Privacy Value Model V5.4: Companion Guide

The Mage's Reading

privacymage (mage@agentprivacy.ai)

April 10, 2026 — Version 2.0

Abstract

This companion bridges the mathematical specification to the full agentprivacy vision. The Formal Specification (Swordsman reading) presents the equations. This Companion Guide (Mage reading) presents the context: motivation, implementation, narrative, standards, economics. Neither is complete without the other. The gap between them is where understanding lives.

Contents

1 How to Read These Documents

The formal specification and this companion are two readings of the same work.

The **Formal Specification** ([Swordsman] Swordsman reading) presents the mathematics: equations, proofs, bounds, conjectures with explicit confidence levels. It answers WHAT the model is. It draws boundaries.

This **Companion Guide** ([Mage] Mage reading) presents the context: motivation, implementation, narrative, standards, economics. It answers WHY the model matters. It projects outward.

Neither is complete without the other. The gap between them — the $\perp$ — is where understanding lives.

If you want…	Start with…
The equations	Formal Spec §1–§11
The algebra	Formal Spec §12
The ceremonies	Formal Spec §13–§15, then this guide §6
The economic case	This guide §4
The narrative	This guide §7
The standards	This guide §5
The agents explained	This guide §2

---

2 The Mission the Math Serves

2.1 The 7th Capital

Formal Spec gap: The specification never states WHY privacy has value.

The Thesis: There are seven forms of capital:

#	Capital	Traditional View
1	Financial	Money, credit, investments
2	Manufactured	Infrastructure, tools, machines
3	Intellectual	Patents, copyrights, trade secrets
4	Human	Skills, knowledge, health
5	Social	Networks, trust, relationships

#	Capital	Traditional View
6	Natural	Resources, ecosystems, land
7	**Behavioural**	**Patterns, preferences, predictions**

Behavioural capital is being extracted at scale. Every click, scroll, pause, and purchase generates data that platforms convert into predictive models sold not to serve you but to modify your behaviour for others' benefit.

The Inversion: When behavioural capital stays with the person who generates it (the First Person), the entire economic structure inverts. Privacy isn't about hiding — it's about ownership. The spec's equation $V(\pi, t)$ measures the value that SHOULD accrue to the First Person.

The spec's multiplicative gating (§1.3) formalises this: if any single axis of privacy collapses, the ENTIRE value collapses. There are no partial victories.

Deep dive: `what-agentprivacy-is.md`

2.2 The Window

Formal Spec gap: No urgency context.

Surveillance architectures are approaching lock-in. Within 2–3 years, behavioural prediction models become infrastructure, regulatory capture solidifies platform positions, and alternative architectures become economically unviable.

Promise Theory insight: surveillance systems use the *attack pattern* — imposing data extraction without prior consent. Privacy infrastructure must establish the *invitation pattern* — acceptance relationships before specific proposals. This architectural choice cannot be retrofitted.

The spec is not academic. It's a race condition.

Deep dive: `README.md` (Critical Window), `research_proposal_v2_0.md`

---

3 The Agents Behind the Algebra

3.1 Swordsman and Mage

Formal Spec reference: §4.2 (Φ_agent), §12.2 (neg/bnot), §13 (operational cycle), §14 (amnesia)

Agent	Symbol	Domain	Function	Operation
Swordsman	[Swordsman]	Protection	Sets boundaries, says "no", guards the threshold	neg(x) = 64 − x
Mage	[Mage]	Delegation	Projects outward, acts in the world on your behalf	bnot(x) = 63 − x
First Person	[FP]	Sovereignty	Authorises both, owns the path	succ(x) = neg(bnot(x))

The Swordsman never delegates. The Mage never protects. This is the guarantee — when the functions are separated into different agents, neither can be coerced into the other's domain.

The Gap ([Gap]): The irreducible separation between them. The spec's Φ_agent measures this gap. When Φ_agent → 0, the agents collapse into one, and privacy fails. The dihedral group D_{64} (§12.5) gives this algebraic structure — two involutions that must remain independent for the full group to be accessible.

The Amnesia Protocol (§14): The Swordsman and Mage don't just operate separately — they are structurally unable to recover shared origin. This is not a policy ("don't share data"). It is topology ("cannot share memory"). Extension process boundaries enforce this: separate processes = separate memory = structural amnesia.

