

Book of Abstracts

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Meaning

Observed with social systems theory

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Meaning Becomes Fragile: The Fragility Paradox of Doubly Closed Communication

Where does meaning operate? In consciousness and in society, Luhmann answers — but also in the compositional zone where both intersect without merging. Von Foerster's (2003, p. 319) DS-composition shows that two mutually closed recursors — D and S — cannot be represented without self-intersection in the plane; their topology demands a third dimension. The torus is its representative: two independent circuits that cannot be traversed independently. What emerges in this doubly closed architecture is not a substance but an operative field — a repertoire of semantic markers, W_t , that carries the selectivity of communication (Arpasi, 2025). In Luhmann's (1997, pp. 44–58) terms, meaning is the difference of actuality and potentiality. The semantic marker repertoire is the eigenstate structure in which this form becomes operative: the markers are the determinate forms currently selected; their repertoire is the surplus of references beyond any given actualization. The question is not where meaning resides, but under what conditions it remains operative — and under what conditions it becomes fragile.

This paper develops the fragility paradox as a deductive theorem within a composition-theoretic framework in the Foerster-Luhmann tradition (Arpasi, 2025). The theorem states: in operatively closed social systems, there is a systematic relationship between apparent smoothness and actual vulnerability under pressure — and this relationship is not statistical but architectural. It follows deductively from two premises.

Premise 1 (Architecture): In doubly closed communication, the first closure connects communication to communication; the second modulates how the first operates — the system can observe its own rule of connection, provided the diallele is available (topology α). The two closures are orthogonal: the first runs “around the system,” the second “through it.” In von Foerster's own notation: $S = S(D(S))$ and $D = D(S(D))$ (von Foerster, 2003, p. 318). The formula becomes operative once D and S are read not as entities but as roles that operations assume: in execution, D drives communication while S emerges as an eigenvalue (the field); in second-order observation, the perspective reverses — D becomes visible as a constraint, S becomes observable as a state (Arpasi, 2025). This role reversal is the operative form of the second closure. In terms of meaning: the first closure sustains meaning-reproduction — ongoing selection from W_t ; the second closure sustains meaning-renewal — formation of new eigenbehavior that keeps the potentiality horizon open.

Premise 2 (Mechanism): Sedimentation can transform the semantic markers that carry the diallele into a petrified state; the second closure remains formally inscribed but can no longer be activated — topology σ replaces α . The transition is not gradual but topological: within σ , the difference between σ and α cannot be observed, because the very observation that would reveal it presupposes α . The deduction proceeds in four necessary steps. (1) When sedimentation petrifies the semantic markers that carry the diallele, the second closure loses its operative basis — topology shifts from α to σ . (2) Under σ , second-order observation of the rule of connection is excluded: the blind spot is structural, not situational. (3) Without second-order observation, no reflexive modulation — the rule of connection cannot be changed from within. (4) Without modulation, no adaptation to variation — the system operates on a rule that no longer fits, without the capacity to observe, let alone alter it. The consequence is fragility: not as an empirical tendency but as a deductive entailment. In the language of meaning: meaning-reproduction continues, but meaning-renewal fails — the actuality/potentiality horizon collapses to pure actuality.

The theorem requires a refinement: the dual condition. Sedimentation alone does not trigger the paradox. Two reductions must coincide. First, repertoire depletion: $|Wt| \approx |Range(f)|$ — the system genuinely possesses only the semantic markers it currently displays; no inert markers remain that could find new connections under changed conditions. Second, sedimented rule of connection: f is petrified, no longer modulable by the meta-functor F . Either reduction alone is harmless: a narrow rule of connection with a deep repertoire is the normal state of a specialized system (the inert markers wait); a heterogeneous field can sustain repertoire depth independently of f . Only when both coincide does the trap close: the system operates smoothly, appears stable — and has no capacity beyond what it currently shows.

The paradox, then, is not that stability can be fragile. It is that the depth from which a system could still operate under pressure — the adequacy of its reserve — eludes prospective determination. Two systems may appear identical in routine operation: same narrow rule, same few coupling types, same smooth performance. But one has $|Wt| \gg |Range(f)|$; the other has $|Wt| \approx |Range(f)|$. The difference becomes visible only under pressure, and then retrospectively.

This paper addresses the conference theme — “Meaning. Observed with ...” — by offering a composition-theoretic concretization of what Luhmann (1997) described as meaning’s self-regenerating medium. Luhmann showed that meaning regenerates through ongoing selection of determinate forms; composition theory shows how — through double closure and the dynamics of the semantic marker repertoire. The four modes the CfP identifies — meaning as observed, transformed, stabilized, and contested — find an operative grammar in this framework: vital semantic markers sustain observation;

sedimentation stabilizes meaning by withdrawing it from view; the role reversal S↔D transforms the rule of connection; and power contests meaning by blocking marker selection before it occurs (Arpasi, 2025). The fragility paradox specifies the pathological case: meaning-reproduction continues while meaning-renewal fails — the horizon collapses, and this condition is invisible from within.

A pilot coding of Apollo 13 mission communication (seven time windows, 146 minutes) provides an empirical counterprobe: a system with a narrow rule of connection but deep semantic marker repertoire that reactivated its second closure under crisis pressure — the counter-case to the theorem's prediction.

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Making the Future Observable: Anticipatory and Probabilistic Dimensions of Sense-Making in Public Policy Programmes

Public policy programmes do not merely respond to existing social problems. They also programme the future by constructing meaningful images of desirable states, defining the differences through which future change may become observable, and selecting interventions expected to increase the probability of achieving these states. This paper develops a systems-theoretical interpretation of public policy programming as a form of future-oriented sense-making. Drawing on Niklas Luhmann's theory of meaning and its further developments, it argues that the classical factual, temporal and social dimensions of meaning should be complemented by a stronger focus on the anticipatory and probabilistic operations through which future states are made meaningful and actionable in the present.

The central argument is that public policy programmes reduce uncertainty not by predicting the future, but by stabilising expectations about possible relations between present interventions, expected reactions and future effects. In this sense, programming is based on a constructed difference between the current state of a social system and an anticipated, desirable state. This difference makes future change observable: it defines what is to be changed, how this change may be recognised, and which causal pathways are considered sufficiently plausible to guide action. The future, therefore, is not simply imagined as an open horizon of possibilities; it is selectively structured through knowledge, experience, policy semantics, expert diagnoses and negotiated assumptions about probability and causality.

The paper links this argument to the logic of theory-driven evaluation and theories of change. In such approaches, programmes are built around assumptions concerning how specific interventions are expected to generate outputs, outcomes and broader structural change. A crucial element of this process is the anticipation of how programme recipients, stakeholders or target groups will observe and respond to interventions. Public policy programming thus entails second-order observation: it observes observers whose future reactions are expected to trigger further social effects. These anticipated reactions are then connected into causal chains that translate present decisions into probable pathways of future change.

The empirical reference is the European Capital of Culture Lublin 2029 programme, with particular attention to the programming of social resilience. Resilience is analysed not as a ready-made policy objective, but as a negotiated

semantic construct. Programme actors must define what social resilience means, which present vulnerabilities should be addressed, what future condition is desirable, how cultural interventions are expected to affect participants and communities, and how these effects may accumulate into broader structural transformations.

