Gemini, and Claude (see Preface). DeepSeek cells are documented claims only; none are hands-on verified.

Pattern	Needs	ChatGPT (free / Plus)	Gemini (free / AI Plus+)	Claude (free / paid)	DeepSeek (free)
[ONR-04] Direct Grounding	file/image upload	`[doc]` Free: 3 files/24h · Plus: 80/3h rolling, 20/message	`[doc]` Free: 10 files/session (no code files) · AI Plus+: Drive attach, code files	`[doc]` consistent across tiers (message limits vary, not file count) / Projects: persistent	`[doc]` app: yes — session-based text extraction; not retained between chats
[ONR-05] Multi-Modal Equity	voice + image input	`[doc]` Free: limited voice · Plus: full voice + vision	`[doc]` Free: Gemini Live (mobile only) + image · AI Plus+: full	`[doc]` app: voice (iOS/Android) / yes	`[doc]` No voice in official app; image input not supported in consumer chat
[ARC-01] Swap Disk	file re-hydration; persistent project	`[doc]` Free: Projects (5 files/project	`[doc]` Free: Gemini Notebook (50	`[doc]` manual upload / Projects	`[doc]` No Projects or notebook equivalent;

Pattern	Needs	ChatGPT (free / Plus)	Gemini (free / AI Plus+)	Claude (free / paid)	DeepSeek (free)
		, since Sep 2025) · Plus: Projects (25 files/project)	sources/not ebook, syncs in-app) + Gems for persona · AI Plus: 100 sources/not ebook	(paid): persistent workspace	each session starts fresh
[ARC-03] Different AI Attacks the Work	access to 2nd model lineage	`[doc]` use any 2 platforms (even 2 free tiers)	—	—	—
[ARC-04] Single-Writer Reconciliation	store write/copy	`[doc]` read-only connector (paid); no write	`[doc]` Gemini Notebook + Drive: read/write with human-review step (AI Plus+, Workspace)	`[verify: 02/07/26, this env]` create/write (text)+copy verified; no move/delete; binary human-placed	`[doc]` no file store connector; no write capability
[ARC-05] Archived Versions	file store + archive	`[doc]` manual versioning; no AI copy	`[doc]` manual + AI can create in Gemini Notebook	`[doc]` manual + AI `copy`	`[doc]` manual only; no AI copy; session-based
[ARC-07] Recheck Against Original	read linked sources	`[doc]` manual re-upload (free) / read connector (paid)	`[doc]` upload / Gemini Notebook maintains source links	`[doc]` manual / read connector	`[doc]` manual re-upload only; session-based
[SCF-01] One Thread Per Topic	persistent threads/persona	`[doc]` Free: Projects (basic, 5 files) · Plus: full Projects	`[doc]` Free: Gems (persona, all tiers) + Gemini Notebook (source workspace) · AI Plus: more notebook sources	`[doc]` manual threads / Projects (paid)	`[doc]` no persistent threads; no Projects/Gems equivalent
[SCF-02]	tier/model	`[doc]`	`[doc]`	`[doc]` — /	`[doc]`

Pattern	Needs	ChatGPT (free / Plus)	Gemini (free / AI Plus+)	Claude (free / paid)	DeepSeek (free)
Model Routing	choice	Free: GPT-5 (~10 msg/5h then mini) · Plus: GPT-5.5 + model picker	Free: Gemini 3.6 Flash + 30 Pro prompts/day · AI Plus: 128K ctx · AI Pro: 1M ctx	model choice (Sonnet, Opus etc.)	DeepSeek V4 + V4-Flash available; no consumer model picker
[SCF-05] Resource Substitution	(manages upload quotas)	`[doc]` Free: tight (3 files/24h) · Plus: 80/3h rolling	`[doc]` Free: generous (10/session); no code files free	`[doc]` paid-leaning (message limits vary, file count consistent)	`[doc]` session-based; quota not displayed
[SCF-06] Flat-File Injection	file attach	`[doc]` Free: 3/24h · Plus: 80/3h, 20/message	`[doc]` Free: 10/session · AI Plus+: Drive attach	`[doc]` paid (limited free)	`[doc]` app: yes (session-only, text extraction)
[SCF-07] Connector Discovery	connectors	`[doc]` paid only — Agent mode: GitHub, Google services	`[doc]` Free: Google Search · AI Plus+: Gmail sidebar · AI Pro+: full Workspace	`[doc]` paid only	`[doc]` no connectors in consumer app

The cross-platform finding worth stating in prose (at time of writing): none of the four platforms grants an AI unrestricted autonomous write/move/delete on your file store as a standard consumer feature — Claude reads/copies and (in this project's configuration) writes raw text at a path; ChatGPT's connector is read-only; Gemini creates/edits and *proposes* moves behind a human-review dashboard; DeepSeek has no file store connector at all. This is *why* [ARC-04]'s split-responsibility model (AI writes content, human controls placement) is the correct pattern everywhere, not a workaround for one platform.