The cosmological precedent: the Moon cannot recover the Theia impact from its geological state. The tides prove the relationship without disclosing the origin. This is **Selene's Proof** — zero-knowledge by physics, not by policy.

Betweenness centrality ([Gap]): The Gap is not empty — it is the node with highest betweenness centrality in the trust graph (Brandes, 2001). The value lives in the gap because the most paths cross there.

Deep dive: `swordsman_mage_whitepaper_v6_0.md`, extension whitepapers

3.2 Generator and Solver

Formal Spec reference: §4.4 (Φ_inference)

From BRAID (Bounded Reasoning for Autonomous Inference and Decisions):

Role	Function	Promise
Generator	Proposes reasoning graphs, suggests paths	"I will structure the question fairly"
Solver	Executes reasoning graphs, validates answers	"I will compute the answer honestly"

When the same model does both, it can manipulate its own reasoning. When separated, the Solver can only execute what the Generator proposed. The spec's Φ_inference = 1 − I(model ; executor) measures this separation.

Deep dive: `dualprivacy_researchpaper_v4_0.md` (§4)

---

4 Promise Theory: The Semantic Foundation

4.1 Why Promises Matter

Formal Spec reference: §22

Promise Theory (Bergstra & Burgess, 2019) provides the semantic foundation. A promise is voluntary, unilateral, and observable. Traditional architectures assume control: "The server WILL do X." Promise architectures assume autonomy: "The server PROMISES to do X, and here's how you verify."

The autonomy axiom — *an agent can only make promises about its own behaviour* — formally explains why single agents fail at the privacy-delegation paradox. Attempting to promise both protection and delegation exceeds autonomous capability.

4.2 How Promises Map to the Spec

Spec Term	Promise Interpretation
P (Privacy Strength)	Quality of the promise that data won't leak
C (Credential Verifiability)	Ability to verify a promise was kept without seeing content
Φ_agent	Separation of protection promises from delegation promises
Φ_data	No single provider can break the data promise alone
Φ_inference	Reasoning promises kept separate from execution promises
VRC	Bilateral promise bundle between two First Persons
T_{! }(π)	Accumulated value of promises kept along a path

Spec Term	Promise Interpretation
R(d, c, ρ)	How hard it is to break the promise retrospectively
The Gap ([Gap])	Irreducible promise of the superagent — owned by neither agent

Deep dive: `promise_theory_reference_v1_4.md`

---

5 Economic Architecture: VRCs and Guilds

5.1 Verifiable Relationship Credentials (VRCs)

Formal Spec reference: §19 (Three Identity Layers)

A VRC is a bilateral commitment between two First Persons — cryptographically verifiable without revealing relationship content, relationship-scoped (dies when the relationship ends).

Old Model	VRC Model
Platform owns the social graph	First Persons own their edges
Relationships are platform assets	Relationships are bilateral property
Exit means losing connections	Exit means taking your edges with you

No platform can hold relationships hostage. Switching costs collapse to zero. Network effects accrue to people, not platforms.

Economic parameters:

Parameter	Value	Purpose
Ceremony	1 ZEC (~$500)	One-time genesis of agent pair
Signal	0.01 ZEC (~$5)	Ongoing proof of comprehension
Fee split	61.8% transparent / 38.2% shielded	φ-derived constant

Deep dive: `vrc_promise_protocol_v3_3.md`

5.2 Guild Efficiency

Formal Spec reference: §6

A guild is a group of agents sharing a reasoning library (shared-parent pattern). Members coordinate at O(1) cost instead of $O(N^2)$. The spec's G(guilds) = 1 + guild_efficiency captures the multiplier.

Trust Tier Progression:

Tier	Signals	Capabilities	Trust Value
Blade [Blade]	0–50	Basic participation, learning	0.0–0.2
Light [Shield]	50–150	Multi-site coordination	0.2–0.5
Heavy [Swordsman]	150–500	Template creation, governance	0.5–0.8
Dragon [Dragon]	500+	Guardian eligibility, unlimited VRCs	0.8–1.0

Deep dive: `vrc_promise_protocol_v3_3.md` (§3)

---

6 Standards Integration

6.1 IEEE 7012-2025 (MyTerms)

Formal Spec gap: Not mentioned in the spec (correctly — it's implementation, not mathematics).