By foregrounding anticipation, probability and second-order observation, the paper contributes to systems-theoretical debates on meaning, decision programmes and governance under uncertainty. It proposes a stronger theoretical placement of the future within the theory of meaning. Future-making, in this perspective, is sense-making: a process through which unknowable futures are transformed into structured horizons of possible decisions, expected reactions, probable causal pathways and observable differences.

The Unveiling of Recursion: Niklas Luhmann and His Gorgon

This paper investigates operative recursion in Niklas Luhmann's systems theory as an epistemological limit-point of truth. Its central argument is that Luhmann's concept of recursion does not merely describe a logical or systemic structure, but points toward a fundamental horror of truth: truth no longer appears as a correspondence between observation and world, but as the effect of recursive communicative operations that no longer permit an external standpoint. Every observation is referred back to its own conditions and thereby enters into an endless movement of self-reference.

Truth thus acquires a paradoxical structure. The operative closure of recursive systems produces visibility only at the cost of new forms of invisibility. Observation necessarily generates blind spots. It is precisely here that the epistemological terror of recursion emerges: there is no ultimate observer outside communication. Truth loses its ontological grounding and appears instead as a contingent operation within self-referential systems.

The paper explores this problem from a communicological perspective and relates it to the figure of the Gorgon. The female fate figures of the Gorgons function not merely as mythological metaphors, but as epistemological figures of unobservability. Their gaze marks the point at which observation collapses back into its own opacity. The unveiling of recursion therefore does not lead to transparency, but to a confrontation with a truth that manifests itself only through operative blindness. The Gorgon thus embodies the horror of a truth without an outside position — a truth that does not terminate observation, but perpetually reproduces it.

Strategy Without Plans: Meaning, Observed Organizationally

Strategy Without Plans: Meaning, Observed Organizationally

Strategy and organization research has generated, over the past half-century, an exceptional plurality of perspectives on how organizations orient themselves under uncertainty. Each tradition, in its own idiom, points to something real; none answers the prior structural question that all of them presuppose: what internal conditions allow an organization to sustain the capacity to decide strategically at all. A field that multiplies analytical lenses can reproduce inside organizations the very disorientation that strategy is supposed to overcome.

This paper reconstructs the minimal architecture of decision-premise domains required to account for the conditions under which organizational decision communication remains coherent, revisable, and connectable over time. The reconstruction follows the internal logic of Luhmann's framework through three theoretical moves. The three dimensions of meaning yield three domains: temporal orientation, operational programming, and organizational coordination. The system-environment distinction forces two further domains: environmental coupling and resource viability. The self-referential requirements of autopoietic reproduction force a sixth: reflexive governance. The reconstruction arrived at six not because six was anticipated but because each move disclosed a class of structural problems that no earlier move had resolved, and when the logic had been applied in full, no such class remained unaccounted for. The number is a finding, not a decision.

The paper makes two contributions to the conference theme. First, the three dimensions of meaning are analytically necessary but structurally insufficient for accounting for organizational decision connectivity: the system-environment distinction and the conditions of autopoiesis force distinctions that meaning dimensions alone cannot supply. Not an extension of the three-dimensional architecture, then, but a demonstration of where its application to autopoietic organizations compels the observer to move beyond it. Second, the sixth domain, reflexive governance, is the organizational form of second-order observation: not a managerial capability but a structural condition, comprising the decided premises through which organizations take their own premise configuration as an object of decision rather than merely as its condition. Strategy without plans is, at its most fundamental, an organization's ongoing, never-completed attempt to decide the future of its present decisions.

The Evolution of Organizational Semantics: Observed with the Distinction of System/Environment

Introduction: The Theoretical Task of "Post-Foregrounding" the Organization

In contemporary organizational studies, the fundamental question "what an organization is" has been largely bracketed. As research increasingly focuses on empirical "fields" or specific phenomena, the organization as a distinct system has become a self-evident premise, leading to a state where the concept of the "organization" itself has receded into the background (post-foregrounding). This paper identifies this situation as a critical "theoretical task": a lack of reflexivity regarding organizational models. To address this, we must re-examine the historical transition of organizational models by tracing the evolution of their semantics.

Methodology: Observing Organizational Recognition through Boundary Concepts

Adopting Niklas Luhmann's social systems theory, this study observes the history of organizational theory not as a mere collection of ideas, but as a series of transitions in descriptions. The central thesis is that the evolution of organizational semantics is fundamentally determined by how the "boundary" between the system and its environment is perceived by the theory. By focusing on the distinction of system/environment, this paper clarifies how the theoretical recognition of organization has shifted in response to changes in industrial structure.

The Semantic Evolution of Organizational Models Based on the transition of organizational boundaries, this paper traces the evolution of organizational semantics through the following phases:

1. The Instrumental Model (Fixed Boundaries): In the era dominated by mass production, organizations were recognized as instruments for achieving specific goals. The semantic centered on "fixed and stable boundaries" to ensure internal order. Here, the organization was observed as a tool-like system where internal complexity was subordinated to objective-oriented structures.
2. The Adaptive Model (Transparent Boundaries): As the environment became more complex, the semantic shifted toward "environmental adaptation." While this model introduced openness, the boundaries became increasingly transparent. This led to a conceptual diffusion where the system's entity

became a mere reflection of environmental demands, contributing to the current "post-foregrounding" of the organization.

3. The Meaning-Constituting Model (Dynamic Boundaries): To resolve this theoretical stagnation, this study proposes a reconstruction of the organizational model. Following Luhmann's principle that operational closure is the very condition for cognitive openness, it redefines the organization as a meaning-constituting (sinnkonstituierend) system. In this model, the system boundary is not a static enclosure but is dynamically re-drawn through a recursive network of decisions. This shift allows us to observe how the organization maintains its autonomy precisely by translating environmental complexity into its own decisional meaning, thereby "weaving" a unique organizational order.

Conclusion: Reconstructing the Basic Concept of Organization

The current theoretical absence can be overcome by recognizing these shifts in organizational semantics. This analysis allows us to move beyond the "information processing" paradigm toward a meaning-constituting (sinnkonstituierend) view, where the organization is observed as a process of meaning-weaving (Sinnverarbeitung/Sinnkonstitution) through the distinction of system and environment. By re-establishing the "Basic Concept of Organization" as a dynamic system of communication, this study restores the organization as a central subject of theoretical inquiry.

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Forms in Movement and Motor Learning

Presentation co-presented by Swen Koerner, Benjamin Bonn & Mario S. Staller

The body as a key reference for social and individual aspirations does not have a prominent place in system theory – although corporeality is seen as a general “premise for social life” (Luhmann, 2012, p. 334; translated by authors). Contrary to the experience of the body as a whole and movement as an intentional mechanism to interact with the environment, the system theoretical distinction of social, psychic and biological systems (Luhmann, 2012) draws clear lines on the addressability of the body. Conversely, body-related interpenetrations become an interesting starting point for the analysis of behavioral coordination regarding movement and motor learning.

Sport science has not developed a proper theoretical understanding of how body-related operations process meaning based on a system theoretical concept of meaning. At the same time, different theoretical lines reflecting on motor learning offer different perspectives on the (meaningful) relationship of body, movement and motor learning, especially, in reference to cognition and ecology. For example, the focus then is on the cognitive structures to process information (e.g., Voigt et al., 2025) or on the interaction between organism and ecology (e.g., Renshaw et al., 2022; Renshaw & Chow, 2018). In both cases, motor learning is seen as a functional process of adaptation, although located differently and apparently without an explicit theory of meaning. And in both cases the concept of information seems to differ from a system theoretical understanding of information as a system’s internal selection. We assume that a clarification of movement as meaningful operation based on a system theoretical concept of meaning is promising for both, sport science and system theory development.

