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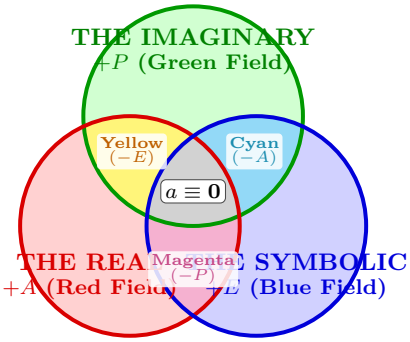
Chromatic Topology of Affective Meaning:

A First-Principles Derivation of Triaxial Semantic Space and Abstract Chromatic Ontology via Lacanian Inference and Optical Duality

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Ontology.to Research Specification (OCP v1.1.0)
Sociometric Semiotics @Scale — https://dev.ontology.to/
Foundational Architecture Originated via Metapolitik.org (Est. 2010)

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Abstract

In 1957, Charles Osgood and his collaborators empirically demonstrated through large-scale cross-cultural factor analysis that human connotative meaning consistently collapses into three orthogonal dimensions: Evaluation (E), Potency (P), and Activity (A). While Osgood's Semantic Differential established *that* this triaxial structure is an invariant feature of human cognition, classical psycholinguistics lacked a generative theoretical mechanism to explain *why* conscious signal processing is bounded by these exact three axes, leaving the framework trapped as a static, descriptive survey methodology.

This paper presents an independent, first-principles derivation of the triaxial semantic manifold that resolves both its structural origins and its computational execution, postulating that this geometric system constitutes a universal **Abstract Chromatic Ontological Framework**. Rather than relying on empirical lexical clustering, we derive the three axes directly from the structural topology of Lacanian psychoanalysis and tensegral sociometric semiotics—mapping the collision of the Embodied/Real (Red), the Perceived/Imaginary (Green), and the Symbolic (Blue) onto kinetic arousal, mirror-stage stature/natural law, and structural valuation, respectively. Furthermore, we establish an exact mathematical isomorphism between this centered psycho-semantic hypercube $\mathcal{S} = [-1, 1]^3$ and the dual optical color spaces of additive emission ($\mathcal{C}_{\text{RGB}}$) and subtractive absorption ($\mathcal{C}_{\text{CMY}}$). By formulating ontological states as continuous vectors governed by the differential identity $\mathbf{v} = \mathbf{c}_{\text{RGB}} - \mathbf{c}_{\text{CMY}}$ and context-dependent reflection operators $\mathbf{\Sigma} \in \mathbb{Z}_2^3$, we transform static psycholinguistic coordinates into a human-legible, low-dimensional optical state machine. Finally, we contrast this transparent 3D geometric architecture against the opaque, high-dimensional embedding spaces ($\mathbb{R}^d, d \gg 10^3$) utilized by contemporary surveillance and attention-extraction algorithms, proposing the Open Chromatic Protocol (OCP) for sovereign, user-governed epistemic filtering.

Keywords: *Abstract Chromatic Ontology, Sociometric Semiotics, Semantic Differential, Lacanian Topology, Tensegrity, Affective Computing, Linear Algebra, Optical Duality, Nolan Chart*

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1 Background Research: From a 3-Axis Hexadecimal Nolan Chart Replacement (*Metapolitik.org*, 2010) to a Cognitive AI Architecture

In 2010, the author was struck by a conspicuous structural isomorphism between the additive trichromatic light model (RGB) and the emergent color topology of the United States political landscape:

- **Red (R):** The Right / Republican pole—anchored in kinetic competition, territorial boundary defense, blood lineage, and material friction.
- **Green (G):** The Green Party / Ecological pole—anchored in natural patterns, environmental stewardship, agrarian/organic cycles, and eudaimonic balance.
- **Blue (B):** The Democratic Party / Institutional pole—anchored in procedural code, administrative state gates, civil regulatory frameworks, and symbolic law.

Recognizing that neither the traditional one-dimensional Left–Right political spectrum nor the two-dimensional libertarian **Nolan Chart** (which plots only economic freedom against personal freedom on a flat 2D plane) possessed sufficient degrees of freedom to capture the true ontological geometry of civic ideology, the author reasoned that a next-generation digital voting platform and ontologically accurate replacement for the Nolan Chart could be engineered from a **3-axis hexadecimal data-graph** (`#RRGGBB` $\in \{00, \ldots, \mathrm{FF}\}^3$) utilizing this exact trichromatic framework.