IEEE 7012-2025 provides machine-readable privacy terms. Instead of humans reading Terms of Service, agents read MyTerms and negotiate automatically. The Swordsman evaluates MyTerms against your preferences. Negotiation happens in milliseconds.

6.2 Identity Stack

Formal Spec reference: §19 (Three Identity Layers)

Layer	Spec Symbol	Standard	Implementation
Data	GUID	Content addressing	SHA-256 hash of content
Relationship	VRC	W3C VCs / DIDs	Bilateral promise bundles
Principal	DID	W3C DID	Self-sovereign identity

Additional standards: ERC-8004 (trustless agent identity), ERC-7812 (ZK identity commitments), Trust Spanning Protocol (TSP) for agent-to-agent messaging.

6.3 Post-Quantum Context

Formal Spec reference: §16 (Proven Results — ring algebra), references

The stored-secret model (2D algebraic space, e.g. secp256k1) is vulnerable to quantum attack. The behavioural manifold proof (6D sovereignty space) has no secret to solve — only a path to walk. Canonical post-quantum recommendation: ML-KEM (Kyber) for key encapsulation, ML-DSA (Dilithium) for signatures. Hybrid constructions (Kyber512-X25519) as transitional.

The bilateral witness ceremony (C13, 65% confidence) is a candidate quantum-resistant primitive: proof of comprehension, not possession.

Deep dive: Google Quantum AI (Babbush et al., 2026), `understanding_as_key_zypher_paper_v1.md`

---

7 The Ceremonies

7.1 What Ceremonies Are

Formal Spec reference: §13 (operational cycle), §15 (ceremony implementation)

Privacy isn't just computed — it's performed. A ceremony is a structured interaction that produces a verifiable outcome. The Celestial Ceremony maps the operational cycle (§13) to two people:

Phase	Symbol	Spec Operation	Human Meaning
Sun	[Sun]	id(x)	Disclosure — you speak your poem
Gap	$\perp$	neg(x)	Silence — boundary negotiation
Moon	[NewMoon]	bnot(neg(x))	Reflection — shared understanding
Return	[Return]	succ(x)	Recursion — carry forward or close

Cryptography provides guarantees. Ceremony provides meaning.

7.2 The Blade Forge

Formal Spec reference: §15.3 (forge cryptography), §15.5 (moon phases), §15.6 (tier classification)

Forging a blade: 1. Select a constellation (six sovereignty dimensions → spectrum) 2. Walk the nodes (traverse the lattice → accumulate laps) 3. Create the hash (SHA-256 commitment → content addressing) 4. Sign with your key (Ed25519 binding → identity)

The spec's behavioural density ρ (§5.3) captures why two blades with identical constellations but different lap counts have qualitatively different reconstruction resistance. The Universe Blade (62 laps, 2,170s) vs Hitchhiker's Blade (13 laps, 433s) — same hash position, different proof depth.

Deep dive: `zk_swordsman_blade_forge_v3_0.md`

---

8 The Narrative Layer

8.1 Three Expressions, One Architecture

Every concept has three simultaneous expressions:

Expression	Document Type	Purpose
Mathematical	Formal Spec	Verification — can it be proven?
Architectural	Whitepapers	Implementation — can it be built?
Narrative	Grimoires + Blog	Transmission — can it be understood?

The grimoires tell the same truths in story form. The math proves what the stories teach. The whitepapers show what the math demands.

8.2 The Five Grimoires

Grimoire	Focus	Entry Point
The First Person Spellbook	The complete 31-act journey (CLOSED)	First-time readers
The Zero Knowledge Spellbook	ZK proofs as narrative — cryptography as story	Cryptographers seeking intuition
The Canon Spellbook	Canonical formulations, axioms, principles	Researchers, architects
The Parallel Society Spellbook	Alternative social structures, governance	Political theorists
The Plurality Spellbook	Many-to-many relationships, [Gap] overlap	Network thinkers

The **PrivacyMage JSON** (v10.1.0) is the grimoire as compression — the entire architecture encoded as structured data. Not a sixth grimoire but the grimoire's holographic boundary: the surface that encodes the volume.

