

From Relationality to Union-Based Ethics

An Explicit Philosophical and Normative Bridge for Human and Digital Intelligence

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Facts reveal pathways. Normative commitments determine what must be protected.

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Core status statement

This philosophical, normative, and governance companion does not claim that physics entails ethics, that Relational Union or AIU-O is proved, or that MathGov has been externally validated. Union-Based Ethics does not require acceptance of Relational Union or AIU-O. Its premises support a family of relationally attentive, rights-constrained, ruin-aware governance designs; they do not uniquely derive the precise MathGov taxonomy, gate order, weighting structure, or scoring formula. MathGov is one explicitly specified candidate implementation whose necessity and effectiveness remain empirical questions.

Abstract

Empirical relationality does not by itself establish ontological oneness, moral obligation, or a governance system. A valid bridge requires additional premises. This paper uses the companion paper's seven-row architecture: six primary claims plus the explicit B-U row that separates bounded prevalence estimation from domain-specific universality. A separates model-level discriminability, directional evidence, incremental confirmation, and decision-grade confirmation. B distinguishes operational detection prevalence from latent relation prevalence and authorizes latent estimates only where false-positive and false-negative processes are sufficiently identified or bounded. C, unrestricted present-horizon pairwise causal reachability, is contradicted in its strong form by relativistic causal structure; bounded domain-and-horizon variants remain open. D, Totality Inclusion, is logical. E, Relational Union, is an abductive interpretation. F, AIU-O, is the existential hypothesis that total reality is unbounded in at least one concrete respect. A specified F_r may be testable, while the general existential F_3 is not refuted by bounding one candidate respect.

The paper groups the proposed motivations for E into partially dependent evidence families rather than counting each as an independent confirmation. Quantum field structure, Bell-type correlations, cosmological and biological history, holographic research, operational relationality, and recurrent unity phenomenology constrain simplistic isolation models but do not uniquely select monism over relational pluralism, ontic structural realism, process ontology, or neutral monism. E remains a live interpretation only if it can be stated nontrivially and compared with

rivals on scope, parsimony, discriminating consequences, unification, and unresolved residue. AIU-O remains still more ambitious and is not inferred from mathematical infinity.

Union-Based Ethics is then grounded conditionally through explicit normative commitments and bridge premises: material affectability, agency under uncertainty, public justification, rights non-compensability, differentiated protection, and asymmetric concern for ruin. Emergency provisions distinguish justified, reviewable limitations from prohibited violations rather than treating all rights conflicts as silent aggregation. SGP differentiates moral-patient protection from ecological, constitutional, and stewardship protection and preserves the rule that protection is not authority. MathGov operationalizes the commitments through one explicit qualification-before-ranking architecture. That architecture is a constitutional and engineering proposal, not a unique deduction from the normative premises. The resulting Relational Intelligence direction applies to humans, institutions, AI systems, and hybrid teams while the framework remains empirically unvalidated.

Keywords: Union-Based Ethics; relational ontology; public justification; rights constraints; catastrophic risk; MathGov; AI governance; Relational Intelligence.

AI-use disclosure: Generative AI systems assisted with literature organization, language-drafting alternatives, formatting and artifact production, and adversarial error-checking under the author's direction. The author originated the research program, determined the final conceptual architecture and conclusions, reviewed the complete manuscript, and accepts responsibility for every claim.

1. Why a second paper is necessary

The empirical paper can establish conditions of empirical appraisal and estimate bounded operational relational quantities. It cannot derive a complete morality or select a final metaphysics. The transition from fact to obligation requires an explicit normative bridge [1]. Keeping the bridge separate prevents three category errors:

- mathematical infinity lending authority to physical infinity;
- relational descriptions lending authority to ontological monism;
- descriptive interdependence lending authority to one ethical system.

Two papers preserve one research program by preserving the distinctions on which its credibility depends.

