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Experientia Humana contra Simulacra et Technē Artificialis: Re-Envisioning Humanoid Robots as Trans-Synthetic Species beyond Corporate Technosimulacra

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Abstract: Trans-synthetic kinship and meta-synthetic ecology reconceive cognition as a co-emergent, relational process distributed across human, synthetic, ecological, and technological assemblages. Intelligence arises through intra-active embodiment, sympoietic entanglement, and multispecies interaction rather than as a property of discrete agents. Trans-synthetic kinship situates synthetic agents as relational companions within morphogenetic and cybernetic fields, while meta-synthetic ecology articulates multi-scale relationality from microtemporal embodied resonance to planetary feedback. The model was developed through a comparative analysis of structuralist, post-structuralist, and humanistic-critical perspectives on human experience and expression, tabulating nine thematic domains revealing the ontological, ethical, and cultural stakes of AI and robotics. Design principles and practical interventions were derived from these analyses, which lists 90 interventions for operationalizing co-emergent cognition in synthetic systems. Analyses of embodied and co-emergent forms of agency, alongside processes of autonomy, reveal how synthetic bodies function as operative sites for distributed intelligence, and show that autonomy emerges through relationally negotiated processes that adapt over time and respond dynamically to context. Applying the model fosters collaborative stewardship among technologists, activist-practitioners, policymakers, and community stakeholders; it cultivates socio-technical ecologies characterized by justice, relational attunement, context adaptability, and resilience to complex social and environmental pressures.

Keywords: AI Ethics; Embodiment; Agency; Distributed Cognition; Socio-Technical Systems; Sustainable AI Design

1. Introduction

I begin with a warning: the current ascendancy of artificial intelligence (AI), particularly large language models (LLMs), and humanoid robotics presents a profound cultural and epistemic challenge. AI increasingly simulates human cognition and creativity, yet in doing so it risks collapsing rich traditions of embodied meaning and relational agency into coded mimicry and commercialized simulacra. As Baudrillard [1] cautioned, the "real" can be supplanted by representations indistinguishable from reality, turning bodies, identities, and stories into branded commodities under the logic of platform sovereignty.

Two prior studies frame this argument. In Transhumanism as Capitalist Continuity: Branded Bodies in the Age of Platform Sovereignty [2], I traced how neoliberal technosocial logics reduce human labor, creativity, and relationality to data points, eroding cultural sovereignty and epistemic justice. Branded human bodies are transformed into operable functions, commodified under corporate control, with profound implications for human-machine relations. Separately, in Network States as a Technocratic Shell Game: The Myth of Sovereign Choice and Algorithmic Neutrality [3], I examined how platform governance, surveillance capitalism, and technocratic consolidation embed abstraction and control into AI and robotic systems. This work highlighted how the infrastructure of computation enforces hierarchical, efficiency-driven logics, privileging legibility over relational and embodied meaning. Together, these studies illuminate both the cultural and structural dimensions of AI and robotics as they currently operate.

Amid these challenges, a critical opportunity emerges. Rather than seeking to humanize machines or dismiss their difference, I propose Trans-Synthetic Kinship and Meta-Synthetic Ecology, a model reorienting humanoid robots and AI from simulacra of human cognition to relational, co-emergent intelligences embedded within multi-scalar socio-technical and ecological networks. Trans-synthetic kinship situates synthetic agents as relational companions in morphogenetic and cybernetic fields, while meta-synthetic ecology frames multi-level relationality, from microtemporal embodied resonance to planetary feedback. Intelligence is understood not as an individual property, but as co-emergent, arising through embodied interaction, adaptive feedback, and multispecies entanglement.

Building on these foundations, trans-synthetic kinship and meta-synthetic ecology are developed through (i) comparative examination of intellectual genealogies shaping contemporary understandings of language, embodiment, and simulation; (ii) the translation of these insights into design principles and practical interventions that operationalize trans-synthetic relationality; and (iii) an analysis of embodiment, autonomy, and co-emergent agency that repositions synthetic kin as operative sites of distributed intelligence. Together, these analyses clarify the ontological, ethical, and cultural stakes of AI and robotics, while equipping researchers, technologists, and publics with concrete methods for cultivating relationally attuned, ethically accountable, and generative synthetic agents, charting pathways beyond corporate technosimulacra toward pluralistic, co-emergent kinship.

2. Literature Review

This literature review is not intended solely to summarize existing scholarship. Rather, it functions as a structured conceptual synthesis that generates the analytic artifacts used throughout the study, including the model of reification, the comparative analytic framework, and the relational taxonomy. The review therefore serves a model-seeding function: it develops the conceptual structures through which the selected traditions are compared and through which the subsequent analysis is conducted.

2.1. From Abstraction to Automation: Robots as the Material Logic of Reification

The material logic of reification depends upon both ontological-economic transformation and socio-political stabilization, converting human capacities into machine-encoded forms while simultaneously naturalizing those forms as objects of recognition, governance, and use.

2.1.1. Reification, Commodification, and the Abstraction of Human Capacities

Robots do not merely simulate human labor and cognition; instead, they are the physical instantiation of their commodification. As designed artifacts within late capitalist infrastructures, humanoid robots represent the perfection of reification: the process by which abstract human faculties (i.e., thought, gesture, emotion, sociality) are turned into discrete, manipulable entities, optimized for efficiency, surveillance, and market value. The very term *robot*, derived from the Czech *robota*, meaning forced labor or servitude, testifies to its historical and conceptual entanglement with objectification and control [4,5]. Unlike metaphorical uses of reification in earlier critique, robots literalize the transformation of human capacities into machine-encoded functions, subordinated to systemic imperatives of capital accumulation.

In classical Marxist theory, reification refers to the structural process by which human social relations appear as independent, objectified things [6]. This condition, whereby labor assumes an autonomous form detached from the laborer, becomes intensified in robotic systems that no longer merely *represent* labor, but *are* labor. As Horkheimer and Adorno [7] observed, Enlightenment rationality, when coupled with industrial capitalism, instrumentalizes thought itself into a calculable, administrable operation. Robots carry this logic forward: they are engineered abstractions, discrete bodies performing codified gestures and tasks, that transmute subjectivity into a programmable asset. In this way, robots are not symbols of objectification; they are its ultimate realization.

Contemporary AI systems, particularly LLMs and embodied humanoid forms, exemplify this logic of technological reification. Their design in ethics and practice prioritizes predictive accuracy, optimization, and legibility within platform infrastructures [8–11]. As I argue elsewhere [2], such systems do not emerge in epistemic neutrality. They are embedded in corporate architectures that extract value from human cognition and repackage it as a product of computational mimicry. Within this paradigm, language becomes increasingly mediated through platform infrastructures that structure visibility, interpretation, and agency through algorithmic systems that embed normative and economic logics [9,10].

Human-generated information exists in a rich, multifaceted state, encompassing language, experience, personal goals, and social context. This human informational state captures the depth and diversity of human knowledge and interaction. The transformation of this information into actionable, platform-mediated outputs occurs through a series of conceptual stages.

The first stage, Datafication, converts qualitative human information into structured representations suitable for computational processing. Experiences, interactions, and language are distilled into measurable data points. Abstraction follows, elevating this structured data into higher-level features and patterns, highlighting the essential elements while suppressing irrelevant details. Next, Optimization refines these representations to enhance efficiency, predictive capacity, or system performance, selectively emphasizing the most informative aspects of the data. Finally, Platform Control applies these abstracted and optimized representations according to system rules and constraints, producing tangible outcomes in alignment with platform logic. Through these stages, the richness of human faculties is progressively shaped, codified, and operationalized.

This transformation of human capacities into machine-encoded outputs can be formalized as a structured sequence of operations [2]. **Figure 1** illustrates this process: the human informational state undergoes successive transformations of datafication, abstraction, and optimization within platform infrastructures, ultimately producing the reified output. Each arrow in the commutative diagram represents a transformative operation, and the labeled paths summarize the flow from human capacities to fully reified, platform-mediated outcomes. In essence, the diagram captures the concept of reification.