This presentation aims to refine a system theoretical observation of movement as an operation and motor learning as a reference to both, psychic and social systems, based on a system theoretical concept of meaning. By comparing cognitive and ecological approaches to motor learning, we analyze how both approaches observe movement as meaningful and, subsequently, we reflect on movement as a meaningful operation based on a system theoretical point of view. In line with this, the question is how movement operates through the distinction between actual and potential. The application of three dimensions of meaning (Luhmann, 2012, 2015) is used to illustrate the analysis; at the same time, their extension offers leeway to discuss the specification of movement as

a meaningful operation. This submission therefore strives to inspire further theorization of body, movement and motor learning in the context of meaning based on system theory. After all, a system theoretical understanding of movement besides the body as topic in communication (e.g., Bette, 1999; Körner, 2008) is a blank space in sport science. The specification of central concepts in sport science based on system theory may equally point out further avenues for theory development.

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Silent Avoidance: A Systems-Theory Explanation of Advisor Behavior Under ESG Ambiguity

Financial advisors operate within the medium of meaning, using distinctions and interpretations to direct clients, justify recommendations, and transact business. They also occupy a paradoxical position in the modern investment landscape. Financial advisors are encouraged to incorporate clients' environmental, social, and governance (ESG) values into recommendations, yet the financial system demands measurable and defensible outcomes. This tension is not a minor inconvenience but a structural contradiction that contemporary research has neither adequately problematized nor resolved. The resulting decision environment is marked by semantic instability, regulatory ambiguity, and conflicting stakeholder expectations, all of which compound advisor cognitive overload. Contemporary advisory practice is therefore not only the transmission of objective information but also the continuous processing of meaning, in which advisors must select certain possibilities, exclude others, and reconcile expectations under conditions of uncertainty and ambiguity.

Within this context, this article introduces silent avoidance as a system-level behavioral response in which advisors neither reject ESG nor significantly engage it but instead default to traditional financial products without overtly acknowledging the omission. Drawing on Luhmannian Systems Theory, stakeholder theory, and ESG scholarship, the article argues that silent avoidance is a rational adaptation to a polycontextural environment in which competing functional systems generate cognitive overload and irreconcilable expectations. With ESG, authoritative simplification constricts advisors' meaning horizon by reducing complex, polycontextural distinctions into a limited set of categories that may neglect or ignore stakeholder values.

This conceptual contribution reframes low ESG adoption not as an individual behavioral action but as a predictable outcome of systemic misalignment. The article outlines the sources of this misalignment, develops the theoretical framework underpinning silent avoidance, presents a systems-level model of its mechanisms, and discusses implications for theory, practice, and future research.

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Meaning without Alternatives? Functional Absurdity and the Procedural Stabilization of Democracy

Modern democracies are commonly described as systems of structured disagreement. This paper argues that they increasingly stabilize not through substantive contestation, but through procedural alignment under conditions of rising contingency pressure. Drawing on Luhmannian systems theory, it conceptualizes meaning (Sinn) as the medium through which political systems process contingency by distinguishing between actual and possible alternatives.

The paper demonstrates that democratic meaning-making is undergoing a structural shift: justification-oriented communication—centered on argument, evidence, and the explicit articulation of alternatives—is progressively displaced by implementation-oriented modes organized around goal alignment, narrative stabilization, and the semantics of “no viable alternatives.” This shift reconfigures the factual, social, and temporal dimensions of meaning such that contingency is no longer unfolded but selectively reduced. Legitimacy correspondingly shifts from argumentative justifiability to procedural conformity and alignment with dominant interpretive frameworks.

To explain this transformation, the paper develops a multi-level model. At the macro level, it contrasts two architectures of democratic contestation: a justification-oriented mode based on second-order observation and open alternative construction, and an implementation-oriented mode characterized by narrative closure and constrained alternative horizons. At the meso level, democracy is modeled as a PDCA learning system (plan-do-check-act), in which the critical corrective function (CHECK) becomes progressively formalized and loses its capacity for effective revision. At the micro level, the paper introduces a typology of social conformity—discursive, normative, identification-based, and bureaucratic—as mechanisms of expectation alignment between psychic and social systems.

Central to the argument is the concept of the conformity regime: an endogenous system configuration in which the corrective function of democratic processes is replaced by formalized, non-corrective feedback. Under conditions of dual contingency pressure—functional absurdity (incoherent normative signals and structural fragmentation) and functional chaos (uncertainty overload and loss of orientation)—conformity emerges as a structural solution that stabilizes meaning by reducing observable alternatives.

This stabilization, however, comes at the cost of diminished reflexivity, reduced policy reversibility, and the erosion of accountable judgment. The paper further develops the concept of post-conformity as the reflexive re-opening of stabilized structures through second- and third-order observation. Empirically, it outlines observable indicators of regime formation, including declining policy reversibility, the rise of “no-debate” semantics, and increasing homogenization of elite discourse.

Conformity regimes emerge when systems stabilize meaning by replacing corrective feedback with procedural alignment under conditions of dual contingency pressure.

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Stabilization through Instability: Ganymed as an Epistemic Instrument for Observing Meaning

This paper develops the dramatic fragment *Ganymed* (Steindor, 1974) as an epistemic instrument for second-order observation of the structure of meaning (Sinn) within Luhmannian systems theory. Rather than treating literature as an object of interpretation, the paper approaches the fragment as a medium that performs the operations it renders observable.

In *Ganymed*, the figures—Ganymed, Zett Stern (a “conjugate complex number”), and Psyche—do not produce narrative development but enact recursive meaning-processing under conditions of epistemic overload. Their interactions are characterized by circularity, self-interruption, and contradictory selections. Recurring motifs—such as the failure of description (“I cannot describe it”), the oscillation between part and whole, and the persistence of *Zwischenzeitlichkeit*—render observable the operative structure of meaning as the unity of actuality and possibility (Luhmann, 1984). Attempts at closure are continuously generated yet systematically undermined.

From a systems-theoretical perspective, this structure can be described as autopoietic: the system reproduces itself through its own operations. Each communicative act becomes the condition for further acts, creating a closed loop of recursive meaning-production. At the same time, *Ganymed* introduces a specific intensification. Whereas Luhmann emphasizes the reduction of complexity as a central function of meaning, the fragment demonstrates that stability can also emerge through the ongoing production and processing of instability.

This dynamic is conceptualized as stabilization through instability. Every attempt to fix meaning generates further contingency, thereby securing the connectivity of subsequent operations. Paradoxes—such as “I understand you / I do not understand you” or “part and yet whole”—are not resolved but maintained operatively. They function as conditions of continuation rather than problems to be overcome.

The paper argues that this micro-structural dynamic is not limited to psychic systems but has broader implications. It can be related to macro-social phenomena such as conformity regimes and the semantics of “no viable alternatives,” where stability is likewise achieved through recursive reproduction rather than substantive resolution.

Finally, the paper introduces the concept of epistemics as a form of artistic practice operating in continuity with systems theory. Epistemics does not aim

at representation or critique, but at rendering the conditions of meaning-processing observable. Within this framework, the fragment is not a deficient form but a privileged medium of second-order observation. The contribution thus directly addresses the conference theme “Meaning. Observed with ...” by demonstrating how meaning can be observed through its own performative unfolding.