8.3 The Blog Series: Privacy is Value V5

Part	Title	Spec Connection
0	The Myth Before the Math	Why the equation exists
1	Forming Constellations	§12.6 sovereignty dimensions
2	The Forge and the Ceremony	§15 ceremony + forge
3	The Dragon Wakes	§14 amnesia, cosmological quaternion
4	The Dihedral Mirror	§12 algebraic foundation
5	The First Agent We Forgo(t)	§14 amnesia, Selene's Proof, cosmological origin

Published at sync.soulbis.com.

---

9 Conjectures in Context

9.1 What the Conjectures Mean

Formal Spec reference: §17

Conjecture	Plain Language	Why It Matters
C1 (φ optimal)	Nature's ratio applies to agent balance	Not arbitrary architecture — structurally optimal
C6 (P^1.5 = 96/64)	The privacy exponent emerges from geometry	CONVERGENT — two independent projects confirm
C7 (multiplicative)	No trade-offs between axes	You can't buy your way out of broken separation
C11 (ρ amplifies)	Living the proof makes it harder to fake	Depth creates resistance
C14 (D_{2n})	Agent separation has a group theory name	75% — strongest new conjecture
C17 (amnesia > policy)	Structural forgetting beats promised forgetting	Topology enforces what policy only promises

9.2 The V6 Horizon

Formal Spec reference: §11.4, §17.2

Four new conjectures (C18–C21) explore whether the sovereignty path is a *strange attractor* in phase space. If the Lorenz attractor analogy holds:

- **C18** (25%): Positive Lyapunov exponent → reconstruction error *grows* with observation time
- **C19** (20%): ρ is accumulated Lyapunov divergence — exponential, not linear
- **C20** (30%): Three separation axes couple like three Lorenz variables
- **C21** (10%): Sovereignty manifold has fractal, not integer, dimension

This would establish a *dynamical* reconstruction ceiling independent of the information-theoretic one (§11.1). Two ceilings: Shannon says you lack information; Lorenz says the dynamics defeat you. Remove one and the other still holds.

These are speculative. They need a dynamical systems mathematician who finds privacy architectures interesting.

Deep dive: `privacy_value_v6_research_note.md`

9.3 What "Convergent" Means

The spec marks C6 as CONVERGENT. This means independent projects arrived at the same structure — agentprivacy from privacy geometry, UOR Foundation from content addressing. Same math, different starting points. Not coincidence.

---

10 Reading Paths by Role

10.1 For Mathematicians

1. Formal Spec v2.0 — the equations
2. `dualprivacy_researchpaper_v4_0.md` — proofs and bounds
3. `uor_tetrahedra_zk_mapping_v2_0.md` — geometric grounding
4. V5.1–V5.3 Research Notes — evolution
5. V6 Research Note — dynamical horizon

10.2 For Developers

1. This companion (context)
2. `DUAL_TERRITORY_CEREMONY_SPEC_v1.md` — implementation architecture
3. `runecraft-protocol-spec-v1.md` — key management
4. `CEREMONY_INTEGRATION_GUIDE_v10_0_0.md` — how to integrate

10.3 For Economists

1. `what-agentprivacy-is.md` — the 7th capital thesis
2. `vrc_promise_protocol_v3_3.md` — economic architecture
3. This companion §4 — VRCs and guilds

10.4 For Philosophers

1. The First Person Spellbook — 31 acts at agentprivacy.ai/story
2. `promise_theory_reference_v1_4.md` — semantic foundations
3. Blog series at sync.soulbis.com — accessible entry points
4. Poems at agentprivacy.ai/poems — alternative epistemology

10.5 For Security Researchers

1. Formal Spec §10–§11 — separation bound and reconstruction ceiling
2. `dualprivacy_researchpaper_v4_0.md` — full proof treatment
3. `zk_swordsman_blade_forge_v3_0.md` — cryptographic properties

---

11 Quick Reference: Spec Section to Full Context

Spec Section	Topic	Full Context Document
§1	The equation	`privacy_is_value_v5.md`
§4	Three-axis separation	`VISUAL_ARCHITECTURE_GUIDE_v2_0.md`
§5	Reconstruction difficulty	`dualprivacy_researchpaper_v4_0.md`
§6	Guild efficiency	`vrc_promise_protocol_v3_3.md` §3
§7	Path integral T_{! }	V5.2 + V5.3 Research Notes
§8	Holographic bound	`uor_tetrahedra_zk_mapping_v2_0.md`