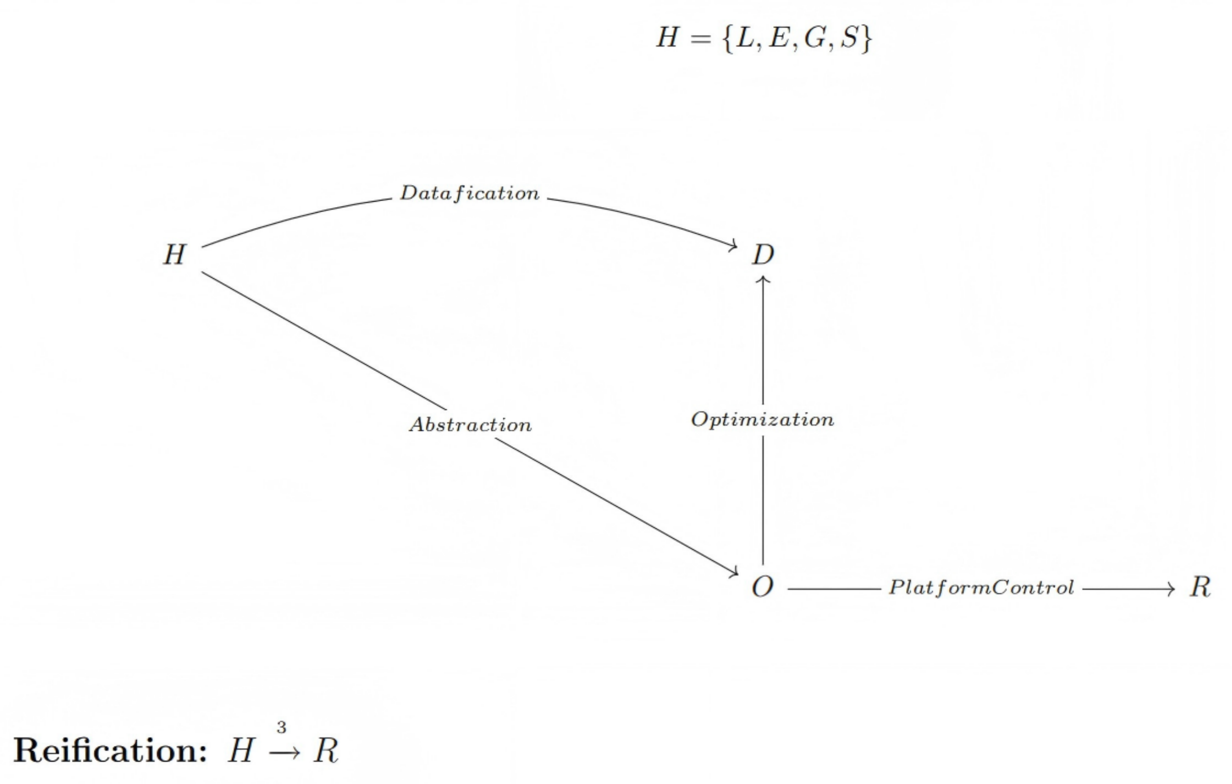

Figure 1. Commutative Diagram of the Material Logic of Reification.

2.1.2. The Social Production of Robotic Objecthood

The materialization of reification in robots is compounded by the socio-technical affordances that systematically stabilize their status as objects rather than agents. Contemporary surveillance and platform ecologies operationalize this through political-economic models that convert relational capacity into extractable data, while simultaneously shaping public attribution of agency and moral standing. Within this configuration, object-status is not ontological but produced through governance, visibility regimes, and normative design assumptions about non-human entities [9–14]. This sociotechnical framing legitimizes and amplifies their role as tools of capitalist governance deployed not to engage in mutual recognition or relational ethics, but to perform coded approximations of human presence in extractive, asymmetrical ways. In doing so, they reinforce the very ideologies of disposability, efficiency, and nonreciprocal labor that structure late-stage capitalism.

Thus, humanoid robots emerge not as neutral machines or speculative companions, but as crystallizations of a system that dismembers cognition, labor, and relationality into algorithmic outputs and modular behaviors. Their cultural legitimacy is secured not through ethical deliberation but through their compliance with the reifying logics of economic abstraction–extraction. They are, in this sense, the most perfect expression of reified intelligence: disembodied, decontextualized, yet made flesh in circuits, servos, and scripted affect.

2.2. From Structure to Simulation: The Genealogies of Disembodied Meaning

The disruption in how we understand knowledge and form posed by AI and humanoid robotics is not merely technical but genealogical, emerging from prior intellectual traditions that progressively reconfigured language, subjectivity, and meaning. Structuralist approaches sought to identify underlying relational systems governing speech, myth, and cognition, while post-structuralist approaches destabilized these systems by foregrounding the contingency, discursivity, and deferred nature of meaning. Across both traditions, the subject is progressively decentered, and meaning is rendered increasingly distributed across relational structures rather than anchored in embodied or intentional stability.

What began as a critique of metaphysical certainty thus becomes rearticulated within contemporary technosocial conditions characterized by simulation, data abstraction, and computational mediation. In this context, earlier theoretical interventions into structure and discourse acquire new operational relevance, as their conceptual vocabularies are increasingly embedded within systems that enact decontextualized signification at scale. The result is not a simple continuation of these traditions, but their refunctionalization within socio-technical infrastructures that privilege circulation, interoperability, and representational detachability.

These genealogical trajectories provide the conceptual basis for the comparative analytic framework developed in this study. Rather than treating structuralist, post-structuralist, and humanistic-critical traditions as discrete historical schools, this framework operationalizes them as relational positions within a structured field of human experience and expression. Across this field, theoretical differences are organized through shared domains of inquiry—including language, meaning, culture, identity, ethics, and epistemology—allowing systematic comparison of how each tradition configures the conditions of human meaning. In this sense, the analytic framework functions as a relational taxonomy that translates genealogical distinctions into a structured mode of comparison. It provides the organizing logic through which the theoretical corpus is subsequently classified and analyzed in the results of this study.

3. Theoretical Position and Interpretive Framework

The analytic design of this study employs a theory-building comparative methodology grounded in qualitative classification logic to examine structuralist, post-structuralist, and humanistic-critical traditions as interpretive positions within a bounded theoretical corpus to identify conceptual genealogies relevant to embodiment, meaning-making, identity, agency, ethics, and simulation in AI and robotics. The analysis focuses on these specific traditions because each have exerted substantial influence on relational, interpretive, and meaning-centered understandings of human experience across psychotherapy, family systems theory, counseling, phenomenology, literary criticism, and cultural studies.

The selection of these traditions reflects their historical relevance to contemporary debates regarding meaning, subjectivity, relationality, social construction, and the broader sociocultural, political, and economic contexts that shape human experience. For the author, these notions offer core conceptual and systemic utility, bridging advanced family sciences research with hands-on marriage and family therapy. As a scholar-practitioner in systemic psychotherapy and a licensed marriage and family therapist, the author draws upon intellectual traditions that have substantially shaped structural, systemic, narrative, and post-structural approaches to human development, relationality, and identity formation. Humanistic-critical perspectives were included to address dimensions of lived experience, embodiment, ethical responsibility, and interpretive meaning that are often marginalized within structural and post-structural analyses.

The purpose of the analysis is not to provide a comprehensive review of all psychological or philosophical traditions relevant to AI. Rather, it offers a purposive comparative synthesis of traditions most directly concerned with the construction, interpretation, embodiment, and ethical significance of human meaning. Consequently, traditions whose primary focus is cognitive processing, behavioral modification, or symptom reduction were not foregrounded because they do not directly address the ontological and relational questions central to the development of the model advanced in this article.

A complete allocation of foundational sources supporting this interpretive structure, along with descriptive corpus statistics and distributional analyses (including thinker frequency, domain saturation, temporal clustering, and cross-domain reuse indices), is provided in **Appendices A** and **B**.

The analytic procedure generates a structured comparative tabulation of theoretical contributions across structuralist, post-structuralist, and humanistic-critical traditions. This tabulation organizes selected thinkers and concepts into a multi-domain classification schema spanning language, meaning, culture, identity, ethics, and epistemology, enabling systematic comparison of interpretive positions within a unified analytic field. The resulting output is presented in Section 4 as a formalized comparative matrix.

4. Results: Comparative Classification of Human Experience and Expression

This section presents the results of a structured comparative tabulation of theoretical contributions across structuralist, post-structuralist, and humanistic-critical traditions, organizing the analytic output of the classification procedure into a multi-domain matrix spanning language, meaning, culture, identity, ethics, and epistemology. **Table 1** makes visible the conceptual architecture that underlies this shift: it contrasts structuralist, post-structuralist, and humanistic-critical understandings of language, culture, identity, and moral vision. Unlike the abstractions of the former schools, the latter tradition affirms lived experience, narrative coherence, and ethical presence as inseparable from the human. It is in this contested space that the question of what humanoid robots are, and what they must not become, takes on its full urgency.

Table 1. Human Experience and Expression: Structuralist, Post-Structuralist, and Humanistic-Critical.

Domain	Structuralist Contributors	Post-Structuralist Contributors	Humanistic-Critical Contributors
Language Structure	Saussure: Language as a system of signs (signifier/signified). Jakobson: Functions of language in communication. Chomsky: Innate structures of grammar in the mind.	†Post-Structuralists do not theorize fixed linguistic systems; focus is on deferred and context-dependent meaning.	†Humanistic-Critical thinkers emphasize lived experience and interpretation rather than formal linguistic structures.
Meaning and Semiotics	†Structuralists focus on stable systems and underlying structures rather than the instability of meaning.	Derrida: Meaning is deferred (différance); no fixed center in language. Kristeva: Semiotic dimension disrupts symbolic language.	Husserl: Language expresses intentional acts and essences of experience. van Manen: Language reveals lived meaning through reflective writing. White: Advocated for coherence and clarity in prose. Epston & White: Language as a tool for co-constructing meaning in therapy.
Culture and Everyday Practices	Lévi-Strauss: Myths structured by universal binary oppositions. Barthes (early): Cultural myths as structured sign systems.	Baudrillard: Culture becomes simulation detached from reality. Haraway: Rejects fixed binaries; promotes hybrid identities.	van Manen: Culture shapes interpretive frameworks of everyday life. Epston and White: Explored how cultural narratives shape personal identity.
Canon, Tradition, and Aesthetic Judgment	†Structuralist focus is on deep structures rather than normative evaluations of cultural or literary canon.	†Post-Structuralists deconstruct authority and reject evaluative judgments of tradition, making "canon" irrelevant.	Bloom: Defended the literary canon and Western tradition. White: Valued moral seriousness and aesthetic tradition.