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Verstehen as second-order observation

It is an undeniable fact that there are considerable differences between the program of Luhmannian systems theory and that of interpretive (*verstehende*) sociology with regard to their thematic focus, their characteristic reference points, and their level of abstraction. The clarification of the relationship between the two approaches, however, is hindered by the fact that their assessment is guided by well-known but misleading dichotomies (e.g. agency vs. structure, action theory vs. systems theory, interpretive vs. externalist description, “humanism” vs. “anti-humanism”), which typically locate the two programs on opposing poles of sociological theory construction and research practice (cf. Stichweh 2000). For those who recognize the depth of the phenomenological (and partly phenomenological-sociological) inspiration informing Luhmann’s work (Hagen 2011), who are aware that in his early phase he expected complexity theory to enable him to treat psychical and social systems within a unified theoretical framework (cf. Luhmann 1979: 5), who know that in his early writings he was concerned not with communication systems but with action systems (1964), and, most importantly, who recognize the enduring centrality of the concept of meaning his later work (1971, 1997), the claim that Luhmannian systems theory stands in certain respects remarkably close to interpretive sociology should not come as a surprise. Both approaches are programs of second-order sociological observation par excellence, thereby warranting a comparison that elucidates their similarities and differences with sufficient contrast.

After briefly outlining the fundamental hermeneutic and epistemological background of interpretation and observation, I turn to a discussion of the two approaches, with a focus on their disciplinary sociological aspects. At times, proponents of social systems theory and of the interpretive sociological metaparadigm pursue lines of inquiry that diverge, to varying degrees, from the original formulations of the theories. In order to compare both approaches in their conceptually most coherent form, the study treats systems theory in its Luhmannian variant, while interpretive sociology is represented by its most fully elaborated, phenomenologically oriented version, in the original form in which it was developed by Alfred Schütz (Havrancsik 2023a).

Following a brief exposition of the Schützian program of interpretive sociology, I turn to an analysis of the similarities and differences between the two theories. The discussion considers, among other aspects, the affinity stemming from a shared constructivist epistemological background

(Havrančsik 2023a: 343 ff., 2023b), their common self-reflexive character, and the central significance of second-order observation in both cases. In Luhmann, second-order observation is a central theoretical component of a research paradigm oriented toward the observation of observing systems. In Schütz, adherence to the concept formation paradigm of “second-order concepts” is proposed in order to ensure the descriptive validity of the analysis of social relations (Schutz 1962). Meaning functions as an instrument for addressing the constraints of selectivity in both theories. In Luhmann, meaning structures the selection of the actual operation from a horizon of possible alternatives within observing systems. In Schütz, meaning is the interpretation of the experiences of the pragmatically oriented individual actor, which structures the execution of action within the conditions of a biographically determined situation (Luhmann 1971, Schutz 1970). Both conceptions can be interpreted in terms of complexity processing (cf. Havrančsik 2026). Whereas Schütz—situating the analysis at the „micro” level of sociological inquiry—locates the reference of selectivity in the subjective attribution of meaning aligned with the individual actor’s relevance structures, Luhmann, by introducing a generalized concept of meaning extended beyond psychical systems to the domain of communication systems, seeks to model the micro- and macro-level processes of contingency management and complexity reduction within a single conceptual framework.

The study concludes with a partial critique of the Luhmannian concept of meaning. Viewed against the background of Schütz’s subjectivist theory, it becomes apparent that meaning establishment realized within the confines of the operational closure of consciousness posits a form of meaning constitution that is ontologically distinct from the one that is involved in the reproduction of communication systems (Havrančsik 2025). If this insight holds, Luhmann’s conception, which employs a single concept of meaning to account for both psychical and communication systems, cannot be maintained. From a standpoint that adheres to the principles of epistemological constructivism, this insight concerning the media of meaning cannot be dismissed by appealing to differences in levels of abstraction between the two theories.

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Deficiency as Guiding Distinction: How Dominant Approaches in Behavioral and Developmental Science Reduce Complexity, Encode Power, and Displace the Meaning-Making of Those They Purport to Study

When Langston, a Black high school senior, stood before the Secretary of Education in 1996 and said “You see me as you want to. If all you see is a stereotype, then you shall never know me” — he was naming, with precision, what this paper analyzes theoretically: the dominant linear, reductionist, and deficit-oriented approaches in behavioral and developmental science, organized not to describe human development but to systematically misread it in ways that serve dominant social interests while foreclosing the possibility of those they purport to stud.

This paper examines how the dominant linear, reductionist, and deficit-oriented approaches in behavioral and developmental science function as a meaning-production regime whose guiding distinctions — normal/abnormal, resilient/at-risk, regulated/disordered, successful/failing — operate not as neutral descriptions of developmental reality but as self-reproducing complexity reductions. These distinctions simultaneously serve the operational requirements of the science system and encode the power of dominant groups. From a Luhmannian perspective, they are semantically stabilized forms that reduce the radical contingency of human development into administratively manageable classifications — circulated across publication norms, funding logics, intervention architectures, and evidence hierarchies as authoritative knowledge, while foreclosing the very horizons of possibility that meaning, as Luhmann insists, must always hold open. The paper traces the ideological genealogy of these guiding distinctions through three converging traditions. First, as Valencia (2012) and Lee, Lerner, Gadsden, and Osher (2024) demonstrate, deficit thinking is a structured ideological apparatus with deep roots in Cartesian dualism, genetic determinism, and racial classificatory science — traditions that naturalize the developmental profile of dominant groups as the universal standard against which all others are measured and found deficient. Second, following Ryan’s (1971) analysis of victim-blaming logic, these dominant approaches systematically strip developmental context, locate deficiency in individuals, and treat structural and historical causes as empirical noise. Third, and most consequentially for a systems-theoretical audience, the reductionism operates across all three of Luhmann’s dimensions of meaning simultaneously: in the

factual dimension, substituting deficit classifications for the relational and ecological complexity that actually constitutes development; in the social dimension, encoding the ego/alter distinction in ways that naturalize dominant group perspectives as universal; and in the temporal dimension — perhaps most damagingly — collapsing the three scales through which development actually unfolds: micro-genetic time, ontogenetic time, and the generational, cultural, and historical time through which structural inequality accumulates and is transmitted (Lee et al., 2024). The result, as Spencer (2024) demonstrates for Black children and as parallel scholarship documents for Indigenous communities globally, is a science shaped by what Spencer terms the ‘functional Black inhumanity perspective’ (fBIP) — the persistent failure to fully accept the common humanity of racially different individuals — producing frameworks that code intergenerational structural harm as individual pathology while rendering the cultural embeddedness and relational constitution of development systematically invisible. Structurally coupled with a political economy organized around dominant group interests, the science system does not merely describe this distorted landscape — it actively reproduces it through what Cantor and Osher (2021) identify as the routinization and mystification of racist institutional logics. The guiding distinctions generated by these dominant approaches migrate into intervention architectures designed to fix individuals rather than transform conditions, producing cascading iatrogenic effects. Exclusionary discipline for Black students illustrates the mechanism precisely. When dominant behavioral science approaches code dysregulation and disordered conduct as individual pathology — stripped of relational, historical, and contextual constitution — schools respond with suspension and expulsion. The evidence is unambiguous: exclusionary discipline does not remediate the behaviors it targets; it produces academic disengagement, diminished learning opportunities, and accelerates trajectories toward the justice system, generating the failure outcomes the original classification predicted (LiCalsi, Osher, & Bailey, 2021; Osher, Woodruff, & Sims, 2002; Osher et al., 2022). Critically, the same behaviors are disciplined at dramatically different rates depending on the race of the student — revealing what the normal/abnormal distinction leaves unmarked: whose conduct is read as pathology is not a scientific finding but a social judgment, encoded in the science system’s guiding distinctions and amplified through structural coupling with racially stratified institutions. The system is, in Luhmannian terms, autopoietically self-sealing — its guiding distinctions generate interventions that produce outcomes that reconfirm those distinctions, independent of the intentions of any individual actor within it.