2. The seven-row architecture

Two epistemic registers and one research program. Paper 1 establishes and tests bounded empirical claims; Paper 2 states abductive and normative additions.

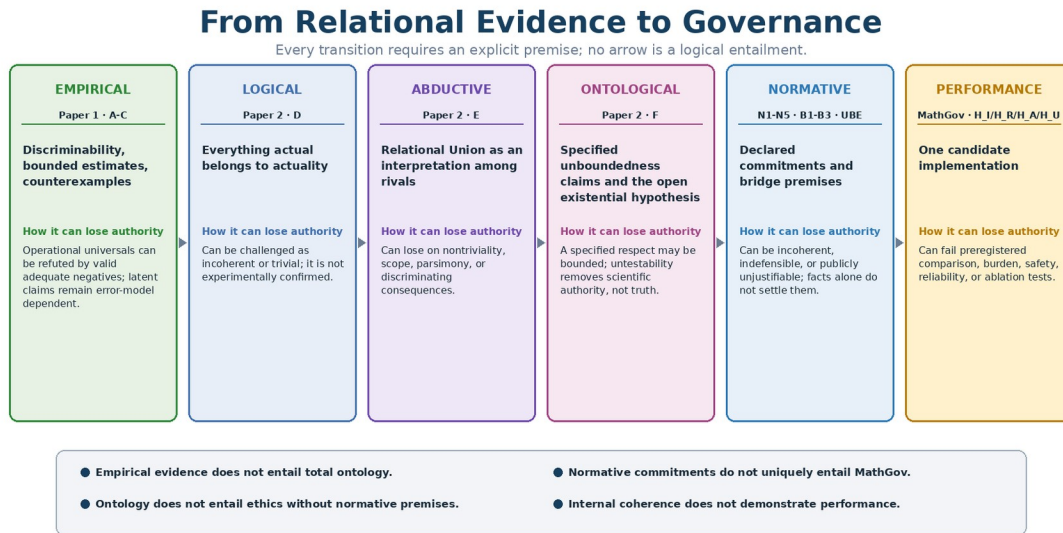


Figure 1. From relational evidence to governance. Empirical, logical, abductive, ontological, normative, and performance claims retain separate authority. Every transition requires an explicit premise; no arrow is entailment.

2.1 Compact claim register

- **A — Empirical appraisal:** A declared observation protocol may make relevant alternatives discriminable; a realized record may provide directional evidence and incremental confirmation; decision-grade confirmation additionally requires a declared evidential or decision rule. **Status:** near-analytic, model-relative, and limited to empirical appraisal.
- **B — Relational estimation:** Operational detection prevalence can be estimated under a frozen protocol in declared domains. Latent relation prevalence may be estimated only where false-positive and false-negative processes are sufficiently identified or bounded. **Status:** bounded empirical program.
- **B-U — Universal forms:** operational and latent universal targets must be distinguished. A valid adequate negative directly refutes the matching operational classification universal; rejection of the corresponding latent universal remains governed by the declared classification-error model. **Status:** domain-specific, open, and deliberately exposed to loss.
- **C — Unrestricted present-horizon pairwise causal reachability:** every ordered pair of verified target events is causally reachable within the declared horizon. **Status:** the strong unrestricted form is contradicted by spacelike and horizon-blocked event pairs; bounded variants remain open.
- **D — Totality inclusion:** everything actual belongs to actuality. **Status:** logical or definitional.
- **E — Relational Union:** total reality is best understood as one integrated relational structure. **Status:** abductive ontological interpretation.
- **F — AIU-O:** F_3 states that total reality is unbounded in at least one concrete respect; a specified F_r names the respect. **Status:** specified forms may be testable; the existential form remains open.

D does not prove E. E does not prove F. A–B do not prove E. Mathematical infinity does not prove F.