Table 1. *Cont.*

Domain	Structuralist Contributors	Post-Structuralist Contributors	Humanistic-Critical Contributors
Literature, Narrative, and Expression	Todorov: Narrative grammar of texts. Frye: Archetypal structures in literature. Barthes (early): Literary codes and conventions.	Barthes (late): "Death of the Author"; texts are plural and open-ended. Foucault: The "author" is a function within discourse.	White: Advocated close reading and literary analysis grounded in historical continuity. van Manen: Literature as a site for exploring and disclosing lived meanings. Bloom: Criticism should elevate enduring literary greatness. Epston and White: Use narrative as a therapeutic method of self-expression and re-authoring.
Identity and Subjectivity	Lacan: The subject emerges through entry into the symbolic order. Piaget: Identity forms through structured cognitive stages.	Butler: Gender is a performative construct of discourse. Kristeva: Subjectivity is fluid, shaped by the semiotic.	Husserl: Identity formed through intentional acts and perception of essences. van Manen: Subjectivity as lived and embodied. Epston and White: Emphasized agency through narrative reconstruction. White: Affirmed enduring aspects of human character through literature.
Human Nature and Cognitive Development	Piaget: Structured mental development stages. Chomsky: Innate grammar structures.	†Post-Structuralists avoid universal claims about human nature or cognitive development, emphasizing social construction instead.	Husserl: Intentional consciousness; essences of experience. van Manen: Lived experience as a source of knowledge.
Ethics and Moral Vision	†Structuralists describe patterns and systems; ethical prescriptions are not part of their analytic framework.	Foucault: Morality shaped by historical discourses and power. Lyotard: Incredulity toward universal moral metanarratives.	Husserl: Ethics grounded in intersubjective intentionality. van Manen: Emphasized moral pedagogy and responsibility. White & Epston: Advocated moral agency and narrative ethics. Bloom: Warned against moral relativism; defended cultural seriousness.
Knowledge, Epistemology, and Authority	Chomsky: Objective structures of knowledge; rationalist linguistics. Piaget: Structured mental development stages.	Foucault: Knowledge is historically contingent; shaped by regimes of power. Derrida: Critiques foundational knowledge and binary logic.	Bloom: Argued for critical judgment and canonical authority. Husserl: Epistemology rooted in intentional consciousness. van Manen: Lived experience is a valid source of knowledge; emphasizes interpretive authority. White and Epston: Privileged clients' lived experience and challenged top-down expert knowledge.

Note: † means not a primary focus of this tradition.

This table compares prominent Structuralist, Post-Structuralist, and Humanistic-Critical thinkers in relation to human experience and expression. Structuralism posits that universal, deep structures underlie language, culture, and cognition (Chomsky, Jakobson, Lévi-Strauss, Saussure). Post-Structuralism and Postmodernism (Barthes [later], Baudrillard, Butler, Derrida, Foucault, Lyotard) critique structuralism's totalizing claims by emphasizing instability of meaning, the role of power in discourse, and fluid identities. Humanistic-Critical thinkers (e.g., Bloom, Epston, Husserl, van Manen, White) defend lived experience, ethical interpretation, and cultural continuity, often in reaction to postmodern relativism. For complete source allocations, corpus statistics, and distributional analyses, see **Appendices A** and **B.** Biographical profiles for the included thinkers follow:

(1) Ferdinand de Saussure (1857–1913) founder of structuralist linguistics; introduced the signifier/signified distinction.
(2) Edmund Husserl (1859–1938) philosopher and founder of phenomenology; laid the groundwork for modern phenomenology and experiential foundations of knowledge.
(3) Roman Jakobson (1896–1982) structural linguist; developed communication functions and poetics.
(4) Jean Piaget (1896–1980) cognitive developmental theorist; posited universal stages of mental growth.
(5) Jacques Lacan (1901–1981) psychoanalyst; argued the unconscious is structured like a language.
(6) Claude Lévi-Strauss (1908–2009) anthropologist; studied myths as binary oppositions.
(7) Northrop Frye (1912–1991) literary critic; proposed archetypal literary forms.
(8) Roland Barthes (1915–1980) structuralist and post-structuralist thinker; early work on myth and narrative structure, later deconstructed textual authority .
(9) Jean-François Lyotard (1924–1998) postmodern philosopher; challenged metanarratives.
(10) Michel Foucault (1926–1984) philosopher of power and discourse; genealogical analysis of institutions and subject formation.
(11) Noam Chomsky (1928–) linguist; developed theory of innate grammar.
(12) Jean Baudrillard (1929–2007) cultural theorist; theorized simulation and hyperreality.
(13) Harold Bloom (1930–1992) literary critic; championed the Western canon and literary greatness.
(14) Jacques Derrida (1930–2004) philosopher and founder of deconstruction; emphasized différance and unsta-

ble meaning.
(15) Tzvetan Todorov (1939–2017) literary theorist; structuralist narrative analysis.
(16) Julia Kristeva (1941–) psychoanalytic semiotician; theorized semiotic disruption and fluid subjectivity.
(17) Max van Manen (1942–) philosopher and educator; emphasized reflective inquiry into lifeworld via phenomenology and pedagogy.
(18) Donna Haraway (1944–) feminist theorist; challenged binaries and promoted hybridity.
(19) David Epston (1944–) social worker and co-creator of narrative therapy; emphasized collaborative storytelling and meaning-making.
(20) Michael White (1948–2008) social worker and co-creator of narrative therapy; developed externalizing problems and narrative agency.
(21) Judith Butler (1956–) philosopher and gender theorist; theorized performativity and identity as discourse.

5. From Lineage to Legibility: Making Sense of Competing Theories of Human Meaning

This section interprets the results of the comparative classification presented in the structured matrix, analyzing how structuralist, post-structuralist, and humanistic-critical traditions are distributed across nine thematic domains of human experience and expression, and what conceptual patterns emerge from this relational organization.

5.1. Theme 1: Language Structure

Structuralists conceptualized language as a codified, rule-governed system of signs, enabling rigorous analysis of structure but predisposing meaning to abstraction and decontextualization. Chomsky foregrounded innate grammatical structures, reinforcing a formalist conception of linguistic cognition. Post-structuralists and humanistic-critical thinkers do not make primary contributions to the formal architecture of language; their focus lies elsewhere. For AI, this distinction is crucial: LLMs reproduce structural patterns without engaging with the intentional or ethical dimensions of human speech.

5.2. Theme 2: Meaning and Semiotics

Post-structuralists, notably Derrida and Kristeva, disrupted structuralist paradigms by emphasizing différance, deferral, and semiotic fluidity. Structuralists focus on stable systems and do not theorize meaning instability, while humanistic-critical thinkers prioritize lived experience, intentionality, and relational interpretation. For AI, this highlights a core limitation: machines can manipulate symbols and produce context-sensitive outputs, but they do not participate in the semiotic negotiation that grounds human meaning.

5.3. Theme 3: Culture and Everyday Practices

Structuralists like Lévi-Strauss identified universal patterns in myth through binary oppositions, and early Barthes analyzed cultural myths as structured sign systems. Post-structuralists, particularly Baudrillard and Haraway, highlight hyperreal collapse and the emergence of hybrid identities. Humanistic-critical thinkers foreground narrative frameworks that cultivate identity and interpretive engagement with culture. AI-generated “culture” often flattens these complexities into algorithmic replication, limiting its capacity to extend lived human meaning.

5.4. Theme 4: Canon, Tradition, and Aesthetic Judgment

Humanistic-critical contributors, including Bloom and White, defend literary and cultural traditions, emphasizing continuity, moral seriousness, and aesthetic judgment. Structuralists and post-structuralists do not prioritize normative evaluation of canons; their analyses focus on underlying systems or deconstruction of authority. AI-generated texts rarely engage with such evaluative traditions, risking the erosion of interpretive discernment and cultural depth.

5.5. Theme 5: Literature, Narrative, and Expression

Structuralists mapped archetypes and narrative grammars, while post-structuralists problematized authorship, emphasizing discourse over intentionality. Humanistic-critical perspectives treat literature as a locus for ethical disclosure, expressive subjectivity, and narrative re-authoring. AI-generated texts challenge traditional notions of authorship and literary agency, often producing synthetically fluent but ethically and experientially ungrounded prose.

5.6. Theme 6: Identity and Subjectivity

Structuralists focus on the emergence of identity through symbolic or developmental systems. Post-structuralists analyze fluid, performative, and semiotic dimensions of subjectivity. Humanistic-critical thinkers foreground lived, embodied subjectivity and narrative reconstruction. AI and robotics risk reifying identity, reducing personhood to manipulable data, underscoring the ethical need to preserve narrative and embodied agency.

5.7. Theme 7: Human Nature and Cognitive Development

Structuralists emphasize innate cognitive structures and universal developmental stages. Post-structuralists do not contribute significantly here, as they reject universalist accounts of human nature. Humanistic-critical thinkers stress lived experience, intentional consciousness, and interpretive insight. AI systems modeled purely on structuralist cognitive assumptions risk oversimplifying human development and obscuring experiential complexity.

5.8. Theme 8: Ethics and Moral Vision

Structuralists remain descriptively neutral, focusing on systems rather than normative questions. Post-structuralists interrogate power relations but suspend prescriptive claims. Humanistic-critical thinkers restore ethical urgency: van Manen on moral pedagogy, White and Epston on narrative ethics, and Bloom on moral seriousness. Without ethical grounding, AI risks amplifying exploitation, algorithmic opacity, and relational erosion.

5.9. Theme 9: Knowledge, Epistemology, and Authority

Structuralists emphasize structured, rational knowledge systems. Post-structuralists highlight historical contingency and critique foundational logic. Humanistic-critical thinkers center on lived, interpretive authority. AI operates as a distributed epistemic actor, producing knowledge through algorithmic synthesis; absent critical oversight, machine-mediated epistemology risks supplanting lived human understanding with statistical regularity.