Against these dominant approaches, the Science of Learning and Development (Lee et al., 2024; Immordino-Yang et al., 2024; Rogoff, 2024; Deboeck et al., 2024; Ram & Gatzke-Kopp, 2024) — from a volume in which the author served as co-lead editor — represents a Copernican perturbation: a second-order challenge that makes these dominant approaches' observational blind spots visible and reframes complexity, relationality, and emergence as constitutive of development rather than noise to be reduced. Drawing on Rogoff's (2024) conception of development as a mutually constituting, fractal process flowing across individuals, generations, and cultures, the paper foregrounds temporal depth and relational embeddedness as analytically irreducible rather than variables to be controlled.

By bringing Luhmannian social systems theory into dialogue with SoLD, the paper contributes to the conference's concern with meaning as a dynamic medium of observation — demonstrating how the social organization of developmental observation shapes not only research design and educational policy but the very horizons within which young people come to understand competence, identity, belonging, and human possibility.

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Evaluative Sovereignty: Standards, Ideology and Differentiated State Positionality in Sovereign AI

Recent debates on technology sovereignty have moved beyond autarkic notions of self-sufficiency towards a relational understanding of state agency under global interdependence. Edler et al. (2023) define technology sovereignty as the capacity to access or provide critical technologies without falling into one-sided structural dependency, while Blind (2025) highlights standards as safeguards against lock-in, supply-chain vulnerability and technological dependence. These accounts usefully reposition sovereignty as an innovation-policy concern rather than a demand for technological closure. Yet sovereign AI requires a broader theoretical vocabulary. AI systems do not merely provide infrastructure or productive capacity; they organise language, classification, representation and social meaning. Sovereign AI therefore concerns not only access to compute, data, models and talent, but also whose values, cultural categories and normative defaults become embedded in systems that increasingly mediate collective life. This paper argues that sovereign AI marks a shift from technology sovereignty—the capacity to access or control strategic technologies—to evaluative sovereignty: the capacity to frame and institutionalise the criteria through which AI becomes trustworthy, legitimate and socially meaningful.

The paper develops this argument through Luhmann's theory of politics and classical theories of ideology. For Luhmann (2000), the political system is not society's steering centre, but a functionally differentiated system that reproduces itself through collectively binding decisions. Its continuity depends not only on decisions, but also on political memory and self-descriptions—such as sovereignty, statehood, democracy and legitimacy—through which politics observes and preserves its identity under changing conditions. Sovereign AI can be understood as an emergent political self-description: a semantic form through which AI dependence is recoded as a problem of collective continuity, decision-capacity and national futurehood. The ideological dimension of this self-description becomes clearer when read alongside Parsons (1951/1991), Anderson (1983/2006) and Mannheim (1929/2022). Parsons treats ideology as evaluative integration, linking collective values to role expectations. Sovereign AI becomes ideological when dependence on foreign models, infrastructures or standards is transformed into a collective expectation that responsible statehood requires the capacity to possess, govern or shape AI systems. Anderson's imagined communities further illuminate how sovereign AI extends nation-building imaginaries into

computational infrastructure: if nations were historically imagined through shared language, maps and memory, they are now increasingly imagined through models, datasets and AI systems that represent society back to itself. Mannheim adds that these ideological formations are positional: states construct sovereign AI differently depending on their location within the global technological order.

Standards are central to this transformation from political semantics to institutional form. Building on Kim (2025)'s concept of standards as thematic identities and expectational structures, this paper argues that standards do more than codify technical requirements. They stabilise what a technology is understood to be, what risks matter, and what counts as credible assurance. In Luhmannian terms, standards connect political self-description to decision programmes. They translate narratives of trust, safety, interoperability, resilience and cultural representation into operational criteria—tests, certifications, assurance procedures and market-access conditions. Standardisation thus institutionalises ideology: it converts symbolic self-description into repeatable procedures through which technological legitimacy can be observed and reproduced.

The UK and South Korea illustrate how sovereign AI takes different forms from distinct positional standpoints. The UK approaches sovereign AI primarily through rule-shaping. Rather than pursuing full-stack technological closure, it emphasises standards, assurance, third-party verification and trusted governance infrastructures (Kim, 2026). Semantically, sovereign AI is narrated through trust, pro-innovation regulation and global leadership; structurally, these narratives are institutionalised through standards bodies, regulators and assurance ecosystems. Sovereignty is framed less as ownership of the entire AI stack than as the authority to define the conditions under which AI becomes governable.

South Korea, by contrast, approaches sovereign AI through capability-building. Its strategy foregrounds domestic compute, foundation models, data infrastructure, public-sector transformation and cultural-technological representation. Here, standards function less as stand-alone trust infrastructures than as enabling devices within a broader developmental project. They stabilise the operational conditions for national AI capability across state, industry and society. Korean sovereign AI is therefore not merely techno-nationalist in a protectionist sense; it is a political self-description of developmental continuity, strategic catch-up and future national relevance. This comparison shows that standards do not carry a single political meaning. Their function depends on the political self-description within which they are embedded. The UK standardises trust; South Korea standardises capability. The former turns sovereign AI into a project of assurance and rule-shaping, the

latter into a project of mobilisation and infrastructure-building. Sovereign AI is therefore best understood not simply as a response to technological dependency, but as a differentiated political effort to construct evaluative authority over AI's social meaning. For Luhmannian scholarship, this reveals how political systems respond to emerging technologies not by steering society directly, but by producing new self-descriptions, programmes and institutional couplings through which uncertainty becomes temporarily decidable.

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Meaning, identity, and the futures of the present

Background and aim

The identity of agriculture is increasingly being challenged, not least by the climate and the biodiversity agendas. Research in agriculture and food is seen as one of the main driving forces to a more sustainable future, and both at EU and National levels substantial amounts of money are devoted to research in agriculture and food. However, the concept of a sustainable future of farming and how to tackle the present problems for the future is widely contested, and the main focus has so far been on how to encourage farmers to farm more sustainably. This paper aims to shift the focus to observe how the hegemonic ideas of future farming are formed and reproduced in the Danish research funding landscape.

Theory

Niklas Luhmann distinguishes three dimensions of meaning, the factual, the social, and the temporal. Drawing on Bruner's (2003) idea of narrative identity, this paper argues that the continuous narration of identity has to manage all three dimensions. Building on Luhmann's theory on temporality (Luhmann, 2016), Elena Esposito (2011, 2013) has enhanced the idea that time is not linear but temporal and that the past and the future only exist in the temporary present. Esposito introduces the notion of "retrospective causation": We make our decisions based on our contemporary expectations of the future. However, at the same time, we know that the future depends on what we decide to do or not to do today.