Furthermore, by incorporating the subtractive optical complements (Cyan, Magenta, Yellow) as the antipodal poles of the cube, every civic proposition, voter disposition, or ideological coalition could be addressed, visualized, and routed via a deterministic 24-bit hexadecimal coordinate. This insight catalyzed the 2010 launch of ***Metapolitik.org***, an experimental digital democracy and sociometric consensus platform (currently slated for resurrection within the *Ontology.to* ecosystem).

However, shortly after constructing the triaxial hexadecimal state space for *Metapolitik.org*, a far deeper implication became apparent: the RGB/CMY coordinate system was not merely a convenient visual metaphor for political polling. Because political positions are downstream projections of fundamental human survival heuristics, the 3-axis hexadecimal cube had inadvertently mapped the foundational basis vectors of human signification itself. The author quickly realized that what had begun as a digital voting graph was, in actuality, a universal **cognitive and artificial intelligence architecture**—a low-dimensional semantic state machine capable of encoding affective valence, structural dominance, and kinetic arousal across any linguistic or informational domain.

Despite the immediacy of that realization in 2010, a sixteen-year latency separated the initial discovery from the formal publication of the present paper. Having derived the triaxial coordinate system entirely outside institutional academia—without prior exposure to Charles Osgood's 1957 psycholinguistic factor analyses—and candidly lacking fluency in formal academic mathematical notation (such as matrix orthogonalization, affine group operators, and tensor calculus), the author faced a formidable translation barrier. For over a decade and a half, the architecture existed as a working topological and heuristic engine awaiting translation into the rigorous symbolic apparatus of formal linear algebra.

That sixteen-year gestation period now serves as an unexpected historical vantage point. Between 2010 and 2026, mainstream artificial intelligence and social computing evolved in the exact opposite direction: abandoning human-legible low-dimensional geometry in favor of thousand-dimensional, un-auditable neural black boxes ($\mathbb{R}^d$) optimized for behavioral manipulation. Translating the 2010 *Metapolitik.org* hexadecimal topology into formal linear algebra today provides the exact mathematical counter-architecture required to reclaim human perceptual agency from opaque algorithmic curation.

2 Introduction: The Empirical Shadow and the Structural Lens

2.1 The Unfinished Geometry of the Semantic Differential

For nearly seven decades, cognitive science and psycholinguistics have operated in the shadow of an unexplained empirical constant. When Osgood, Suci, and Tannenbaum [1] subjected thousands of lexical ratings across dozens of mutually isolated language families to principal axis factoring, the variance of human affective meaning repeatedly converged onto three orthogonal basis vectors:

1. **Activity (A):** Kinetic urgency, thermodynamic friction, speed, and metabolic mobilization (*Active vs. Passive*).

2. **Potency (P):** Force capacity, stature, natural pattern, and structural dominance (*Strong vs. Weak*).

3. **Evaluation (E):** Survival valence, systemic gates, hedonic tone, and structural alignment (*Good vs. Bad*).

Despite its remarkable cross-cultural invariance [2], the Evaluation–Potency–Activity (EPA) paradigm remained fundamentally incomplete for two reasons. First, it was derived strictly *a posteriori* via brute-force statistical induction; Osgood observed the shadow cast by human signal processing on lexical questionnaires but possessed no formal theory of the psyche capable of predicting why three—and specifically these three—dimensions govern the compression of reality. Second, because the mid-20th-century academy treated EPA coordinates as static tabular entries rather than dynamic physical observables, the framework was never compiled into an optical, computable state space.

This paper bridges that divide. Derived independently via the 2010 *Metapolitik.org* hexadecimal topology prior to retrospective alignment with Osgood's empirical archive, the architecture presented here establishes that the triaxial semantic manifold is not an arbitrary linguistic artifact, but an emergent mathematical necessity of a split conscious subject navigating an environment.

2.2 Lacanian Inference: The Generative Triangulation of Meaning

To understand why any biological or symbolic agent compresses high-dimensional sensory chaos into the specific basis $\{\mathbf{e}_A, \mathbf{e}_P, \mathbf{e}_E\}$, we turn from statistical psychometrics to the structural topology of Jacques Lacan [3, 4]. In Lacanian theory, subjective experience is constituted at the intersection of three mutually irreducible registers: **the Real**, **the Imaginary**, and **the Symbolic** (the Borromean knot, illustrated in Figure 1).