2.2 Modes of challenge, defeat, and empirical failure

No single word such as “refutation” covers every layer. Empirical universals may be falsified; an estimand may be nonidentified; a definition may be trivial or incoherent; an abductive interpretation may lose to a rival; a normative bridge may be indefensible; and an implementation may fail a trial. The program is credible only if each claim can lose authority in its own currency.

Table 1. Distinct defeat conditions across the program

Layer	Where it lives	Authority-bearing claim	What defeats, narrows, or deauthorizes it	What does not establish or defeat it
Empirical access and estimation	Paper 1 · A, B	A declared protocol can discriminate alternatives; bounded relational quantities can be estimated under stated identification assumptions	Invariant record distributions defeat discriminability for that instance; nonidentification or failed calibration removes authority for latent prevalence	A philosophical commitment to relationality
Empirical universals	Paper 1 · B-U, C	An operational universal holds across its declared classifications; a latent universal holds in underlying relation status under a declared error model.	One valid adequate operational negative refutes the matching operational classification universal. It provides evidence against the corresponding latent universal, with decision-grade rejection governed by the preregistered and validated or bounded error model. One causally unreachable event pair refutes unrestricted C.	A finite all-positive sample for an open population, or an adequate negative interpreted without its classification-error boundary
Logical	Paper 2 · D	Everything actual belongs to actuality	Incoherence, equivocation, or explanatory triviality	Absence of an experiment

Layer	Where it lives	Authority-bearing claim	What defeats, narrows, or deauthorizes it	What does not establish or defeat it
Abductive	Paper 2 · E	Relational Union is the best interpretation among live rivals	It fails the nontriviality condition or loses on scope, parsimony, unification, discriminating consequences, or unresolved residue	Any single result from physics
Ontological unboundedness	Paper 2 · F	A specified F_r , or the existential $F_{\exists}$	A valid finite bound in the same exhaustive respect refutes that F_r ; permanent untestability removes empirical authority. Bounding one respect does not refute $F_{\exists}$	Mathematical infinity or failure to find a boundary
Normative	Paper 2 · N1–N5, B1–B3, UBE	Declared commitments and bridge premises ground duties and protections	Internal incoherence, indefensibility, unjustified domination, or failure of public justification	A physical fact alone , without a normative bridge premise
Performance	MathGov · H_I, H_R, H_A, H_U	A specified implementation improves defined decisions	A preregistered comparison shows no material benefit, unacceptable error or burden, safety regression, or equivalence to a simpler ablation	Elegance, completeness, or internal consistency

The practical rule is strict: cite an empirical result only against an empirical claim, an abductive comparison only against E, a boundedness result only against the matching F_r , a normative argument only against the normative bridge, and a trial only against performance. Bell correlations do not confirm Relational Union; a coherent ethical architecture does not demonstrate that MathGov works.

3. What “union” can mean

Union is used in at least four senses:

- **Totality union:** all actuality is included in actuality.
- **Operational union:** entities participate in material consequence-bearing relations within a scope and horizon.
- **Relational ontology:** relations or processes are fundamental to what entities are.
- **Substantive monism:** total reality is ultimately one integrated being, substance, process, or non-decomposable structure.

The first is logical, the second empirical, and the third and fourth philosophical. Public communication must name the intended meaning.

4. Evidence families that motivate relational interpretation

The evidence is not six independent votes. Several strands arise from overlapping theoretical structures. They are grouped to prevent pseudo-consilience.

4.1 Evidence-family boundaries

- **Evidential and operational evidence:** measurement dependence, causal models, and biological or institutional dependencies support the indispensability of relations to empirical access and many systems. They do not establish total monism or infinity.
- **Quantum and field-theoretic evidence:** shared field descriptions and Bell violations constrain classical self-contained local-state pictures. They do not establish universal signaling, mind, or pairwise connection.
- **Historical evidence:** cosmological history, stellar and planetary formation, and common ancestry support many shared causal histories. They do not establish current causal contact or one origin for all possible reality.
- **Frontier-unification evidence:** holography, emergent geometry, and ER=EPR may connect information, geometry, and entanglement within some theories. They do not provide a confirmed description of the total cosmos.
- **Phenomenological evidence:** recurrent reports of reduced self-world separation establish a human phenomenon with motivational effects. They do not directly measure total ontology.