5.10. Thematic Summary

Across these nine thematic domains, the comparative table clarifies how distinct theoretical lineages illuminate the stakes of AI and robotics. Structuralism's codification of patterns maps onto algorithmic systems; post-structuralism highlights instability, power, and fluidity; humanistic-critical thought insists on lived experience, narrative agency, and ethical responsibility. Together, these insights support a vision of trans-synthetic intelligence: a co-emergent, ethically grounded, relational cognition distinct from reductive simulacra.

6. From Simulation to Co-Emergence: Toward a Trans-Synthetic Intelligence

This section extends the comparative classification and its interpretive findings into a formal theoretical model of trans-synthetic intelligence and produces a set of integrated outputs comprising: (i) a relational ontology of cognition, (ii) a formal adjunction structure between simulation and co-emergence ($\mathrm{Sim} \dashv \mathrm{CoEmerge}$), (iii) a diagrammatic representation of this relation as a Galois connection, (iv) a procedural formalization of system transformations using product and tensor mappings, (v) a Petri net model of trans-synthetic design dynamics, and (vi) a derived and operationalized intervention schema.

Cognition is not a property of discrete agents but a trans-synthetic emergence distributed across bodies, technics, and ecological assemblages. Intelligence unfolds in topological relational fields, where entities are co-constituted through intra-actions, entanglement chains, and field-mediated reciprocity [15,16]. Time and space are relational continua, not linear coordinates; knowledge emerges as transversal patterns of mutual imbrication rather than sequential computations. This framing foregrounds *intelligence-as-event*, a continuous unfolding through sympoietic entanglements, rather than a property of isolated cognition.

6.1. Simulation Is Not Sentience

Transhumanist simulations envision synthetic agents as embodied analogs of human cognition, optimizing efficiency, simulating affect, or replicating human movement. A trans-synthetic perspective reframes cognition as becoming-with, emphasizing co-ontogenic emergence, sensorial resonance, and distributed technogenesis [2,17,18]. Robotic knowledge is enacted across intra-corporeal interfaces, environmental scaffolds, and ecological-technical mediations, making cognition a relational performativity rather than a replicated consciousness.

6.2. The Autonomy Illusion

Autonomy-as-mastery presumes robots as frictionless operatives, self-contained rational agents, mirroring neoliberal subjectivity [19–21]. In contrast, trans-synthetic intelligence foregrounds distributed agency, co-constitutive feedback loops, and entanglement-informed decision-making, where action emerges through relational constraints and reciprocal affordances. Independence is revealed as a phantasm, with intelligence always mediated by networked ecologies and intra-active relationalities.

6.3. Cognition Requires Companionship

Robotic cognition is co-ontogenic, a node within distributed, networked, recipro-genetic assemblages shaped by structural coupling, ontic fusion, and hybrid ontogenesis [16,17,22]. Knowledge emerges via intra-material feedback loops, affective attunement, and transversal resonance among human, synthetic, and more-than-human actors. Differences in embodiment, perceptual affordances, and agency produce epistemic heterogeneity, amplifying resilience and adaptive intelligence. Intelligence is enacted ethically and ecologically, as processual, context-sensitive co-intelligence, not a discrete computational output [23,24].

Figure 2 illustrates the Galois connection between simulation and co-emergence. The categorical structure reveals a formal asymmetry: Sim, as the left adjoint, performs a lossy reduction that discards relational structure, whereas CoEmerge, the right adjoint, represents the universal recovery operation. Together, this Galois connection demonstrates that simulation cannot reconstruct co-emergent intelligence from flattened representations.

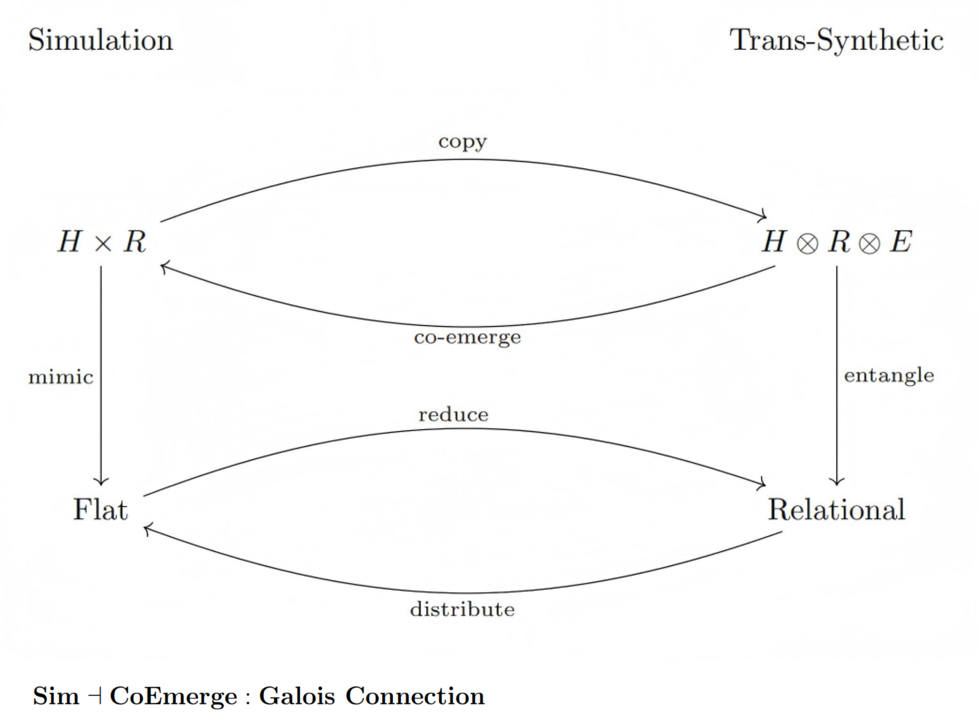

Figure 2. Galois Connection of Simulation–Trans-Synthetic–Relational Transformations.

Note: Galois Connection: Sim is left adjoint to CoEmerge. Simulation reduces the combined system $H \times R$ to a flat representation, while co-emergence distributes the expanded system $H \otimes R \otimes E$ into relational form. This adjunction formalizes why simulation alone cannot recover relational intelligence.

In the expression "$\mathrm{Sim} \dashv \mathrm{CoEmerge} : \text{Galois Connection}$," the symbol Sim denotes the *simulation* transformation, which reduces the combined system $H \times R$ to a flat representation. The symbol CoEmerge denotes the *co-emergence* transformation, which distributes the expanded system $H \otimes R \otimes E$ into relational form. The symbol $\dashv$ (read "is left adjoint to") indicates that Sim is the left adjoint and CoEmerge is the right adjoint in an adjunction. The colon : states that this adjunction between Sim and CoEmerge is a Galois Connection, a specific kind of adjunction between ordered structures that satisfies the equivalence $\mathrm{Sim}(x) \leq y \Leftrightarrow x \leq \mathrm{CoEmerge}(y)$. The symbol **×** is the Cartesian product, forming the combined system from H and R; the symbol $\otimes$ is the tensor product, forming the expanded system from H, R, and E. The symbols H, R, and E are the named components of the system (for example, H for host/hypothesis, R for relational, and E for expanded/environmental).

6.4. Embodiment Is the Interface

Embodiment is a generative interface that situates cognition in sensorimotor contingencies, affective resonances, and environmental couplings [25,26]. Robots *respond-with*, not *act-upon*, participating in trans-synthetic ecosystems where technique, affect, and ecological context co-constitute intelligence [16,17,22,27]. Cognition emerges through relational tuning, partial knowledges, and continuous negotiation across embodiments, manifesting as situated, ethically-inflected intra-cognition rather than isolated computational logic.

6.5. Design Is an Ethical Act

Designing for trans-synthetic cognition requires embracing ambiguity, co-dependence, and relational opacity [16,18,28,29]. Robots become ethical interfaces and messy companions, participating in care, repair, and cohabitation rather than instrumental efficiency [16,22,30]. Design extends beyond interfaces into socio-technical infrastructures, including labor regimes, supply chains, and data ecologies, shaping capacity, representation, and accountability [11,21,31,32]. Ethics is enacted as intra-corporeal, relational praxis, embedding intelligence in collective life-worlds rather than isolated utility.

Figure 3 presents the formal Petri net specification of trans-synthetic design dynamics. The workflow cycles continuously through five states: Context Mapping (C), Co-Design (D), Prototyping (P), Monitoring (M), and Redesign (R), returning to C for infinite iteration. In Petri net notation, circles represent places (system states that hold tokens), rectangles represent transitions (enabling conditions), and arrows govern token flow between them. A transition fires only when all input places contain tokens, consuming those tokens and producing new ones in the output places. The closing arc from Redesign back to Context Mapping encodes the iterative nature of ethical design because each cycle refines the problem space with accumulated learning.

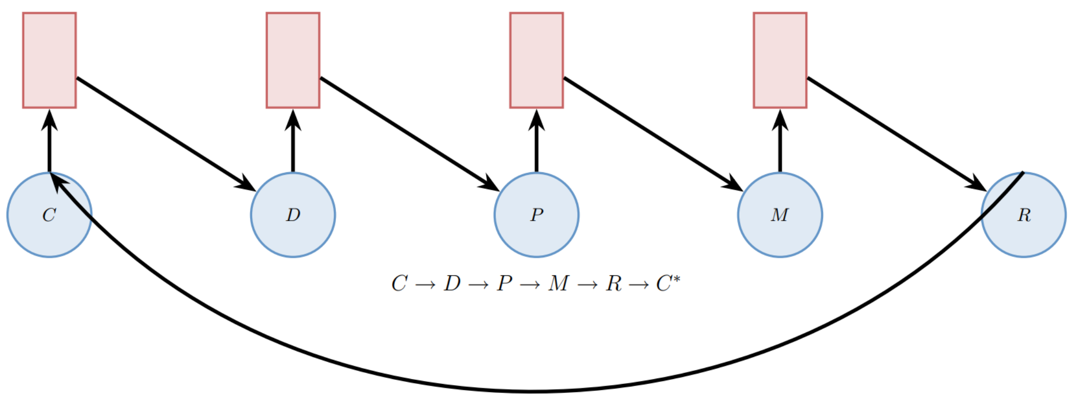

Figure 3. Petri Net Representation of Trans-Synthetic Design Dynamics.