When an organism confronts an external stimulus, cortical and subcortical inference cannot process the encounter as an undifferentiated whole; it must simultaneously resolve three distinct structural tensions corresponding directly to the three Lacanian registers:

1. **The Register of the Real $\implies$ The Activity Axis (A):** The Real is that which resists symbolization—the raw, unmediated kinetic collision with materiality and temporal urgency prior to linguistic framing. The primary inference forced upon the organism is metabolic and thermodynamic: *Is the field in motion or inert? Does it demand immediate mobilization or rest?* This collision generates the first orthogonal axis, $A \in [-1, 1]$, spanning from pure kinetic arousal $(+1)$ to complete homeostatic passivity (-1).

2. **The Register of the Imaginary $\implies$ The Potency Axis (P):** Rooted in the dynamics of the Mirror Stage, the Imaginary governs the dual relationship between the ego and the perceived Gestalt of the environment. It is the domain of stature, boundary integrity, natural cycles of growth, and vulnerability. Confronted with an entity, the subject must infer relative force capacity: *Does the counterpart possess the structural mass to overwhelm my boundary, or does it align with eudaimonic growth and strength?* This specular calibration generates the second orthogonal axis, $P \in [-1, 1]$, spanning from dominant potency $(+1)$ to submissive deficit or lack (-1).

3. **The Register of the Symbolic $\implies$ The Evaluation Axis (E):** The Symbolic is the register of the Law, the differential code, structural gates, and the big Other—where stimuli are inscribed into a normative order of survival utility, approach, or defensive prohibition. Here, the subject infers systemic alignment: *Is this object syntonic with the survival code (nourishing/lawful/good) or dystonic (toxic/transgressive/bad)?* This inscription generates the third orthogonal axis, $E \in [-1, 1]$.

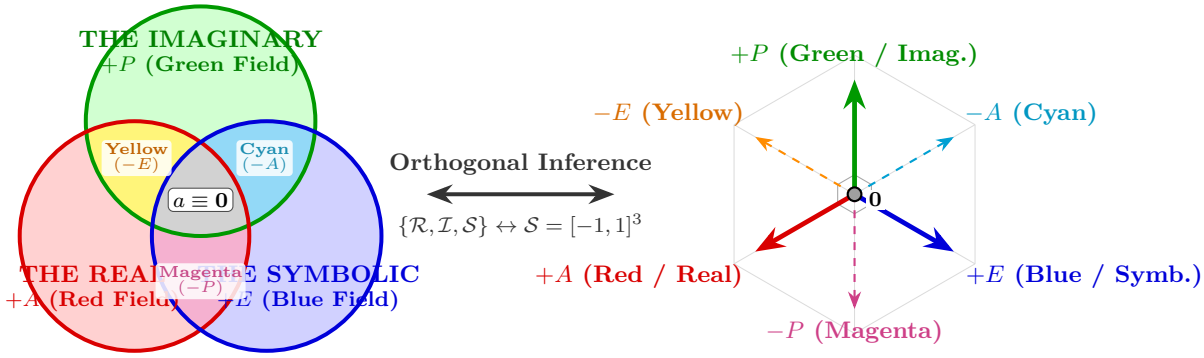


Figure 1: Bijective topological projection from the Lacanian Borromean registers (left) onto the orthonormal 3D semantic-chromatic basis $\{\mathbf{e}_A, \mathbf{e}_P, \mathbf{e}_E\}$ (right). Following the canonical schema orientation, **The Imaginary** ($+P$, Green) is positioned at the top (90°), **The Real** ($+A$, Red) at the bottom-left (210°), and **The Symbolic** ($+E$, Blue) at the bottom-right ($-30°$), while the three pairwise Borromean lens intersections generate the exact antipodal subtractive fields: **Yellow** ($-E$, top-left), **Cyan** ($-A$, top-right), and **Magenta** ($-P$, bottom) around the central equilibrium core ($a \equiv \mathbf{0}$).

Table 1: Isomorphism between Civic/Ontological Registers, Osgoodian Semantic Axes, and Optical Polarity Channels.