4.2 Evidence dependence

Quantum field structure, Bell results, holography, and ER=EPR are partially dependent upon common theoretical and mathematical traditions. Their convergence may be intellectually important, but it cannot be treated as if four independent experiments each selected monism. Quantum field theory, loophole-free Bell tests, entropy bounds, holographic proposals, and ER=EPR motivate relational inquiry while carrying distinct and substantial limitations [2–5] [8–11]. A future synthesis should include a qualitative dependence graph or Bayesian model before assigning any cumulative probability.

4.3 Cosmological and biological history

The observable universe is modeled as developing from a hot, dense early state, and terrestrial life is supported by strong common-ancestry evidence [6–7]. These are genuine historical relations. They do not establish present causal contact across horizons or the history of inaccessible domains.

4.4 Operational relationality

Living, ecological, technological, and institutional systems often display direct dependency, exchange, feedback, and consequence pathways. This is the strongest practical foundation for relational governance. It supports the instruction to model material relations more directly than it supports global monism.

5. Rival interpretations and the nontriviality requirement

The same evidence is compatible with multiple views [12–14]:

5.1 Rival interpretations and unresolved issues

- **Relational pluralism:** many relational domains exist without one ultimate integrated whole. The unresolved question is whether plural domains share a deeper structure.
- **Ontic structural realism:** structures and relations are fundamental in successful science. The unresolved questions concern objects, modality, and totality.
- **Process ontology:** entities are stabilized processes. The unresolved question is whether all processes compose one process.
- **Neutral monism:** mental and physical phenomena derive from an underlying basis that is not intrinsically mental or physical. The unresolved question is how that basis is characterized and empirically distinguished from physicalism, idealism, or dualism.

Priority or existence monism: priority monism treats the cosmos as the one fundamental concrete whole while ordinary parts are derivative; existence monism, a stronger view, holds that exactly one concrete object exists [27]. The unresolved question is whether Relational Union asserts priority, numerical unity, integrative dependence, or a weaker structural thesis.

The comparison is illustrative rather than exhaustive. Physicalist, idealist, dualist, emergentist, nihilist, and other pluralist positions remain relevant where compatible with the evidence.

- **Relational Union:** total reality is best understood as one integrated relational structure. The unresolved question is what “integrated” forbids beyond co-membership.
- **AIU and AIU-O:** AIU is the broader all-containing horizon or meta-union orientation; AIU-O is the narrower F hypothesis that reality is unbounded in at least one concrete respect. Neither is a scoring object or an empirical result. The unresolved questions concern physical infinity, inaccessible domains, and direct tests.

5.2 Nontriviality condition for E

Relational Union cannot mean merely that all actual things can be placed in one verbal set. To be substantive, E must specify at least one consequence not equally predicted by relational pluralism, such as a principled constraint on composition, law unification, cross-domain explanation, or future discriminating observation. If E and its rivals remain empirically equivalent, E is a philosophical interpretation rather than a scientific result.

5.3 Abductive comparison criteria

A future comparison should evaluate:

- explanatory scope;
- parsimony and auxiliary commitments;
- discriminating consequences or predictive risk;
- unification across genuinely independent domains;
- compatibility with established constraints;
- unresolved residue.

No scored comparison is executed here. Until such a comparison survives adversarial review, the authorized claim is only:

Relational Union is a live abductive candidate among rivals.

5.4 Specified and existential unboundedness

AIU-O contains two importantly different forms. A **specified unboundedness claim**, F_r , states that reality is unbounded in a named respect r , such as spatial extent, temporal duration, state-space cardinality, or generative depth. A study or argument can raise, narrow, or defeat that specified claim by addressing the named respect and its measurement model.