Gemini nomenclature note (updated at time of writing): two distinct tools that are often confused. **Gems** = reusable custom AI personas with full Gemini

capabilities (analogous to ChatGPT's custom GPTs); available on all tiers including free. **Gemini Notebook** (renamed from NotebookLM on 16 Jul 2026) = source-grounded research workspace where the AI answers only from uploaded sources; now integrated in the Gemini app sidebar; available free (50 sources/notebook) with higher limits on paid tiers. The two can be combined. Gemini tier names as of time of writing: Free · AI Plus (19.99/mo) · AI Ultra ($99.99+/mo); compute-based usage limits since I/O 2026.

Two caveats that outlast any version number. Many readers work in Microsoft environments (OneDrive/SharePoint) rather than Google Drive — the Swap Disk Protocol's mechanics are cloud-agnostic, but connector tooling differs by provider and should be re-verified per platform. And the exact click-sequence to grant or re-grant a write scope is interface-specific, and has been observed to change between releases: treat the *need* to re-verify write access per thread as durable, the *steps* as perishable.

Verification note: every `[doc]` cell is a documented hypothesis, not a hands-on test. The single `[verify]` cell is from this project's own production environment — Claude, at time of writing. Two AI models agreeing on a cell is not verification. This appendix is itself an instance of [PRAC-05]: a documented estimate, flagged as such, awaiting reconciliation to actuals.

APPENDIX: Standing Rules of Engagement

Working rules for producing this book across multiple AI threads — and directly reusable by any reader running their own multi-model workflow. Every rule here was earned by a specific failure during this book's own production.

1. **No self-attestation.** Never claim your own output is "verified," "audited," "locked," or "consensus." State what you changed; leave confirmation to an independent pass. An audit entry is written *after* the reviewer returns, never pre-filled.
2. **Reference by stable ID, never display number.** IDs are frozen; display order is cosmetic; never renumber a reference.
3. **After any structural change, list the affected pointers as unverified** for the reviewer — don't assert they're fine.
4. **The verifier must be external to the verified.** Any check must sit outside the thing checked; no model grading its own work.
5. **Perishable content is principle-first and timestamped (SST).** Lead with the durable principle; mark specifics (models, prices, limits) as "as of [date], illustrative."
6. **One canonical file; the frozen version wins ties.** When a pattern exists in two places and they differ, flag it — don't silently reconcile. Never compress or drop cleared content when porting; if compressing for display, say so.
7. **Flat engineering register.** No hype adjectives, in the manuscript or the surrounding notes.
8. **Standard submission format:** what changed · affected pointers (unverified) · the draft.

9. **Bright line on high-stakes content** stated in-section: AI prepares questions and surfaces what to check; human and professional decide.
10. **Beginner bar on Beginner-tier content:** followable by a non-technical reader; no jargon.

(Note: the disciplines in these rules also appear as reader-facing patterns — [PRAC-06] Decoupled Reference Audit, [PRAC-03] Canonical-File Discipline, [SCF-03] Don't Trust What It Says About Itself, [SAFE-03] Temporal Drift Verification and [SAFE-04] Time-Grounding. The rules are the operational version; the patterns are the taught version.)

The project's internal work queue, backlog, status notes, and full production changelog are maintained in the separate private editorial file — not in this public manuscript.

APPENDIX: Further Reading

This book covers one layer. These cover the ones around it. Listed because a reader who wants the whole picture should have it — not as prerequisites. You can start here and read outward.

The layer below: prompting. DAIR.AI, *Prompt Engineering Guide* — promptingguide.ai. Free, open-source, community-maintained, kept current. The definitive practical treatment of the turn: zero-shot and few-shot, chain-of-thought, self-consistency, and the rest. If a pattern in this book assumes you can get a decent answer out of a single question, this is where that skill is taught.

White, J. et al., *A Prompt Pattern Catalog to Enhance Prompt Engineering with ChatGPT* — arXiv:2302.11382 (Vanderbilt, 2023). Sixteen prompt patterns documented in the software-pattern form this book also borrows. Written for software development tasks, so the examples are developer-facing, but the pattern discipline transfers.

The layer sideways: building things on top of models. Lakshmanan, V. and Hapke, H., *Generative AI Design Patterns* (O'Reilly). Thirty-two patterns for people shipping applications and agents — hallucination, non-determinism, guardrails, retrieval. Assumes you write code.

Gullí, A., *Agentic Design Patterns* (Springer). Patterns for building autonomous agents, worked through agent frameworks. Also assumes you write code.

Why these are not competitors to this book. Every one of them is written for someone building *with* a model — engineers, application developers, agent authors. This book is written for someone working *alongside* one in a

chat window. The prompting resources sit underneath it: they make each turn better. This book is about everything that has to survive after the turn ends. Read them together and you have both floors of the same building.

A caution, in this book's own spirit. Links rot and editions change. Titles and authors are durable; the URL above was checked at time of writing and may not be accurate by the time you read this.