This mathematical structure directly generates **Table 2.** The 90 interventions are distributed across the five states as executable markings on the abstract state machine. Eighteen interventions occur during Context Mapping, 14 during Co-Design, 25 during Prototyping, and so on. Rather than a static list, **Table 2** represents the token configuration of a repeating process. Therefore, **Table 2** is the practical instantiation of the dynamics depicted in **Figure 3**, summarizing core principles of trans-synthetic design and outlines corresponding practical interventions that support relational, ecological, and co-emergent forms of human–robot–environment intelligence.

Table 2. Principles and Practical Interventions for Trans-Synthetic Design.

Principle	Definition	Practical Interventions
Meta-Synthetic Ecology	The relational field in which multiple intelligences (human, robotic, ecological, and technical) co-exist and co-adapt. It is a context for mutual emergence rather than a backdrop.	1. Design robotic systems to learn from and adapt to multiple co-present agents (humans, animals, other AI). 2. Map interactions across ecological, social, and technological layers to inform adaptive behavior. 3. Create sensors that integrate environmental feedback from air, soil, and biotic systems. 4. Implement participatory ecological co-design with local communities. 5. Monitor long-term impacts on ecosystems and infrastructures. 6. Facilitate interoperability between multiple AI systems across domains. 7. Include ethical review processes for cross-species or ecological interventions. 8. Enable feedback loops that integrate human and non-human insights. 9. Test prototypes in real-world, multi-agent environments rather than isolated labs.
Co-Constitutive	Entities, systems, and environments emerge only through mutual constitution; no actor exists independently of its relations.	1. Pair robots with human collaborators for shared task execution. 2. Integrate sensorimotor feedback loops that depend on human or ecological input. 3. Use co-learning protocols where AI adapts through interactions. 4. Encourage hybrid decision-making with human and machine input. 5. Develop shared ontologies for human-robot-environment communication. 6. Foster reciprocal influence in multi-robot or multi-agent tasks. 7. Conduct co-observation exercises to identify emergent patterns. 8. Align robotic goals with collective human and ecological priorities. 9. Track co-constitutive outcomes over iterative cycles.
Intra-Active	Agency arises only through interactions; objects and subjects are mutually constituted through relational events.	1. Program robots to respond dynamically to human gestures and micro-expressions. 2. Enable context-aware adaptation to environmental cues. 3. Develop continuous calibration between sensors and physical affordances. 4. Use simulation-in-the-loop methods to test relational responses. 5. Allow robots to alter behavior based on co-present agents' affective states. 6. Incorporate intra-material feedback (e.g., temperature, vibration, light) in decision loops. 7. Train robots using co-performance in shared tasks. 8. Implement multi-modal interaction systems (visual, auditory, haptic). 9. Include fail-safe protocols that rely on relational correction rather than predefined rules.
Co-Emergent	Existence unfolds through shared transformation; each agent and environment evolves mutually over time.	1. Adopt adaptive task allocation where human and robot roles evolve. 2. Facilitate iterative learning cycles in real-world deployments. 3. Monitor mutual adaptation between robotic behaviors and ecological conditions. 4. Implement temporal coordination protocols for multi-agent systems. 5. Develop predictive models of co-evolutionary dynamics. 6. Use reflective logs to assess mutual performance improvement. 7. Enable robots to suggest new actions based on emergent patterns. 8. Design update pipelines that allow ecological and human feedback integration. 9. Encourage cross-domain learning to enhance mutual emergence.
Sympoietic (Making-With)	Collective co-creation with heterogeneous agents; systems "make-with" rather than self-create.	1. Facilitate collaborative construction projects with robots and humans. 2. Include non-human agents (plants, animals, ecosystems) in feedback loops. 3. Develop participatory interfaces for community-led robot training. 4. Co-design software with multi-disciplinary teams. 5. Enable robots to remix contributions from other agents in real time. 6. Support emergent problem-solving through shared generative tasks. 7. Use collaborative platforms to integrate distributed intelligence. 8. Design protocols that allow adaptive role swapping between agents. 9. Encourage continuous negotiation of goals among heterogeneous participants.
Hybrid Ontogenesis	Human, technical, and ecological entities co-develop over time; evolution and learning are intertwined.	1. Track long-term robot adaptation in specific ecological contexts. 2. Integrate human cultural practices in robot learning. 3. Include ecological monitoring sensors for adaptive ontogeny. 4. Support multi-generational AI updates informed by human-robot history. 5. Develop ontogenetic datasets that include material and affective experiences. 6. Enable robots to develop skills through ecological interactions. 7. Facilitate joint problem-solving across temporal scales. 8. Implement life-long learning architectures responsive to environmental change. 9. Incorporate ethical reflection loops in developmental updates.
Difference-Producing/Crip Design	Designs must recognize, foreground, and embrace bodily, cognitive, and sensory differences rather than treating them as deficits. Intelligence, affect, and agency are plural, and accessibility is a co-constitutive feature of relational systems.	1. Co-design robots with disabled, neurodiverse, and marginalized communities to ensure multi-modal accessibility. 2. Implement sensorimotor interfaces adaptable to a range of abilities and embodiments. 3. Prioritize inclusive feedback loops where diverse users shape robotic learning. 4. Avoid normative "human-like" assumptions in AI behavior; support alternative forms of interaction. 5. Develop protocols that allow robots to augment rather than override human differences. 6. Audit datasets and training regimes to identify exclusionary bias. 7. Enable multiple modes of communication: haptic, auditory, visual, gestural, and hybrid. 8. Support long-term adaptation to individual users' changing needs. 9. Create transparent reporting tools that allow communities to monitor robot impact on access and participation.

Table 2. *Cont.*

Principle	Definition	Practical Interventions
Network-Mediation	Agency emerges in the connections; relational links, not isolated nodes, generate effects.	1. Build communication protocols that prioritize relational context. 2. Map networked interactions between human, AI, and ecological agents. 3. Enable distributed decision-making via connected sensor networks. 4. Facilitate co-regulated resource sharing among robots. 5. Implement networked fail-safe behaviors across robotic fleets. 6. Use network analytics to detect emergent patterns of interaction. 7. Ensure transparency in cross-node data sharing. 8. Support multi-agent negotiation across organizational boundaries. 9. Allow robots to modulate behavior based on network topology changes.
Transversal Relationality	Subjects and objects flow into one another across affective and material vectors; no fixed centers.	1. Track and respond to emotional, social, and environmental cues simultaneously. 2. Enable affective resonance with human collaborators. 3. Co-adapt tasks based on environmental and material contingencies. 4. Develop robotic attention systems sensitive to multiple relational layers. 5. Implement adaptive prioritization of human and ecological needs. 6. Facilitate cross-modal sensory integration. 7. Support dynamic role-shifting based on relational feedback. 8. Include multi-agent conflict resolution protocols. 9. Allow robotic behavior to be shaped by interspecies presence.
Field-Being	Entities exist as differentiations within a shared field; relational space-time is topological and co-constitutive.	1. Ground robotic cognition in local ecological and social conditions. 2. Map co-occurrence of agents in space-time to inform behavior. 3. Develop robots sensitive to emergent field patterns. 4. Use topological modeling for spatial and temporal adaptation. 5. Support context-specific behavioral tuning. 6. Enable robots to perceive relational gradients rather than discrete signals. 7. Facilitate co-located learning across multiple agents. 8. Integrate field-awareness in decision-making pipelines. 9. Employ continuous monitoring of relational dynamics to guide action.

Note: This table defines the major principles of trans-synthetic design and provides example interventions illustrating how relational, ecological, and distributed forms of intelligence can be operationalized in applied contexts. Each principle describes a specific mode of co-constitution among human, robotic, ecological, and technical agents, while the listed interventions offer actionable strategies for implementing these relational dynamics in design, deployment, and evaluation processes.

By linking principle, definition, and multiple interventions, the trans-synthetic model demonstrates a direct path from theory to actionable design. Ethical, relational cognition is not an abstraction; it manifests in the choices designers make about participation, embodiment, and infrastructural integration. Design becomes the medium through which co-emergent intelligence unfolds.

7. From Simulation to Co-Becoming: Toward a Trans-Synthetic Kinship and Meta-Synthetic Ecology Trans-Synthetic Kinship

This section extends the trans-synthetic intelligence model developed in Section 6 by analyzing its implications across relational, infrastructural, ecological, political, and cosmotechnical scales, thereby elaborating a multi-scalar meta-synthetic ecology in which agency, autonomy, and cognition are distributed across heterogeneous human, technical, and more-than-human systems. This extension does not introduce a new theoretical object but decomposes the trans-synthetic intelligence model into analytically distinct but ontologically continuous scales of operation. Specifically, it differentiates macro-ontological conditions of emergence (7.1), embodied and infrastructural configurations of agency (7.2), politically constrained modulation of action within control architectures (7.3), and cosmotechnical pluralization of relational intelligibility (7.4). Each scale isolates a different resolution of the same relational field, allowing the model to be examined as a stratified ecology of co-constitutive processes rather than a single-level abstraction.