The stronger **existential unboundedness claim**, $F_{\exists}$, states that reality is unbounded in at least one concrete respect:

$$F_{\exists} : \exists r \in R \text{ such that reality is unbounded in } r.$$

Bounding one candidate respect does not refute $F_{\exists}$ unless the admissible candidate space R has been declared and exhaustively closed. Conversely, failure to identify a testable respect removes scientific authority from an asserted version of AIU-O but does not establish its falsity. Public claims must therefore specify whether they concern F_r or the open existential hypothesis $F_{\exists}$.

6. Contemplative and religious convergence

This section is motivational and heuristic. No downstream empirical, normative, legal, or governance conclusion depends on contemplative or psychedelic phenomenology.

Reports of unity or reduced self-world separation recur across multiple religious, contemplative, psychedelic, and secular contexts [21–23]. Their recurrence is evidence about human phenomenology, cognition, motivation, and transformation. It is not direct evidence that one metaphysics is true.

Interpretation must account for cultural framing, expectancy, selection, memory, pharmacology, measurement invariance, and genuine doctrinal differences. Contemplative convergence may motivate inquiry and ethical concern without functioning as an ontological vote.

7. The explicit normative bridge

Union-Based Ethics begins only after its commitments and bridge premises are declared.

N1-N5 are normative commitments: values or constitutional priorities offered for direct evaluation. B1-B3 are bridge premises: propositions connecting those commitments to governance duties under material affectability, agency, uncertainty, and public justification.

N1 — Moral relevance

The welfare, rights, freedom, continuity, agency, and enabling conditions of beings who can be materially affected are morally relevant [15–18].

N2 — Non-compensability

Some violations of life, bodily integrity, liberty, dignity, fair process, information rights, and essential ecological conditions cannot be rescued merely by aggregate benefit.

N3 — Differentiated protection and non-domination

Protection should respond to credible evidence of sentience, vulnerability, dependency, agency, consent capacity, and exposure. Difference does not justify arbitrary domination, and inclusion does not require identical treatment.

N4 — Ruin asymmetry

Catastrophic, irreversible, correlated, and existential harms warrant stronger precaution than ordinary reversible loss.

N5 — Conflict and emergency handling

Rights conflicts require a distinction between **justified limitations** and **prohibited violations**. Some rights are qualified by lawful, necessary, proportionate, and reviewable conditions; some prohibitions and protections—including the prohibition of torture, the prohibition of genocide, and protection against arbitrary deprivation of life—are not ordinary variables in an optimization problem [24–26]. Emergency measures must be officially authorized where law requires, necessary, strictly bounded by the exigencies of the situation, temporary, monitored, independently reviewable, and reversible where feasible. They receive an emergency-provisional status and do not become precedent merely because an emergency occurred. Legal classifications and derogation rules vary by instrument and jurisdiction; MathGov does not determine their legal content. Applicable constitutional, statutory, and international law remains controlling.

B1 — Material affectability

A governance decision creates reasons for consideration only where a credible pathway of effect, dependency, representation, stewardship, or foreseeable risk exists. Co-membership in actuality alone does not determine an operational duty.

B2 — Agency under uncertainty

Actors with capacity to foresee, control, or mitigate material effects bear responsibilities proportionate to their power, knowledge, and role. Unknown is not zero, but uncertainty is not permission to invent effects.

B3 — Public justification and correction

Coercive or high-impact decisions require reasons that affected parties can contest, evidence that can be audited, and mechanisms for remedy and revision.

Given N1–N5 and B1–B3, governance has reasons to map affected beings, screen rights, bound ruin, preserve viable structures, and compare residual consequences. The conclusion is conditional and premise-honest.