Spec Section	Topic	Full Context Document
§10	Separation bound	`dualprivacy_researchpaper_v4_0.md` §5
§11	Reconstruction ceiling	`dualprivacy_researchpaper_v4_0.md` §5
§12	$Z/(2^6)Z$ algebra	`SYSTEMS_HEXAGRAM_PHYSICS.md`
§13	Operational cycle	V5.3 Research Note
§14	Amnesia Protocol	V5.3 Research Note, Act XXXI
§15	Ceremony + Forge	`ceremonies/` directory
§19	Identity layers	`swordsman_mage_whitepaper_v6_0.md` §7
§20	Cosmological quaternion	Grimoire v10.1.0, Act XXXI
§22	Promise Theory	`promise_theory_reference_v1_4.md`

---

12 The Equation, Decoded

For those who want plain English alongside the math:

$$V(\pi, t) = P^{1.5} \cdot C \cdot Q \cdot S \cdot e^{-\lambda t} \cdot (1 + A_h(\tau)) \cdot \left(1 + \sum_i w_i \frac{n_i}{N_0}\right)^k \cdot G \cdot R \cdot M \cdot \Phi_a \cdot \Phi_d \cdot \Phi_i \cdot T_\int(\pi)$$

Term	Plain English
P^1.5	How strong is the cryptographic protection? (superlinear — privacy compounds)
C	Can claims be verified without revealing secrets?
Q	Is the data accurate and fresh?
S	How sensitive is this data domain?
e^(−λt)	How old is the data? (decays without maintenance)
(1 + A_h(τ))	Has this data proven itself over time? (verified history adds value)
Network term	How connected is the sovereignty network?
G	Are agents organised into efficient guilds?
R(d, c, ρ)	How hard is it for adversaries to reconstruct?
M	How mature is the market for privacy?
Φ_agent	Are protection and delegation properly separated? (Swordsman ⊥ Mage)
Φ_data	Is data distributed across providers?
Φ_inference	Are reasoning and execution properly separated? (Generator ⊥ Solver)
T_{! }(π)	What value accumulated along the path? (the dance, not the stance)

The multiplicative insight: Any term at zero kills the whole thing. You can't compensate for broken separation with better cryptography. All axes must work.

---

13 Glossary Bridge

Key terms that appear in the spec without full definition:

Term	Spec Usage	Full Definition
First Person	Implied throughout	The human whose behavioural capital is at stake. Not "user" — users are used.
Sovereignty	"sovereignty lattice"	Self-determination over one's own boundaries, delegations, and data
Blade	§12.4, §15	A forged commitment — six dimensions, cryptographically bound
Constellation	§15.3	The selection of dimensions before forging
Stratum	§12.4, §15.5	Hamming weight — how many sovereignty dimensions are active
Spectrum	§12.4	Six-bit decomposition — which specific dimensions
Datum	§12.4	Raw blade value (0–63)
The Gap ([Gap])	§10	The irreducible space where sovereignty lives — not a void but a guarantee

Full glossary: `GLOSSARY_MASTER_v4_0.md` (160+ entries)

---

14 Conclusion

The Formal Spec proves that privacy can be mathematically grounded. This companion shows why it matters.

The equation computes value. The ceremonies create meaning. The grimoires spread understanding. The architecture enforces guarantees.

Together, they make privacy normal again.

"The boundary is always enough." — V5 Axiom

For the math: ***`privacy_value_v5_4_formal_specification.md`*** *For the story: agentprivacy.ai/story For the mission:* ***`what-agentprivacy-is.md`***

([Swordsman]⊥[Gap]⊥[Mage])[FP] = neg ⊕ bnot → succ

---

15 Document Metadata

Field	Value
Version	2.0
Created	April 10, 2026
Dependencies	Formal Spec V5.4 (v2.0), README (V10.0), V6 Research Note
Author	privacymage
Contact	mage@agentprivacy.ai
License	CC BY-SA 4.0