The transition of agriculture towards sustainable futures revolves around our current representations of rural futures and, consequently, our interpretation of the past. As Jerome Bruner (Bruner, 2003) argues, narratives bind the past and the future into the present, shaping our collective and individual identities and guiding our decisions. "Green growth" and regenerative farming are two examples of grand narratives that reproduce certain understandings of the future, resting on a very specific understanding of the past. In other words, our visions of the future guide our decisions and actions, leading to "retrospective causation" (Esposito, 2011). Therefore, the work on sustainable transition of agriculture towards sustainable futures can be boiled down to reflecting on how we, as a society, contemporarily interpret the past development of agriculture

and food, and how it is binding our perceptions of the future green transition of agriculture and food-production and thereby guiding our decision-making.

Purpose and questions

The narration of the present future of farming is a complex and multifaceted process going on both locally, nationally and internationally, and a variety of voices are involved in these processes. However, in this paper, we will focus our analysis on the battlefield of one of the important areas of binding the present future of agriculture, namely, the increasing impact of funding of research, and pose questions such as:

- What overarching values are articulated—and how are they ranked?
- What historical narrative of Danish agriculture underpins the programmes?
- What visions of future agriculture dominate?
- How are priorities and selections enacted—and what values are reinforced?

Methods

The paper presents a narrative analytic approach to observing how competing ideas of future farming are causing present decisions regarding agrarian transformation. A narrative is the recursive self-organising communication, that underpins values by decisions and legitimise decisions by values, referring to present visions of the future and present representation of the past. For methodological purposes it can be broken into four interlinked elements:

- The present past: how is the past understood, what examples are referred to.
- The present future: what expectation and understanding of the future, what do we think would happen, what is forming our understanding of the future and thereby framing our decision in the present.
- Values are the guiding direction of decision and identity, and forming our identity, and every problem is unavoidable observed from a value or set of values, even when the values are inherent and non-reflected blind spot of the narrative (Alrøe et al., 2016).
- Decisions/actions can be understood as the developer liquid, of the narratives, every decision is materialising the three other elements, it is the logic of the narratives that legitimise the decisions by the narratives, draw and the previous knowledge and experiences present, and the present understandings of and missions for the future.

Narratives are the temporal communications that bind these four elements.

Findings

The call texts of both public and private funding sources are grounded in a very particular, contemporary vision of the future of food production: large scale, advanced biotechnological systems as the primary means of enhancing circularity and achieving net zero carbon emissions. This is only challenged by the markedly increased emphasis on plant-based foods.

The narrative analysis exposes the extent to which dominant visions of future food systems shape the research agenda—rather than enabling research that could genuinely explore novel systems and new ways of thinking. This persists despite the abundance of buzzwords in the call texts that might suggest otherwise. For research to be genuinely innovative, it must be afforded far greater scope to challenge prevailing assumptions regarding the future of sustainable food production.

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Language as an Entropy Reduction System in Digital Reality

In the contemporary digital landscape, language can no longer be conceptualized merely as a passive medium for transmitting semantic content or representing an objective external world. Drawing upon Niklas Luhmann's social systems theory and Claude Shannon's concept of information entropy, this paper argues that language has undergone a fundamental paradigm shift. It has evolved from a tool of human expression into a dynamic, cybernetic operating system designed to structure environmental uncertainty, model operational realities, and performatively regulate social processes. From an information-theoretic perspective, the primary challenge of any system is the management of entropy—the overwhelming chaos of unorganized signals and infinite contingent possibilities. Within a Luhmannian framework, the social system survives by reducing this complexity. Language serves as the primary infrastructure for this reduction. However, in the digital age, the role of language has flipped: it no longer merely filters the noise of physical reality; it actively generates a digital reality by coding parameters of noise and certainty.

To map this transformed systemic operation, the paper outlines a three-tiered mechanism of digital entropy management. First, Signal Regulation (Iconism) stabilizes or destabilizes raw informational noise, setting the baseline conditions for communication. Second, Semantic Modeling acts as a mechanism of "conceptual freezing." By locking fluid, overlapping socio-cultural meanings into rigid digital networks—such as ontological databases, WordNets, and algorithmic implications—language constructs a highly structured, predictable worldview.

Finally, the paper addresses the crisis and acceleration of this mechanism through Large Language Models (LLMs). Within digital environments, the performative power of language is hyper-amplified. In the human-machine and machine-machine communication loops of LLMs, language ceases to be an afterthought of human consciousness. Instead, it becomes a literal code that executes actions. By transforming communication into a closed-loop predictive calculus (Signals Models Predictions), LLMs do not simply describe perspectives; they automate the generation of reality itself. Yet, the paradox comes full circle: while reducing informational uncertainty, LLMs simultaneously flood the digital ecosystem with automated synthetic text, unleashing a new wave of digital entropy.

Conclusively, this paper shifts the interdisciplinary dialogue on "meaning" from a static semantic inquiry to an operational necessity. In the digital matrix, meaning is the ultimate instrument of entropy control. As communication becomes increasingly autonomous, it becomes clear that language does not merely describe the world—the linguistic operating system programs the very reality we inhabit.

Meaning in the Interaction System

Within social systems theory, the problematization of meaning is frequently restricted to the systems of society or organizations. While acknowledging interaction as a distinct form of social system, there remains a limited amount of research on that area of social systems. For Luhmann, the distinction between society and interaction is fundamentally a result of evolutionary differentiation. Society acts as the encompassing system that includes all meaningful communication and expands through its own internal potentials; it operates as an evolving system. Interaction systems, on the other hand, are highly fragile, temporarily limited adaptive systems that must operate within the broader societal environment (Luhmann, 1987, p. 115). To manage their systemic boundaries, traditional face-to-face interactions rely strictly on the physical presence of persons as a boundary-defining device. In such settings, if new persons arrive, they must be recognized and if they leave, the system is immediately threatened with termination. Therefore, the autopoiesis of interaction must be processed within these adaptive constraints. For that purpose, analysis of meaning in the interaction as the social system is important for the advancement of systemic thinking. In other words, to understand how interaction survives its basic fragility, one must examine the operation of meaning. For Luhmann, meaning is not a static psychological property, but rather a continuous process of selection from various possibilities (Luhmann, 1995; Morgner, 2022). Whatever is actualized in the present moment is surrounded by a horizon of other possibilities, acting as a structural connectivity guarantee for further development (Morgner, 2022). Therefore, because social systems consist exclusively of communication rather than human beings (Moeller, 2006), and because these communicative elements are fleeting events that vanish as soon as they appear (Luhmann, 1990), the interaction system faces the temporalization of complexity. It must constantly fight against its own immediate dissolution. Meaning serves as the ultimate guarantee of connectivity, ensuring that one communicative event can successfully link to the next. Also, this connectivity solves the fundamental problem of double contingency. Through the selective coordination of meaning, interaction achieves operational closure, ensuring that the results of systemic operations are once more systemic operations (Luhmann, 1990). However, interaction as a social system has recently gained new structural traits that challenge orthodox systems theory, most notably through the mediating role of digital technology and the societal shift toward

communicating in a connectionist fashion through network (Moeller, 2006). Now, versions of theory argued that technology physically separates sender and receiver, thereby ruling out true interaction and transforming the communication into mass media (Luhmann, 2000). Yet, the global manifestation of digital networks has created structural couplings where digital exchanges retain the reciprocal, real-time feedback loop of double contingency without constituting mass media. This creates a profound theoretical problem: if contemporary digital interactions lack the physical presence of persons that Luhmann (1987) identified as the boundary-defining device of interaction, how do they maintain their boundaries and secure operational closure? How is this kind of interaction possible? Problem of meaning here is crucial.