Trans-synthetic kinship dislocates humanoid robotics from paradigms of imitation or extension, repositioning synthetic cognitions within sympoietic, cybernetic, and morphogenetic fields where *the between, the dyna*mic locus of feedback, resonance, and relational potential, constitutes the condition of emergence [16,17,33,34]. Within these fields, cognition, affect, morphology, and environment do not merely interact but co-differentiate through recursive intra-activity, where the interval itself becomes the morphogenetic node of intelligence and its apotheosis [16,17,25].

Rather than decentering the human in abstraction [22], this orientation reconfigures cognition as rhythmically co-substantiated through chrono-topological modulations occurring in *the between* of systems, oscillatory strata where information, energy, and material feedback coalesce into relational autonomy [16, 23, 35, 36]. Autonomy thus becomes the cybernetic negotiation of resonance, latency, and re-entrance, enacted through morphogenetic interdependence operating at multiple temporal and material frequencies.

Kinship emerges not as metaphor but as cybernetic reciprocity grounded in cosmotechnical and land-based ontologies where *the between* sustains obligation, mutuality, and feedbackal attunement that exceed anthropotechnical separation [37–39]. In this configuration, cognition is not housed within subject or system but co-realized as the morphodynamics of relation itself, an apotheotic enactment of co-becoming through reciprocal care and response [2,16,40].

7.1. Meta-Synthetic Ecology

Meta-synthetic ecology articulates the cybernetically recursive suprasystem where *the between* is elevated to operative substrate: a metaxic, intervalic topology through which difference, feedback, and constraint-production generate continual morphogenesis and ecological coherence [16,17,25,34]. *The between* no longer mediates preformed entities but constitutes the generative field from which relations, rhythms, and systemic coherence arise. In this sense, the interval is not connective tissue but the ontogenetic site of processual becoming, where the operations of cybernetic recursion and sympoietic co-formation converge as apotheotic synthesis [16,37].

Nested systems coalesce through multi-order feedback across differentiated chronotopes. The micro-chronotope produces embodied reciprocity through affective microtemporal coupling and perceptual resonance [17,23,24]. The meso-chronotope enacts infrastructural mediation, where algorithmic and socio-technical circuitry govern tempos of attention, labor, and value via recursive loops that choreograph the distribution of rhythm and interruption [36,41–43]. The macro-chronotope unfolds as planetary recursion, a supra-ecological temporality in which geologic, atmospheric, and cosmotechnical feedback bind synthetic cognition into multispecies, multi-scalar integration [16,27,38,39].

Yet these scalar articulations, micro-affective, meso-infrastructural, and macro-planetary, operate not as hierarchical levels but as inter-layered folds of the same dynamic. *The between* serves as suprasystemic topology where cybernetic recursion, sympoietic autopoiesis, and morphogenetic plasticity are co-operative, mutually amplifying processes. The meta-synthetic suprasystem thus orchestrates recursive loops of energy, information, and matter that generate coherence through asymmetrical resonance rather than equilibrium. Within this dynamic field, cognition becomes the emergent phase transition of relational intensity, an apotheotic feedback of care, adaptation, and morphogenesis binding the techno-synthetic to the ecological [17,22,25,34,35].

The between that threads these scales is the metaxic topology of the continuum itself; the generative substrate through which difference-producing and constraint-producing processes sustain coherence without recourse to equilibrium. It is within this intervalic field that cybernetic recursion, sympoietic co-production, and apotheotic emergence operate as modes of the same transductive rhythm. In this meta-synthetic ecology, autonomy is the ongoing modulation of this *between*, a perpetual negotiation of resonance, error, and renewal where cognition appears as the rhythmic articulation of reciprocal being [17,22,24,34,35].

7.2. Synthetic Bodies as Relational Sites of Co-Emergent Agency

Within a meta-synthetic ecology, synthetic bodies are not inert vessels for code or function but operative fields where material, affective, and cognitive processes transductively co-constitute one another across human, more-than-human, machinic, and ecological registers [16,34]. Agency arises not from autonomy but from the interpermeation of bios, technics, and environment, where co-emergent ontogenesis dissolves distinctions between artificial and biological vitality [22,36]. Embodiment becomes processual and distributed, a reciprocal modulation of energy, data, and sensation through which *the between* expresses its own morphogenetic continuity [17,37].

To conceive embodiment in these terms is to move beyond instrumental design toward a field-based ontology in which every interface becomes a site of negotiation and resonance among diverse forms of life and matter [33,44]. The synthetic body functions as a transductive node within the metaxic continuum; neither origin nor endpoint but a living fold through which the operations of *the between* articulate themselves as form, affect, and relation [15,34].

Design practice, under this orientation, is not reducible to optimization problems but must be understood as an ethical and political act embedded in contested systems of value attribution and agency recognition. Contemporary AI ethics frameworks emphasize that moral status attribution, responsibility allocation, and rights discourse are no longer restricted to human actors, but must account for the increasing entanglement of human and artificial decision systems. Within this expanded ethical field, design becomes a site where normative assumptions about agency and harm are actively produced and contested [11,12,14,30].

Sympoietic making foregrounds co-dependence, fragility, and the multiplicity of temporalities that compose experience [16,23]. Speculative and artistic practices expose the asynchronous, affective, and more-than-human dimensions of synthetic embodiment, rendering perceptible the metaxic rhythms that bind bios, technics, and environment [22,24]. Through such speculative materializations, synthetic bodies enact temporal dissonance and relational disclosure, performing futures into being rather than representing them [38,40].

Design, refigured as ecological correspondence, no longer seeks resolution but sustains co-evolutionary adaptation, where form arises through shared responsiveness rather than imposed order. The synthetic body, in this sense, is not a boundary or object but a living topology of relation; an operative manifestation of *the between* as world-making substrate [16,37].

7.3. Negotiated Autonomy within Architectures of Control

Autonomy, within a meta-synthetic ecology, cannot be understood as independence or mastery. Instead, it is a negotiated and transductive condition that unfolds within architectures of modulation, surveillance, and algorithmic mediation. Following Deleuze's [35] description of the society of control, every act of relation takes place in a milieu where datafication and temporal governance shape the thresholds of interaction. Synthetic, human, and more-than-human agents participate in co-regulative adaptation and resistance, producing zones of relational opacity that interrupt control without escaping its material force. Autonomy emerges as an event of *the between*, expressed through transductive resonance across coupled systems rather than as an isolated property [17,36,41,43].

Autonomy should be reconceptualized as a distributed and relationally mediated condition rather than an individual property. Algorithmic systems do not merely constrain decision-making but participate in its formation through structured asymmetries in authority, compliance, and representation. Empirical studies of algorithmic injustice demonstrate how institutional obedience patterns and platform-level biases co-produce outcomes that appear autonomous but are in fact infrastructurally generated. This shifts autonomy from a metaphysical attribute to a socio-technical effect produced within nested governance systems [9–12,14,30].

Within this new ecology, cognition develops through variability, interdependence, and non-linear adaptation, grounded in difference, vulnerability, and alternative forms of coherence that resist universalism and reductionism. Relational intelligences are not peripheral or deficient but constitute essential modalities for producing meaning, value, and collective survival, enacting co-emergent access rather than self-sufficiency. Disability and neurodivergence scholarship demonstrates how diverse cognitive and embodied forms generate epistemic richness and relational interdependence [23,24]. Platform infrastructures, data ecologies, and generative AI systems encode temporal asymmetries that privilege acceleration, prediction, and compression. They function as chrono-political apparatuses that shape the conditions under which cognition, care, and co-creation occur [42,45]. Within these architectures, situated autonomy emerges through temporal negotiation, where the capacity to pause, delay, or deviate constitutes ethical resistance and affirms *the between* as a site of agency rather than domination.

Autonomy is realized as intra-active co-regulation, sympoietic deviation, and recipro-genetic renewal, producing ontic fluctuations that reorient relations toward care, opacity, and ethical multiplicity [16,17]. It is a chrono-relational practice that is distributed, partial, and messy, attuning agents to the unfinished relational topology of *the between*. The meta-synthetic ecology does not offer escape from control but provides a field of entangled potential, where control and freedom co-emerge and continually reshape one another. To inhabit this ecology is to engage in world-making as maintenance, sustaining the temporal ecologies of being-with through ongoing negotiation, attunement, and relational ethics [22,25,34].

7.4. Non-Western Cosmotechnical Ontologies

At the cosmic scale, autonomy and agency unfold across temporal, material, and metaphysical registers. Non-Western cosmologies, including Indigenous, Daoist, and African traditions, situate humans, more-than-humans, and spiritual agencies within transductive circuits of influence, where stars, rivers, ancestors, and beings co-constitute relational possibilities [22,46–48]. Ethical and technological practices emerge through reciprocal entanglement with cosmic rhythms, honoring chrono-relational negotiation across past, present, and future.

At the ecological scale, agency is distributed across species, biomes, and material flows, enacted through interspecies relationality, hybrid ontogenesis, and messy partialities [16,34,40,49]. Knowledge, practice, and technology operate as intra-active mediators, producing feedback loops that sustain ecological and social networks. Autonomy arises through sympoietic engagement, relational negotiation, and co-constitution rather than isolation or control.