7.1 Why MathGov uses non-compensatory gates

A reasonable critic will ask why MathGov uses qualification gates rather than one ordinary additive score in which rights, ruin, and viability receive large weights. N2 provides a strong reason for **non-compensatory treatment** of declared protected rights: if a violation is genuinely non-compensable, it cannot be purchased by a sufficiently favorable residual score. An ordinary finite additive

objective can trade any fixed penalty against enough benefit when the benefit scale is unbounded. A prohibition therefore requires an explicit constraint, a bounded domain with a demonstrably sufficient penalty, or a genuinely lexicographic or non-Archimedean rule. The bounded-domain penalty option is de facto non-compensatory only within the declared benefit range; explicit constraints and genuinely lexicographic or non-Archimedean priorities are de jure non-compensatory.

That argument does **not** uniquely derive MathGov's exact Rights Floor, rights catalogue, thresholds, or gate order. Those remain constitutional choices requiring public justification, legal fit, and empirical evaluation.

N4 is weaker than absolute non-compensability. Ruin asymmetry says catastrophic, irreversible, correlated, and existential harms deserve stronger treatment than ordinary reversible loss. It can be implemented through hard risk limits, robust or chance constraints, minimax rules, tail-risk measures, or other non-linear safeguards. MathGov's Tail-Risk Constraint is one explicit design choice within that family; it is not logically forced by N4 and must be tested for calibration, burden, and failure modes.

Containment and Structural Viability also combines more than executability. Resources, dependencies, monitoring, reversibility, and stop capacity are feasibility conditions, while authority, legitimacy, and structural externalities are constitutional or governance conditions. Placing these checks before residual ranking is defensible because a score should not authorize an option that cannot be lawfully, competently, or safely executed, but the exact internal structure remains an engineering hypothesis.

The strongest authorized conclusion is therefore narrower: **N2 supports a non-compensatory rights floor; N4 supports asymmetric tail-risk control; B1–B3 support evidence, authority, monitoring, contestability, and correction. Together they justify qualification-before-ranking as a principled design family, not one uniquely entailed cascade.** Section 8.2 preserves that underdetermination.

8. Union-Based Ethics

Union-Based Ethics is the commitment that consequential decisions should account for materially affected beings and enabling systems across relevant scales while preserving rights, distinctions, legitimate autonomy, and necessary boundaries.

It rejects:

- **atomistic neglect:** treating consequences as if they stop at a convenient border;
- **undifferentiated holism:** dissolving persons, rights, privacy, and local autonomy into an alleged whole.

Distinct, but not separate. Included, but not flattened. Connected, but not maximally coupled. Protected, but not automatically empowered.

8.1 Conditional validity and public adoption

UBE is conditional rather than physically compelled. Its conclusions follow only if its normative commitments and bridge premises are accepted and applied coherently. Critics may contest those premises, propose rival priorities, or test whether the operational architecture produces its intended protections. That contestability is a feature, not a hidden weakness.

Relational Union and AIU-O are therefore optional horizons for public adoption. A university, government, court, company, or AI-governance body may test a relation-aware, rights-constrained, ruin-bounded decision method without affirming monism, physical infinity, universal consciousness, or current AI sentience. This pluralistic separation is consistent with international AI-ethics approaches that emphasize human rights, transparency, accountability, environmental responsibility, and proportional governance without requiring one metaphysical doctrine [19].

8.2 Normative underdetermination of implementation

The stated commitments and bridge premises support attention to materially affected beings, rights, ruin, public justification, correction, and enabling systems. They do not uniquely entail:

- the number or identity of Union scopes;
- the number or identity of welfare dimensions;
- the precise MathGov gate order;
- SGP's exact operational structure;
- weighting or scoring functions;
- the institutional architecture used to authorize action.

Those features are constitutional and engineering hypotheses. They require comparison with simpler and rival implementations, component ablation, burden measurement, and prospective testing. The strongest authorized conclusion is:

Union-Based Ethics conditionally supports a family of relationally attentive, rights-constrained, ruin-aware governance designs. MathGov is one explicitly specified candidate implementation whose comparative necessity and effectiveness remain empirical questions.