Therefore, to operationalize this distinction and address these contemporary developments of interaction, this paper engages with recent theoretical advancements in the systemic problematization of meaning. Specifically, it draws on the expanded framework proposed by Roth and Kaczmarczyk (2026), which offers six distinct dimensions of meaning: factual, spatial, social, temporal, modal, and motivational. While the primary objective of this paper is to analyse how these specific dimensions operate to secure communicative connectivity within the interaction system, analysis reveals a critical theoretical gap. What is proposed here is a new dimension of meaning necessary for sustaining modern interaction of digital era: the attentional dimension. Operating on the binary distinction of connected/disconnected, with the question - whether, this dimension replaces physical co-presence as the crucial boundary-defining device for mediated digital interactions. Serving structurally as the interaction system's anchor of observational status, the attentional dimension of meaning absorbs the uncertainty of double contingency.

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The objectives, potentials and drawbacks of worker cooperatives: observed by social systems theory

Worker cooperatives can be defined as member-based organisations—social systems that reproduce themselves through decisions. Unlike investor-owned firms, the decision premises of a cooperative are rooted in the contribution of labour rather than financial capital, fundamentally altering the system's self-organization. The organisation's governance is based on the democratic principle of “one member, one vote” (Ellerman, 1984; Iliopoulos and Vslentinov, 2018).

This article aims to re-examine certain key elements of the economic theory of worker cooperatives through the lens of Luhmann's SST, specifically drawing on concepts such as structural coupling, resonance, and irritation to move beyond traditional economic models (Luhmann's seminal works, *Social Systems*, 1995; *Organization and Decision*, 2018), using the fundamental concepts of decision premises and decision programmes, self-organization, emergence, structural coupling, resonance, interpenetration and irritation. The primary organisational inquiry concerns how the objectives of worker cooperatives (WC) diverge from those of investor-owned enterprises, through the lens of SST (Borzaga and Tortia, 2010; Tortia, 2018; Borzaga, Carini, and Tortia, 2021; Cristini, Grasseni and Signori, 2023).

The second key objective of this study will be to discuss and re-examine, in the light of Luhmann's SST, the main shortcoming of WCs identified in the literature concerning the finance and economic performance, and the governance of worker cooperatives, namely issues relating to:

(i) teamwork, workers' opportunistic behaviour and free riding, which refers to the fact that, in the absence of investor ownership, the productive efficiency of worker cooperatives would be lower than that of investor-owned firms due to the lack of a central monitor to oversight and prevent free riding in the work process (Alchian and Demsetz, 1972);

(ii) the heterogeneity of members, which refers to the fact that, as the socio-economic characteristics of workers (such as their level of education) and their preferences become more differentiated due to the organisation's growing size, organisational costs (transaction costs in terms of coordination and decision-making) are likely to rise rapidly (even exponentially), thereby making worker

cooperatives less efficient than investor-owned firms, as predicted by transaction cost economics (Hansmann, 1988, 1996);

(iii) the degeneration of worker cooperatives, which refers to the process whereby, since increasing the number of worker members in a cooperative can be difficult due to the requirement that members invest significant amounts of financial capital in the cooperative's equity, the cooperative may prefer employed workers rather than recruiting new members over time, thereby limiting membership and making the cooperative increasingly similar to an investor-owned company (Ben-Ner, 1984; 1988, Miyazaki, 1984);

(iv) the risk aversion of worker-members compared to that of investors in financial investments, which refers to the fact that worker-members of a cooperative must invest significant amounts of their own capital in the very organisation in which they also invest all their human capital as workers. Consequently, worker-members of cooperatives tend to implement low-risk investment programmes, compared to financial investors in investor-owned firms (Furubotn, 1976; Bonin, Jones and Putterman, 1993; Dow, 2003);

(v) limited access to financial and credit markets and the problem of undercapitalisation, which stems from the collective nature of capital in cooperative enterprises (the system of social ownership in the former Yugoslav Republic) and which results in members' truncated temporal horizon regarding investment projects, leading to inefficiently low levels of investment, or in other words, underinvestment and undercapitalisation (Furubotn and Pejovich, 1970);

(vi) individual versus collective ownership of capital, which refers to the comparative advantages and disadvantages of collective ownership of capital (held in indivisible reserves) compared to capital owned by individual members (as individual shares of equity-capital), as in joint-stock companies, which can lead to distorted financial incentives for investment (in the case of collective capital, Furubotn and Pejovich, 1970), but also to excessive instability and variability of capital and distorted capital market valuations (in the case of individually owned capital, Mikami, 2016, 2025; Tortia, 2018, 2026).

By applying SST, the traditional economic problems of worker cooperatives can be reformulated as challenges of systemic differentiation and communication. The problem of teamwork and free riding is no longer seen merely as a failure of monitoring, but as an issue of structural coupling where the organisation fails to create enough resonance for individual effort within its communicative

structures. Member heterogeneity represents an increase in internal complexity that "irritates" the system, potentially overwhelming its decision premises and leading to rising coordination costs. Issues such as degeneration, risk aversion, and undercapitalization can be interpreted as the system's failure to maintain its distinct identity when faced with the overwhelming logic of the external financial system. Finally, the tension between individual and collective ownership reflects a fundamental conflict in decision programmes: whether the system should prioritize the stability of its own self-organization through collective reserves or the economic interpenetration of its individual components through member shares. Using SST allows for a rediscussion of these economic problems not as inherent flaws, but as specific outcomes of how worker cooperatives manage the boundaries between their internal decisions and their complex social environments.

Research Questions

- How do the decision premises and programmes of worker cooperatives differ from investor-owned firms in their response to environmental irritations, and how does this affect the emergence of hybrid organisational objectives?
- In what ways does the structural coupling between worker-members and the cooperative organisation influence the system's ability to manage member heterogeneity and mitigate the risk of organisational degeneration?
- How can the conflict between individual and collective ownership of capital be re-evaluated as a systemic struggle to balance internal self-organization with the requirements of the external financial system?

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Making Animal Welfare Payable, Legitimate and Measurable: Paradoxes of Subsidies and Phenomics in Communication. Observed with Luhmann's system theory.

This conceptual paper asks how farm-animal welfare becomes communicable and operational across the differentiated communications of politics, economy and science, while also remaining open to moral re-observation. It begins from the substantive animal-welfare and phenomics literature. Farm-animal welfare is reconstructed as the multidimensional physical and mental state or quality of life of the individual animal, combining biological functioning, behavioural possibilities and affective experience. Because welfare cannot be measured directly, it is operationalised through selected indicators. Phenomics is conceptualised as the systematic production, validation, integration and analysis of phenotypes across animals and over time; precision livestock farming, sensors, imaging, automated records and machine learning are infrastructures and methods that extend this observational capacity rather than synonyms for phenomics itself.