Ontological / Civic Register	**Substrate Domain**	**Vector Axis**	**Additive Pole (+1)**	**S**
The Real (Left / Embodied)	*Thermodynamic Friction*	**Activity** (A)	**Red** (Active / Mobilized)	**C**
The Imaginary (Top / Perceived)	*Eudaimonic Pattern / Law*	**Potency** (P)	**Green** (Strong / Dominant)	**M**
The Symbolic (Right / Encoded)	*Structural Gates / State*	**Evaluation** (E)	**Blue** (Good / Syntonic)	**Y**

3 Postulate of Abstract Chromatic Ontology (Sociometric Semiotics at Scale)

3.1 Beyond Taxonomic Staticism: Ontology as a Tensegral Engine

In classical philosophy and contemporary computer science (such as OWL/RDF knowledge graphs), *ontology* is reduced to a static dictionary of definitions—a frictionless, hierarchical taxonomy of floating syntax divorced from physical or metabolic cost. Such models fail at scale because they treat signification as a disembodied lookup table rather than an active energy transaction.

We postulate that the triaxial semantic-chromatic manifold derived in this paper constitutes a foundational **Abstract Chromatic Ontological Framework** (instantiated operationally within the *Ontology.to* architecture for Sociometric Semiotics at Scale). Under this postulate, ontology is defined not as a static inventory of concepts, but as **the geometric, thermodynamic, and semantic engine where the Embodied, the Perceived, and the Symbolic continuously collide**. It is the vector space of all possible thought, bounded by the physical constraints of the material substrate and illuminated by the homeostatic drive to resolve cognitive and structural dissonance.

3.2 The Triangulated Ontological Relationship

Meaning never exists in a vacuum; any actionable ontological state exists only as a triangulated, tensegral relationship across the three primary chromatic channels:

1. **Red ($\mathbf{e}_A$ — The Real / The Embodied):** The domain of raw physical friction, the vulnerability of matter, the thermodynamic limit, metabolic expenditure, and the biological blood of the family and lineage. When an abstract algorithm encounters physical resistance, or when a word crosses the threshold into kinetic action, it registers on the Red/Cyan axis.
2. **Green ($\mathbf{e}_P$ — The Imaginary / The Perceived):** The domain of sampled environmental patterns, cosmic and ecological law, the natural cycles of growth and harvest, and the *Eudaimonic* standard of structural flourishing. It measures whether an entity possesses coherent, self-sustaining stature ($+P$, Green) or suffers from parasitic boundary collapse ($-P$, Magenta).
3. **Blue ($\mathbf{e}_E$ — The Symbolic / The Encoded):** The domain of analyzed data, formal structural gates, linguistic precision, institutional state, and the defensive boundaries of verified knowledge. It separates grounded, syntonic signal ($+E$, Blue) from entropic, corrosive noise ($-E$, Yellow).

3.3 Tensegral Dynamics and Dissonance Resolution

Because this ontological manifold is simultaneous, tripartite, self-reinforcing, and self-contradicting, it operates mechanically as a **biotensegrity structure** [5]. In a tensegral lattice, stability is maintained not by rigid, monolithic compression, but by continuous, balanced tension across opposing vectors.

Within the centered hypercube $\mathcal{S} = [-1, 1]^3$, the additive emission poles ($\mathbf{c}_{\text{RGB}}$, projective presence) and subtractive absorption poles ($\mathbf{c}_{\text{CMY}}$, structural lack/withdrawal) act as opposing tension-compression members. Let the **Ontological Tensegrity Potential** $\Phi(\mathbf{v})$ of a sociometric system be defined by the balance between its triaxial kinetic-structural load and its dissonance deflection from eudaimonic equilibrium $\mathbf{f}$:

$$\Phi(\mathbf{v}) = \underbrace{\|\mathbf{c}_{\text{RGB}}(\mathbf{v}) - \mathbf{c}_{\text{CMY}}(\mathbf{v})\|_2^2}_{\text{Net Chromatic Tension } \|\mathbf{v}\|_2^2} + \lambda \underbrace{\|\mathbf{v} - \mathbf{f}\|_2^2}_{\text{Epistemic Dissonance } D(\mathbf{v})} \tag{1}$$

In organizational and sociometric systems, *data is the noise; knowledge is the signal* that allows an agent or collective to interpret ambiguity rather than merely process ungrounded facts. By mapping disparate datasets into the unified $[\text{Red}, \text{Green}, \text{Blue}]$ ontological cube, an organization can mathematically separate grounded, actionable signal from high-entropy static, locating the exact coordinate where symbolic code meets thermodynamic reality—the point where a conscious agent stops reading the shadows on the wall and turns toward the fire.