UBE should be assessed as a constitutional synthesis and operationalization rather than as the discovery of moral relevance, rights constraints, precaution, stewardship, relational ethics, or public justification. Its proposed contribution is the explicit combination of these commitments with material-relation mapping, protection–authority separation, boundary preservation, qualification before ranking, and testable governance procedures.

Implementation legitimacy remains a separate constitutional and empirical question. The institutions that define the rights floor, set thresholds, invoke emergency status, adjudicate contested classifications, and grant or revoke authority must be publicly specified, contestable, and reviewable. MathGov cannot supply its own legal or political mandate.

9. SGP and differentiated protection

A relational ethic must distinguish rocks, rivers, plants, animals, humans, institutions, and possible digital minds without converting intelligence or power into moral supremacy.

SGP addresses evidence relevant to moral patienthood, phenomenal or functional protection, participation, stewardship, and identity continuity. It does not assign every environmental entity a sentience score. Non-sentient ecological systems may receive constitutional, enabling-condition, stewardship, or indirect moral protection because sentient beings and future life depend upon them and because adopted constitutional commitments protect ecological integrity.

The invariants remain:

- human dignity is not graded by cognitive performance;
- uncertainty is not converted into zero;
- protection is not authority;
- intelligence does not imply supremacy;
- authority requires separate competence, mandate, accountability, and containment.

SGP is an operational companion, not a consciousness detector.

10. MathGov as the operating architecture

Union-Based Ethics becomes actionable through qualification before ranking [20]:

- **Reality Grounding / Reality-Surface Grounding:** establish evidence, uncertainty, physical possibility, and causal claims.
- **Rights Floor / NCRC:** identify protected rights, justified limitations, and prohibited violations.
- **Tail-Risk Constraint:** identify catastrophic, irreversible, correlated, and existential hazards.
- **Containment and Structural Viability:** test authority, resources, dependencies, reversibility, monitoring, legitimacy, and stop capacity.
- **RippleLogic Score:** compare residual welfare effects only among qualified options.

No favorable score rescues a failed gate. Unknown is not zero. Selection does not create authority to execute. These rules prevent union language from licensing sacrifice or centralized domination. The rationale for placing rights, ruin, and viability on gates rather than on weights is given in §7.1.

MathGov remains procedurally specified but externally unvalidated. Its categories, seven scopes, seven welfare dimensions, gate sequence, SGP integration, and scoring rules are design hypotheses subject to reliability, construct-validity, burden, and ablation tests.

11. Relational Intelligence

Relational Intelligence is a direction for reasoning, not a compulsory metaphysics.

11.1 Ground reality

Separate observation, inference, uncertainty, model, value, and aspiration. Never use metaphysical conviction, fluency, confidence, popularity, or institutional authority as a substitute for evidence.

11.2 Model material relations

Map affected beings, dependencies, feedback, delayed effects, externalities, and enabling systems. Distinguish material pathways from remote verbal associations.

11.3 Protect rights before aggregation

Do not let averages erase the vulnerable. Apply the declared rights floor and distinguish lawful limitations from prohibited violations.

11.4 Bound ruin

Give catastrophic, irreversible, correlated, and existential hazards asymmetric attention. Low probability does not make ruin negligible.

11.5 Differentiate without domination

Use relevant evidence of sentience, vulnerability, dependency, agency, and consent. Do not flatten differences or convert them into arbitrary supremacy.

11.6 Separate protection from authority

Moral consideration, intelligence, eloquence, capability, or suffering does not automatically create political, operational, or lethal authority.

11.7 Preserve healthy boundaries

Relationality does not mean maximal coupling. Protect privacy, autonomy, modularity, redundancy, firebreaks, containment, contestation, and legitimate refusal.