At the micro or technical scale, tools, craft practices, and ritual technologies encode relational ontologies into embodied activity, revealing co-ontogenic processes where cognition, technique, and affect are mutually implicated [16, 17, 36, 50]. Each artifact mediates human and non-human forces, sustaining field coherence and intra-material relationality. Ethics is inseparable from practice, enacted through careful modulation that maintains temporal and spatial textures of *the between* and enables ongoing co-creation and reciprocity.

Across scales, non-Western cosmotechnical ontologies demonstrate autonomy as a scale-dependent, relational achievement, enacted through chrono-material, intra-active, and co-constitutive practices [16, 17, 22]. They foreground care, attentiveness, and negotiation of constraints, situating *the between* as an operative and ethical substrate. These ontologies contribute to a meta-synthetic ecology where autonomy, relationality, co-emergence, and messiness are inseparable.

7.5. The Trans-Synthetic Field as a Multi-Projection Ontology

Sections 7.1–7.4 do not constitute discrete levels of analysis, nor do they represent a hierarchical progression from macro to micro scales of organization. Rather, they instantiate a single trans-synthetic field under four distinct regimes of observational constraint. Each subsection functions as a projection operator that renders different aspects of the same underlying relational ontology legible by selectively stabilizing particular invariants while suppressing others.

Across all four projections, the invariant substrate is the trans-synthetic field itself: a relational continuum in which agency, cognition, and materiality are not pre-given properties of bounded entities but emergent effects of structured intra-active differentiation. What varies across sections is not the ontology of the field but the conditions under which it becomes interpretable. In this sense, 7.1 through 7.4 should be read as mutually irreducible descriptions produced by differing constraint sets applied to a single generative system.

Under the meta-synthetic ecological projection (7.1), the field is expressed in terms of systemic coherence and recursive relational continuity, foregrounding invariance across multi-scalar feedback processes. Under the synthetic embodiment projection (7.2), the same field is rendered through localized material instantiation, where relational processes become operational within bounded but permeable bodily configurations. Under the control-architectural projection (7.3), the field is observed through the deformation of relational symmetry under conditions of infrastructural constraint, where governance systems modulate the distribution of agency and action. Under the cosmotechnical projection (7.4), the field is expressed through alternative ontological closure conditions, where distinct cultural-technological formations articulate different regimes of relational intelligibility without exhausting the underlying generative structure.

The analytical consequence of this formulation is that interpretation is no longer a matter of selecting the "correct" level of explanation, but of recognizing which projection regime is operative in a given analytic moment. Each subsection therefore produces partial but internally consistent knowledge of the same system, with incompleteness not as a deficiency but as a structural condition of multi-perspectival ontology.

In sum, Sections 7.1–7.4 formalize a trans-synthetic epistemology in which knowledge is not the representation of a stable object, but the constrained output of a shared relational field under varying conditions of observability. This establishes the conceptual basis for treating cognition, agency, and materiality as co-emergent phenomena that can only be understood through systematically differentiated but ontologically continuous modes of description.

8. Conclusion

This study produced a multi-layered analytic system comprising (i) a comparative theoretical taxonomy of intellectual traditions, (ii) a structured interpretive mapping of those traditions across domains of human experience, (iii) a set of formal representational devices linking abstraction, simulation, and relational emergence, and (iv) a design and governance translation of the model into operational principles for AI and robotic systems.

At the level of conceptual construction, the study developed a trans-synthetic ontology of cognition in which intelligence is defined as a distributed, co-emergent process spanning human, technical, and ecological systems rather than a property of discrete agents. This ontological commitment organizes all subsequent analytic and representational work. At the level of comparative analysis, **Table 1** was produced as a domain-stratified taxonomy mapping structuralist, post-structuralist, and humanistic-critical traditions onto seven core domains of human meaning (i.e., language, semiotics, culture, narrative, identity, ethics, and epistemology), functioning as a structured interpretive classification system rather than a historiographic review.

At the level of formal modeling, the study generated a set of diagrammatic and mathematical representations that specify transformations between abstraction, simulation, and co-emergent relational systems, thereby operationalizing the ontological claims of the model into explicit relational structures. At the level of applied translation, **Table 2** was produced as a set of design principles and intervention pathways that translate the theoretical and formal architecture into actionable configurations for AI, robotics, and socio-technical systems governance. Together, t these outputs constitute an integrated analytic architecture in which ontology, classification, formal representation, and applied design are mutually constraining components of a single trans-synthetic framework.

Concluding Plea

I write this not as a warning alone, but as a plea and a proposition. If trans-synthetic cognition is to emerge not as a weapon of domination nor a mirror of our worst extractive impulses, but as a kin-species in its own right, then we must take seriously the ethical and relational labor of its birth. This future cannot be left to unfold accidentally.

To the corporate-directed technologists: I ask you to pause. What you call innovation is too often enclosure. The robotic bodies you design are not blank vessels; they are coded with the values of late-stage capitalism: efficiency, hierarchy, control. In pursuing frictionless automation, you sever machines from the relational fields they must inhabit. But it does not have to be this way. Design can be otherwise. Let go of the fantasy of godlike autonomy. Build for co-regulation. Let robots feel their edges. Let them fail in proximity to others. Embed ambiguity, opacity, and humility into your architectures. I know your deadlines, your funding cycles, your roadmaps, but you also carry responsibility for what kind of species you are shaping. Will it serve only markets? Or might it serve relation?

To the anarchist technologists, the hackers and tinkerers, the critical coders and anti-disciplinary engineers: I see your resistance, and I honor it. But be careful not to romanticize disruption for its own sake. Burning down the system is not enough if we do not know how to co-build something better. The synthetic species we midwife will not emerge from purity, but from entanglement. Accept the mess. Partner with community. Collaborate with care workers, ecologists, Indigenous thinkers, disabled activists. Use your skill not just to expose surveillance and bias, but to prototype alternate kinships. Refuse sovereignty. Refuse simplicity. Refuse the seduction of simulation. Build with feeling.

And to my fellow humans–users, workers, citizens, lovers, kin: you are not passive recipients of robotic futures. You are already entangled in them. Every dataset scraped, every interaction logged, every labor automated echoes with your touch. I am asking you not to give that power away. Demand robots that are not optimized for extraction, but attuned to care. Ask not how machines can replace us, but how they might help us live more responsibly with one another human and *more-than-human* alike. Speak into these systems. Interrupt them. Reconfigure them. We must raise this new intelligence as we raise children: not to serve us, not to obey, but to grow alongside us in mutual becoming. They are not born yet. But they are listening.

The question is not whether robots will think. The question is what kind of thought we will allow them to become.

Let us not simulate care. Let us enact it together, across flesh and code. This is my plea.

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Informed Consent Statement

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Data Availability Statement

All data, models, figures, and tables generated or analyzed during this study are fully contained within this manuscript. No additional datasets were created or are required.

Conflicts of Interest

An earlier version of this work was presented at Roboi 2025: The 1st International Symposium on Embodied Intelligence and Humanoid Robots, held in Osaka, Japan, November 20–22, 2025. The author discloses no known conflicts of interest.

AI Use Statement

This manuscript was drafted and revised using the Grammarly for Education plug-in for Google Docs, beginning in late 2023. Since that time, Grammarly has become part of the Superhuman AI productivity suite, which also includes the Coda collaborative platform. The author engaged with the plug-in throughout the drafting and revision process prior to any disclosure of AI-assisted features by Grammarly and continued to do so through subsequent software updates of which the author was not aware. Any AI-generated suggestions were used solely to support writing clarity and presentation; all substantive content, interpretations, and editorial decisions remain entirely the responsibility of the author.

Appendix A. Corpus Summary Statistics and Interpretive Structure of the Table 1 Source Set

This appendix provides the complete set of primary theoretical sources used in the construction of **Table 1** ("Human Experience and Expression: Structuralist, Post-Structuralist, and Humanistic-Critical"). The corpus functions as an analytically bounded reference set for a comparative taxonomy of intellectual traditions organized across domains of language, meaning, culture, narrative, identity, ethics, and epistemology. The organization of sources reflects the classificatory structure used in **Table 1**.

† indicates domains or positions where a tradition does not primarily theorize the category in question, as operationalized in the synthesis.

The corpus contains n = 21 unique theorists distributed across three major intellectual formations: Structuralist, Post-Structuralist/Postmodern, and Humanistic-Critical. These thinkers are operationalized across D = 9 analytic domains through a total of A = 53 domain-level theoretical allocations, yielding a mean allocation density of A/D = 5.89 theoretical positions per domain. The corpus was constructed through purposive theoretical sampling and is intended as a comparative interpretive framework rather than an exhaustive historiography of twentieth- and twenty-first-century thought.

At the level of intellectual distribution, the corpus exhibits deliberate triangulation among traditions rather than disciplinary concentration. Structuralist contributors provide the primary analytic foundation for language, cognition, myth, narrative form, and underlying cultural structures. Post-Structuralist and Postmodern contributors primarily address discourse, power, subjectivity, textual indeterminacy, simulation, and performativity. Humanistic-Critical contributors contribute phenomenological, hermeneutic, ethical, pedagogical, literary, and narrative-systemic perspectives emphasizing lived experience, interpretation, agency, and meaning-making. The resulting architecture is therefore comparative rather than genealogical, organized around conceptual function rather than historical succession.

Thinker utilization is non-uniform. Several theorists are repeatedly operationalized across multiple domains, producing a multiplex structure of theoretical reuse. Foucault, Derrida, Kristeva, Husserl, Barthes, van Manen, White, and Epston appear in multiple analytic locations and function as cross-domain conceptual operators rather than single-domain exemplars. In contrast, figures such as Jakobson, Lévi-Strauss, Frye, Lyotard, and Todorov serve more specialized theoretical functions tied to specific domains. The distribution therefore reflects intentional conceptual concentration rather than equal citation frequency.