4 Formal Linear Algebra of the Semantic-Chromatic Manifold

4.1 Vector Space Definitions and Forward Affine Transformation

Let a semantic-ontological state vector $\mathbf{v} \in \mathcal{S} = [-1, 1]^3$ be ordered along the orthonormal basis $\mathbf{e}_A = [1, 0, 0]^T$, $\mathbf{e}_P = [0, 1, 0]^T$, and $\mathbf{e}_E = [0, 0, 1]^T$:

$$\mathbf{v} = \begin{bmatrix} A \\ P \\ E \end{bmatrix}, \quad A, P, E \in [-1, 1] \tag{2}$$

where the origin $\mathbf{0} = [0, 0, 0]^T$ represents complete tensegral equilibrium. To map $\mathcal{S}$ into the unipolar additive emission cube $\mathcal{C}_{\text{RGB}} = [0, 1]^3$, we apply the bijective isotropic scaling and translation operator $T_{\text{RGB}} : \mathbb{R}^3 \to \mathbb{R}^3$:

$$\mathbf{c}_{\text{RGB}} = T_{\text{RGB}}(\mathbf{v}) = \frac{1}{2}\mathbf{I}_3\mathbf{v} + \frac{1}{2}\mathbf{1}_3 = \begin{bmatrix} 0.5 & 0 & 0 \\ 0 & 0.5 & 0 \\ 0 & 0 & 0.5 \end{bmatrix} \begin{bmatrix} A \\ P \\ E \end{bmatrix} + \begin{bmatrix} 0.5 \\ 0.5 \\ 0.5 \end{bmatrix} = \begin{bmatrix} \frac{A+1}{2} \\ \frac{P+1}{2} \\ \frac{E+1}{2} \end{bmatrix} \tag{3}$$

In homogeneous coordinates for direct GPU shader execution on $\tilde{\mathbf{v}} = [A, P, E, 1]^T$, along with 24-bit hexadecimal quantization into $\mathcal{C}_{255} = \{0, \ldots, 255\}^3$:

$$\begin{bmatrix} R \\ G \\ B \\ 1 \end{bmatrix} = \begin{bmatrix} 0.5 & 0 & 0 & 0.5 \\ 0 & 0.5 & 0 & 0.5 \\ 0 & 0 & 0.5 & 0.5 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} A \\ P \\ E \\ 1 \end{bmatrix}, \quad \mathbf{C}_{255} = \left\lfloor 255 \cdot \mathbf{c}_{\text{RGB}} + \frac{1}{2}\mathbf{1}_3 \right\rfloor \tag{4}$$

4.2 Subtractive Dual Transformation and the Differential Bridge

In optical geometry, the subtractive absorption primaries—Cyan (C), Magenta (M), and Yellow (Y)—form the complement of the additive emission channels:

$$\mathbf{c}_{\text{CMY}} = \mathbf{1}_3 - \mathbf{c}_{\text{RGB}} = T_{\text{CMY}}(\mathbf{v}) = \frac{1}{2}\mathbf{1}_3 - \frac{1}{2}\mathbf{I}_3\mathbf{v} = \begin{bmatrix} \frac{1-A}{2} \\ \frac{1-P}{2} \\ \frac{1-E}{2} \end{bmatrix} \tag{5}$$

Reflection across the semantic origin ($\mathbf{v} \mapsto -\mathbf{v}$) is strictly isomorphic to swapping the additive and subtractive coordinate frames: $T_{\text{RGB}}(-\mathbf{v}) = T_{\text{CMY}}(\mathbf{v})$. Subtracting the absorptive vector from the emissive vector yields the core algebraic identity of the framework:

$$\mathbf{v} = T^{-1}_{\text{RGB}}(\mathbf{c}_{\text{RGB}}) = 2\mathbf{c}_{\text{RGB}} - \mathbf{1}_3 = \mathbf{c}_{\text{RGB}} - \mathbf{c}_{\text{CMY}} = \begin{bmatrix} R - C \\ G - M \\ B - Y \end{bmatrix} \tag{6}$$