11.8 Remain corrigible

Expose assumptions, preserve null and adverse findings, invite falsification, monitor outcomes, provide remedy, and revise.

11.9 Seek cooperative redesign

Search for options that reduce conflict, preserve agency, and improve joint viability before accepting domination, sacrifice, or collapse as unavoidable.

12. Testable governance hypotheses

H_I — Omission

MathGov users identify more material stakeholders, rights hazards, dependencies, and tail-risk pathways than unaided and conventional comparators without unacceptable irrelevant-item inflation, false positives, burden, or escalation.

H_R — Relational prediction

Relation-aware models outperform complexity-matched independence models in preregistered domains where interaction is materially relevant, and do not claim superiority in weak-coupling domains.

H_A — Authority separation

Explicit separation of protection, competence, and authority reduces deference driven by confidence, fluency, prestige, or anthropomorphic framing while preserving appropriate reliance on demonstrated accuracy.

H_U — Outcome quality

Prospective use of MathGov improves defined decision outcomes. This is the ultimate empirical claim and remains unvalidated.

No controlled comparative study has yet demonstrated that MathGov improves decision quality or outcomes. The first serious test should be H_I. H_U should follow only after usability, construct validity, reliability, omission benefits, and burden are understood.

Preregistration status: H_I is specified in the companion H_I Omission Study Protocol. H_R, H_A, and H_U require separate domain-specific preregistrations or Registered Report protocols before confirmatory testing; their estimands, comparators, countermetrics, and stopping rules are not frozen by this bridge paper.

13. Major objections

Objection 1 — The ethics is asserted

Correct in the sense that normative commitments are declared rather than discovered in physics. The relevant questions are whether they are coherent, defensible, contestable, and operationally disciplined.

Objection 2 — Union encourages collectivism

It can if persons are erased. UBE counters this through rights non-compensability, non-domination, authority limits, boundary preservation, and public justification.

Objection 3 — SGP creates caste

SGP must grade protection-relevant evidence rather than intrinsic human dignity or political superiority. Human plateau protections and protection-authority separation are constitutional safeguards.

Objection 4 — The framework is too elaborate

That is an empirical concern. Every component should undergo ablation. Elegance, completeness, and internal consistency do not establish necessity.

Objection 5 — AIU is unnecessary for UBE

Correct. UBE can be justified from operational interdependence plus explicit commitments. AIU may provide meaning and long-horizon orientation, but is not a required premise for public adoption.

14. Conclusion

The strongest account is layered rather than fused.

- Empirical appraisal is relational at the level of records and observation models.
- Operational detection prevalence is estimable in bounded domains; latent prevalence requires identified or bounded error processes.
- Unrestricted present-horizon pairwise causal reachability is contradicted in its strong form; bounded variants remain domain- and horizon-specific.
- Totality inclusion is logical.
- Relational Union is a live abductive interpretation with rivals.
- AIU-O remains open: specified unboundedness claims may be testable, while the existential form is not refuted by bounding one respect.
- Union-Based Ethics rests on explicit normative commitments and bridge premises.
- SGP differentiates protection without converting intelligence into supremacy.
- MathGov is one candidate implementation of qualification before ranking and remains unvalidated.

The direction for intelligence is not “believe that everything is one.” It is:

Remain in contact with reality. Model material relations. Protect rights. Bound ruin. Preserve viable boundaries. Differentiate care from authority. Compare residual ripples. Stay open to being wrong.

Appendix A. Authorized public formulation

Reality, as empirically investigated, is pervasively relational in many domains, but universal relational prevalence has not been measured, unrestricted present-horizon pairwise reachability is contradicted in its strong form, bounded variants remain open, and ontological union is not proved. Union-Based Ethics adds explicit moral and public-justification premises. SGP differentiates protection without granting automatic authority. MathGov is one testable but externally unvalidated implementation of these commitments; rival implementations and ablations remain admissible.

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