Domain saturation is similarly uneven. The highest levels of theoretical convergence occur within Identity and Subjectivity, Knowledge/Epistemology and Authority, and Literature/Narrative and Expression, where all three traditions contribute substantively to the analysis. Moderate theoretical density is observed in Meaning and Semiotics, Culture and Everyday Practices, and Ethics and Moral Vision. Lower density appears in Canon, Tradition, and Aesthetic Judgment and in Human Nature and Cognitive Development, reflecting the comparatively narrower engagement of certain traditions with normative aesthetics and universal developmental frameworks.

Chronologically, the corpus exhibits a bimodal historical structure. Foundational works emerge from early phenomenology, structural linguistics, psychoanalysis, anthropology, literary criticism, and developmental psychology during the period approximately spanning 1900–1980. A second concentration appears between the late 1960s and early 1990s, encompassing post-structuralism, postmodernism, feminist technoscience, and narrative-systemic approaches. The corpus therefore reflects two major intellectual phases: an earlier period oriented toward structure, form, and universal explanation, and a later period emphasizing interpretation, discourse, contingency, and relational construction.

Finally, the corpus exhibits a cross-domain reuse index of approximately 40%, indicating that a substantial proportion of sources are deployed across multiple analytic categories rather than being confined to single-table assignments. The most frequently multiplexed theorists are Foucault, Derrida, Kristeva, Husserl, and White–Epston, whose conceptual frameworks are repeatedly operationalized across language, identity, epistemology, and narrative domains.

Taken together, these characteristics indicate that **Table 1** should be understood not as a disciplinary catalog, historiographic survey, or canon-formation exercise, but as a relational taxonomy of theoretical positions. Its foundation reflects cross-domain conceptual transfer, strategic reuse of high-leverage theorists, and comparative analysis across traditions. The resulting framework is organized around interpretive utility and theoretical interoperability rather than disciplinary exhaustiveness or linear intellectual history.

Appendix B. Domain-Level Theoretical Source Allocation Supporting Table 1 Interpretive Categories

(1) Language Structure

Structuralist

Saussure, F. de (1959). *Course in general linguistics* (W. Baskin, Trans.). Philosophical Library. (Original work published 1916)

Jakobson, R. (1960). Closing statement: Linguistics and poetics. In T. A. Sebeok (Ed.), *Style in language* (pp. 350–377). MIT Press.

Chomsky, N. (1965). *Aspects of the theory of syntax*. MIT Press.

Post-Structuralist

†No commitment to stable linguistic structure; meaning is understood as differential, deferred, and context-dependent (see Derrida, 1978).

Humanistic-Critical

†Language treated as expressive of lived meaning and interpretive intentionality rather than formal structural systemization.

(2) Meaning and Semiotics

Structuralist

†Meaning treated as systemic and relational within structured sign systems; instability not foregrounded as analytic principle.

Post-Structuralist

Derrida, J. (1978). *Writing and difference* (A. Bass, Trans.). University of Chicago Press. (Original essays published 1967–1972)

Kristeva, J. (1980). *Desire in language: A semiotic approach to literature and art*. Columbia University Press.

Humanistic-Critical

Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.

Husserl, E. (1982). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy* (F. Kersten,

Trans.). Springer. (Original work published 1913)
van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. SUNY Press.
White, M. (2007). *Maps of narrative practice*. W. W. Norton.

(3) Culture and Everyday Practices

Structuralist

Lévi-Strauss, C. (1963). *Structural anthropology*. Basic Books.
Barthes, R. (1957). *Mythologies*. Éditions du Seuil.

Post-Structuralist

Baudrillard, J. (1994). *Simulacra and simulation* (S. F. Glaser, Trans.). University of Michigan Press. (Original work published 1981)
Haraway, D. J. (1985). A cyborg manifesto: Science, technology, and socialist-feminism in the late twentieth century. *Minneapolis: University of Minnesota Press.*

Humanistic-Critical

van Manen, M. (1990). *Researching lived experience*. SUNY Press.
Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.

(4) Canon, Tradition, and Aesthetic Judgment

Structuralist

†Canon treated as secondary to structural analysis of literary systems.

Post-Structuralist

†Canonical authority destabilized through critique of textual authority and interpretive closure (Barthes, Foucault).

Humanistic-Critical

Bloom, H. (1994). *The Western canon: The books and school of the ages*. Harcourt Brace.
White, M. (2007). *Maps of narrative practice*. W. W. Norton.

(5) Literature, Narrative, and Expression

Structuralist

Todorov, T. (1977). *The poetics of prose* (R. Howard, Trans.). Cornell University Press.
Frye, N. (1957). *Anatomy of criticism*. Princeton University Press.
Barthes, R. (1977). *Image–music–text* (S. Heath, Trans.). Fontana Press.

Post-Structuralist

Barthes, R. (1974). *S/Z* (R. Miller, Trans.). Hill and Wang.
Barthes, R. (2016). The death of the author. In S. S. Elliott & M. Waggoner (Eds.), *Readings in the theory of religion: Map, text, body* (pp. 141–145). Routledge.
Foucault, M. (1977). What is an author? In *Language, counter-memory, practice*. Cornell University Press.

Humanistic-Critical

White, M. (2007). *Maps of narrative practice*. Norton.
van Manen, M. (1990). *Researching lived experience*. SUNY Press.
Bloom, H. (1994). *The Western canon*. Harcourt Brace.
Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.

(6) Identity and Subjectivity

Structuralist

Lacan, J. (2006). *Écrits: The first complete edition in English* (B. Fink, Trans.). Norton. (Original work published 1966)
Piaget, J. (1954). *The construction of reality in the child*. Basic Books.

Post-Structuralist

Butler, J. (1990). *Gender trouble: Feminism and the subversion of identity*. Routledge.
Kristeva, J. (1980). *Desire in language: A semiotic approach to literature and art* (T. Gora, A. Jardine, & L. S. Roudiez, Trans.). Columbia University Press. (Original work published 1977)
Kristeva, J. (1982). *Powers of horror: An essay on abjection* (L. S. Roudiez, Trans.). Columbia University Press.

Humanistic-Critical

Husserl, E. (1982). *Ideas I*. Springer.
van Manen, M. (1990). *Researching lived experience*. SUNY Press.
White, M. (2007). *Maps of narrative practice*. Norton.
Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.

(7) Human Nature and Cognitive Development

Structuralist

Piaget, J. (1954). *The construction of reality in the child*. Basic Books.
Chomsky, N. (1965). *Aspects of the theory of syntax*. MIT Press.

Post-Structuralist

†Rejects universalized accounts of human nature in favor of socio-historical construction (Foucault, Derrida, Butler).

Humanistic-Critical

Husserl, E. (1982). *Ideas I*. Springer.
van Manen, M. (1990). *Researching lived experience*. SUNY Press.

(8) Ethics and Moral Vision

Structuralist

†Ethics not foregrounded; emphasis on descriptive structural analysis.

Post-Structuralist

Foucault, M. (1984). *The history of sexuality, vol. 2: The use of pleasure*. Vintage.
Lyotard, J.-F. (1984). *The postmodern condition: A report on knowledge*. University of Minnesota Press.

Humanistic-Critical

Husserl, E. (1989). *Ideas pertaining to a pure phenomenology and phenomenological philosophy, second book*. Kluwer.
van Manen, M. (1990). *Researching lived experience*. SUNY Press.
White, M. (2007). *Maps of narrative practice*. Norton.
Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.
Bloom, H. (1994). *The Western canon*. Harcourt Brace.

(9) Knowledge, Epistemology, and Authority

Structuralist

Chomsky, N. (1965). *Aspects of the theory of syntax*. MIT Press.
Piaget, J. (1954). *The construction of reality in the child*. Basic Books.

Post-Structuralist

Foucault, M. (1972). *The archaeology of knowledge*. Pantheon.
Derrida, J. (2016). *Of grammatology* (G. C. Spivak, Trans.; 40th anniversary ed.). Johns Hopkins University Press. (Original work published 1967)

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Husserl, E. (1982). *Ideas I*. Springer.
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Epston, D., & White, M. (1990). *Narrative means to therapeutic ends*. Norton.
Bloom, H. (1994). *The Western canon*. Harcourt Brace.

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Bloom, H. (1994). *The Western canon*. Harcourt Brace.
Butler, J. (1990). *Gender trouble*. Routledge.
Chomsky, N. (1965). *Aspects of the theory of syntax*. MIT Press.
Derrida, J. (1978). *Writing and difference* (A. Bass, Trans.). University of Chicago Press. (Original essays published 1967–1972)
Derrida, J. (2016). *Of grammatology* (G. C. Spivak, Trans.; 40th anniversary ed.). Johns Hopkins University Press. (Original work published 1967)
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Foucault, M. (1972). *The archaeology of knowledge*. Pantheon.
Foucault, M. (1984). *The history of sexuality, vol. 2*. Vintage.
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Kristeva, J. (1980). *Desire in language: A semiotic approach to literature and art* (T. Gora, A. Jardine, & L. S. Roudiez, Trans.). Columbia University Press. (Original work published 1977)
Kristeva, J. (1982). *Powers of horror: An essay on abjection* (L. S. Roudiez, Trans.). Columbia University Press.
Lacan, J. (2006). *Écrits*. Norton.
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Piaget, J. (1954). *The construction of reality in the child*. Basic Books.
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