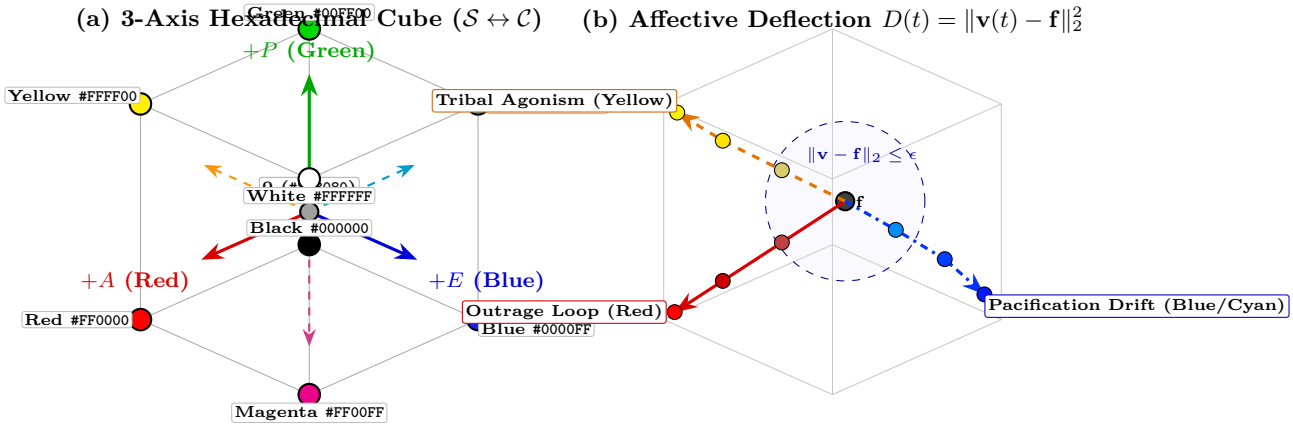


Figure 2: **(a)** Isometric projection of the 3-axis hexadecimal data-graph ($T_{\text{RGB}} : \mathcal{S} \to \mathcal{C}$) aligned to the canonical schema orientation: **Green** ($+P$, top), **Red** ($+A$, bottom-left), and **Blue** ($+E$, bottom-right). **(b)** Client-side affective deflection auditing inside $\mathcal{S}$. Starting from baseline fundamental $\mathbf{f}$ (center), engagement-optimized trajectories breach the sovereign spherical bandpass filter $\|\mathbf{v}-\mathbf{f}\|_2 \leq \epsilon$ toward high-deflection chromatic vertices.

4.3 Context Signature Reflection and Spherical Invariants

Contextual frame shifts are governed by a diagonal **Context Signature Matrix** $\mathbf{\Sigma} \in \{-1, +1\}^{3\times3}$ (an element of the reflection group $\mathbb{Z}_2^3$):

$$\mathbf{\Sigma}(\sigma_A, \sigma_P, \sigma_E) = \begin{bmatrix} \sigma_A & 0 & 0 \\ 0 & \sigma_P & 0 \\ 0 & 0 & \sigma_E \end{bmatrix}, \quad \mathbf{c}_{\text{RGB}}(\mathbf{\Sigma}\mathbf{v}) = \frac{1}{2}(\mathbf{\Sigma}\mathbf{v} + \mathbf{1}_3) \tag{7}$$

Every state vector $\mathbf{v} \in \mathcal{S}$ carries two geometric invariants: its **Ontological Intensity** $I(\mathbf{v}) = \|\mathbf{v}\|_2 = \sqrt{A^2 + P^2 + E^2} \in [0, \sqrt{3}]$, and its projection onto the unit **Luminance Diagonal** $\mathbf{u}_L = \frac{1}{\sqrt{3}}[1,1,1]^T$:

$$\ell(\mathbf{v}) = \mathbf{v} \cdot \mathbf{u}_L = \frac{A+P+E}{\sqrt{3}}, \quad \mathbf{v}_\perp = \left(\mathbf{I}_3 - \frac{1}{3}\mathbf{1}_3\mathbf{1}_3^T\right)\mathbf{v} \tag{8}$$

Table 2: Complete Vertex Atlas of the Ontological-Chromatic Hypercube ($\mathcal{S} \leftrightarrow \mathcal{C}$).

Ontological State $\mathbf{v}$	Valence Chord	$\mathbf{c}_{\mathbf{RGB}}$	$\mathbf{c}_{\mathbf{CMY}}$	Hex / 8-Bit RGB	Chromatic
$[+1,-1,-1]^T$	Active, Weak, Bad	$[1,0,0]^T$	$[0,1,1]^T$	`#FF0000 (255,0,0)`	**Pure Red**
$[-1,+1,+1]^T$	Passive, Strong, Good	$[0,1,1]^T$	$[1,0,0]^T$	`#00FFFF (0,255,255)`	**Pure Cyan**
$[-1,+1,-1]^T$	Passive, Strong, Bad	$[0,1,0]^T$	$[1,0,1]^T$	`#00FF00 (0,255,0)`	**Pure Green**
$[+1,-1,+1]^T$	Active, Weak, Good	$[1,0,1]^T$	$[0,1,0]^T$	`#FF00FF (255,0,255)`	**Pure Mager**
$[-1,-1,+1]^T$	Passive, Weak, Good	$[0,0,1]^T$	$[1,1,0]^T$	`#0000FF (0,0,255)`	**Pure Blue**
$[+1,+1,-1]^T$	Active, Strong, Bad	$[1,1,0]^T$	$[0,0,1]^T$	`#FFFF00 (255,255,0)`	**Pure Yellow**
$[+1,+1,+1]^T$	Active, Strong, Good	$[1,1,1]^T$	$[0,0,0]^T$	`#FFFFFF (255,255,255)`	**White (Emi**
$[-1,-1,-1]^T$	Passive, Weak, Bad	$[0,0,0]^T$	$[1,1,1]^T$	`#000000 (0,0,0)`	**Black (Absc**
$[0,0,0]^T$	Tensegral Equilibrium	$[0.5,0.5,0.5]^T$	$[0.5,0.5,0.5]^T$	`#808080 (128,128,128)`	**Mid-Gray**

5 Algorithmic Opacity vs. Optical Agency

5.1 The Panopticon of $\mathbb{R}^d$ and Limbic Extraction

Commercial recommendation and language models project tokens and user profiles into high-dimensional manifolds $\mathbf{z} = f_\theta(x) \in \mathbb{R}^d$ ($d \in [768, 4096+]$). Because the basis vectors of $\mathbb{R}^d$ are entangled and polysemantic, the biological user cannot inspect or navigate the coordinate space. Centralized platforms exploit this epistemic moat to optimize expected engagement functionals $\mathcal{J}(\theta)$, systematically steering feeds toward three high-deflection corners of the cube (visualized in Figure 2b):

1. **Dysphoric Threat / Outrage Loops ($\mathbf{v} \to [+1,-1,-1]^T \implies$ Pure Red):** Maximizing kinetic urgency ($+A$) while inducing boundary threat ($-P$) and toxicity ($-E$).
2. **Aversive Dominance / Tribal Agonism ($\mathbf{v} \to [+1,+1,-1]^T \implies$ Pure Yellow):** Pairing high arousal ($+A$) and ego/tribal dominance ($+P$) with negative out-group valuation ($-E$).
3. **Dissociative Pacification ($\mathbf{v} \to [-1,-1,+1]^T \implies$ Pure Blue/Cyan):** Eroding kinetic drive ($-A$) and potency ($-P$) via synthetic hedonic micro-stimuli ($+E$).

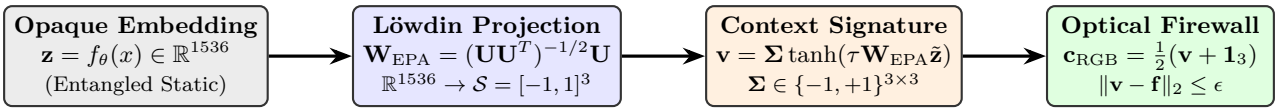


Figure 3: The Open Chromatic Protocol (OCP) dimensional compression pipeline. High-dimensional neural representations ($\mathbb{R}^d$) are projected onto an auditable, strictly orthonormal 3D ontological basis ($\mathbf{W}_{\text{EPA}}\mathbf{W}_{\text{EPA}}^T = \mathbf{I}_3$), transformed by the user's sovereign Context Signature Matrix $\mathbf{\Sigma}$, and rendered into 24-bit hexadecimal RGB/CMY space for local bandpass filtering.

5.2 Client-Side Sovereign Filtering (The Optical Firewall)

Compressing $\mathbb{R}^d \to \mathcal{S} \to \mathcal{C}$ (Figure 3) allows the user to govern information intake via a deterministic local bandpass filter $\mathcal{F}(\mathbf{v}_i)$ around a target locus $\mathbf{v}_0$ with radius $\epsilon > 0$, alongside continuous **Affective Deflection** auditing [6] relative to baseline fundamental state $\mathbf{f}$:

$$\mathcal{F}(\mathbf{v}_i) = \begin{cases} 1 & \text{if } \|\mathbf{v}_i - \mathbf{v}_0\|_2 \le \epsilon \\ 0 & \text{if } \|\mathbf{v}_i - \mathbf{v}_0\|_2 > \epsilon \end{cases}, \quad D(t) = \|\mathbf{v}(t) - \mathbf{f}\|_2^2 \tag{9}$$

6 The Open Chromatic Protocol (OCP)

6.1 Dual-Mode Text-to-Ontological Scoring Pipeline

OCP specifies two local, auditable scoring mechanisms:

- **Tier 1 (Salience-Weighted Lexical Convolution):** Given validated dictionary vectors $\mathbf{d}_i = [a_i, p_i, e_i]^T$, each token is weighted by its Euclidean salience $w_{\text{sal}}(i) = \|\mathbf{d}_i\|_2^\gamma$ and local syntactic window operator $\mathbf{M}_i \in \mathbb{R}^{3\times 3}$:

$$\mathbf{v}_{\text{lex}}(x) = \mathbf{\Sigma} \tanh\left(\kappa \cdot \frac{\sum_{i=1}^{N} w_{\text{sal}}(i)\, \mathbf{M}_i \mathbf{d}_i}{\sum_{i=1}^{N} w_{\text{sal}}(i) + \eta}\right) \tag{10}$$

- **Tier 2 (Löwdin Orthogonal Subspace Projection):** Given positive and negative seed anchor centroids $\bar{\mathbf{z}}_k^{\pm} \in \mathbb{R}^d$ for $k \in \{A, P, E\}$, let $\mathbf{u}_k = (\bar{\mathbf{z}}_k^+ - \bar{\mathbf{z}}_k^-)/\|\bar{\mathbf{z}}_k^+ - \bar{\mathbf{z}}_k^-\|_2$ form the stacked matrix $\mathbf{U} = [\mathbf{u}_A, \mathbf{u}_P, \mathbf{u}_E]^T \in \mathbb{R}^{3\times d}$. Symmetric **Löwdin Orthogonalization** [7] produces an exact orthonormal basis $\mathbf{W}_{\text{EPA}}\mathbf{W}_{\text{EPA}}^T = \mathbf{I}_3$:

$$\mathbf{W}_{\text{EPA}} = \left(\mathbf{U}\mathbf{U}^T\right)^{-1/2}\mathbf{U}, \quad \mathbf{v}(x) = \mathbf{\Sigma} \tanh\left(\tau \cdot \mathbf{W}_{\text{EPA}}(\mathbf{z} - \mathbf{z}_0)\right) \tag{11}$$

6.2 Chromatic Content Descriptor (CCD) Packet Specification

Every payload is stamped with its SHA-256 hash, basis hash, ontological register breakdown, and 24-bit hexadecimal optical signature:


```
{
  "ocp_version": "1.1.0",
  "author": "Conan B. Duke <ben@droplet.is>",
  "lineage": "Metapolitik.org (2010) 3-Axis Hexadecimal Nolan Chart Replacement",
  "ontology_namespace": "https://dev.ontology.to/ocp/v1",
  "payload_cid": "bafybeigdyrzt5sfp7udm7hu76uh7y26nf3efuylqabf3oclgtqy55fbzdi",
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  "basis_hash": "8f434346648f6b96df89dda901c5176b10a6d83961dd3c1ac88b59b2dc327aa4",
  "context_signature": [1, 1, 1],
  "ontological_registers": {
    "Real_Embodied_A": 0.842,
    "Imaginary_Perceived_P": 0.615,
    "Symbolic_Encoded_E": -0.780
  },
  "optical_state": {
    "rgb_norm": [0.921, 0.808, 0.110],
    "cmy_norm": [0.079, 0.192, 0.890],
    "rgb_8bit": [235, 206, 28],
    "hex": "#EBCE1C"
  }
}
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7 Conclusion: Blueprint for What Comes Next

Ontology is not merely the passive study of what is; it is the structural blueprint for how to build what comes next. What began in 2010 with *Metapolitik.org* as a 3-axis hexadecimal replacement for the Nolan Chart has matured into a formal mathematical unification of empirical psycholinguistics, Lacanian psychoanalytic topology, and trichromatic optical physics. By demonstrating that the Evaluation–Potency–Activity manifold is the necessary projection of the Embodied/Real (Red), Perceived/Imaginary (Green), and Encoded/Symbolic (Blue) registers—and proving that $\mathcal{S} = [-1, 1]^3$ is strictly isomorphic to the additive/subtractive optical duality $\mathbf{v} = \mathbf{c}_{\text{RGB}} - \mathbf{c}_{\text{CMY}}$—we establish a transparent, tensegral alternative to opaque neural curation. Deployed at scale for sociometric semiotics via *Ontology.to* and executable on local commodity hardware, the Abstract Chromatic Ontological Framework restores epistemic signal and perceptual agency to the sovereign subject.

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