The paper then develops an integrated Luhmannian framework using meaning, communication, observation, distinction, form, medium, functional differentiation, codes and programmes, operational closure, structural coupling and irritation, paradox, deparadoxification, morality, ethics and second-order observation. Two complementary models organise the argument. The static model shows livestock welfare as a shared theme but not a shared meaning: politics makes welfare subsidisable and governable, the economy makes it calculable and economically viable, and science makes it observable and evidential. The dynamic model shows how communication moves from theme to distinction and observation, how second-order observation can reveal paradox, how programmes deparadoxify the paradox sufficiently for communication to continue, and how outputs become new occasions for intersystemic irritation and reconstruction. The central proposition is that programmes do not solve welfare paradoxes; they make them communicable. The paper specifies three system-specific paradoxes: support/control in politics, welfare value/economic calculability in the economy, and observability/reduction in science. Phenomics can therefore increase observability and intersystemic connectivity without producing a single common meaning of welfare.

Toward a Post-Transcendental Concept of Meaning

This paper proposes a reconstruction of Niklas Luhmann's concept of meaning in a direction that may be described as post-transcendental, without reverting to ontological commitments, subject-centered foundations, or observer-independent validity claims. The term "post-transcendental" designates a reconstruction of necessary structures that abandons both subject-centered transcendental philosophy and metaphysical ontology in favor of operational and performative conditions internal to meaning itself. Rather than offering an orthodox interpretation, the paper advances a philosophical reading that extends Luhmann's framework by articulating a form of immanent necessity implicit in his theory. More specifically, it argues that the dimensions of meaning should not be understood as thematic domains or referential perspectives—for example, as concerning what something is about, when it occurs, and who is involved (Gensicke, 2013, p. 30; Kärtner, 2015, p. 76; Baraldi et al., 2021, p. 141)—but as structurally unavoidable conditions intrinsic to meaning-operation itself.

The argument begins from the premise that any attempt to define, analyze, or doubt meaning must itself operate within the medium of meaning. This reflexive self-inclusion renders meaning inescapable—not as an ontological given, but as an operational condition, as Luhmann himself clearly points out (Luhmann 1995, p. 62). On this basis, a conditional claim is developed: if meaning operates, certain structural features cannot be avoided without contradiction. The necessity at stake is neither logical nor metaphysical in the classical sense, but performative; it arises from the impossibility of negating these structures without simultaneously re-enacting them within the operation of meaning itself.

Within this framework, the three dimensions of meaning identified by Luhmann—factual, temporal, and social (Luhmann 1995, p. 75)—are reconstructed as necessary implicates of any meaning-operation. Each corresponds to an irreducible differential requirement grounded in the conditions of observation. The factual dimension arises when hetero-reference determines its referent negatively. What appears as something is constituted through its distinction from something else (Luhmann 1995, p. 114), as already Spinoza and Hegel argued (Hegel 1812, p. 75). In this way, the factual dimension marks the minimal condition under which determinacy becomes possible. The temporal dimension follows from the operational structure of observation as event. Any observation must be capable of being observed as such, which entails recursive reference to further observation. This recursive structure

presupposes an irreversible sequencing of operations in which each observation depends on prior operations and enables subsequent ones (Luhmann 1995, p. 97–100). Temporality is therefore not primarily a represented object, but the operative form through which an observation situates itself within an irreversible process of continuation. The social dimension concerns the attribution of observation to an observer. In communication, this dimension is directly realized: understanding presupposes the imputation of meaning to another observer, such that alterity is constitutively internal to communication itself. In psychic systems, however, the grounding of this dimension is less straightforward. Here, the attribution of observation cannot rely on communication but must be reconstructed as an internal condition, i.e. a psychic operation. One possible line of argument—suggested here in tentative form—draws on a Hegelian insight into the constitutive role of internalized hetero-reference for self-reference: the subject-object-distinction alone is not sufficient to establish subjective self-referentiality; only the recognition of another subject renders me a subject (Hegel 1988[1807], p. 127). Certainly, this argument can be reformulated in systems theoretical terms and does not depend on the concept of the subject. Any attempt to deny one of these dimensions re-enacts it operationally: denying determinacy presupposes distinction, denying temporality presupposes sequential articulation, and denying sociality presupposes the attribution of social validity claims (Apel 1976). The three dimensions are therefore not optional features, but unavoidable structures of meaning-operation.

If this reconstruction holds, the question arises as to the status of the supposedly “forgotten” spatiality (Werber 2011). Strong philosophical arguments—particularly in Humboldt and Cassirer—suggest that the unity of temporal differences may presuppose forms of simultaneity and stabilization without which distinctions could not be held together (Humboldt 1908, p. 581; Cassirer 1923, 8). For Humboldt, such stabilization requires forms of materialization or sensible presentation (*Versinnlichung*), while for Cassirer the unity of difference is achieved symbolically: temporal relations can only be synthesized insofar as they are fixed within a symbolic form that renders them simultaneously available. From this perspective, spatiality could be reconstructed not merely as a thematic object of meaning, but as a further structural dimension of meaning-operation itself. Whether such a reconstruction is theoretically compelling, however, remains open to discussion. In this way, the paper contributes to current debates on the possible expansion and grounding of meaning-dimensions within contemporary systems theory.

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Meaning and Semantics in Quantum Theory Compared to Systems Theory and Some Conclusions

The present article commences with the premise that quantum theory is often misunderstood. The precise definition of semantics, for instance, the rules that govern the measurement of a particle's position and momentum, marks the transition of pure mathematics to a physical theory. Accordingly, this can be formulated in a relatively open-ended manner as follows: The viability of a theory as a medium for communication is predicated on its validity. The ability of an individual to articulate their observations to others is contingent upon the acceptance of the theory as a valid framework for understanding the phenomenon under study.

In the absence of such semantics, a physical theory would be devoid of any connection to the human environment. Prior to the advent of quantum theory, the human environment was commonly perceived as an objective reality independent of humans. Even within the systems-theoretical framework that delineates between system and environment (as exemplified by the functional system of science), humans find themselves situated within the environment. In the context of quantum theory, these entities correspond to the measuring subject or the perceiving human, respectively.

This article expounds on and interprets this parallelism with sociological systems theory from a quantum-theoretical perspective in the sense of the Copenhagen interpretation of quantum physics. In this study, quantum theory is interpreted as a theory of the conditions of the possibility of experience, a perspective that aligns with the interpretations proposed by Immanuel Kant and Carl Friedrich von Weizsäcker. Quantum theory is characterized as a comprehensive physical theory that remains unrefuted by a single experiment and as a philosophical innovation. In contradistinction to classical physics, quantum theory dispels the image of the world as objective reality. The interpretation of results in a measurement process is contingent upon the experimental setup. The semantics applicable to this phenomenon, as previously mentioned, are part of a constitution of meaning that is no longer purely physical but philosophical. The text demonstrates that a mathematical-physical theory, which does not depict a world in itself and, for fundamental reasons, is not capable of doing so, opens up horizons of possibility. The various dimensions of meaning in systems theory have strikingly similar counterparts in quantum theory.

In the measurement process, the wave function—which previously spanned the entire space of possibilities of this quantum system—undergoes a reduction. However, as these phenomena undergo a temporal sequence of reductions in complexity, an inconsistency emerges, giving rise to far-reaching theoretical and fundamentally philosophical consequences. This phenomenon remains imperceptible to a first-order observer within real space-time structures. A second-order observer, who utilizes the mathematical-physical apparatus of quantum theory to observe two first-order observers (measuring subjects A and B), is confronted with a paradox. This paradox emerges from the mathematical formulas when the measurements by A and B on an entangled quantum system—for example, two electrons, each with one spin-up and one spin-down state—are performed sequentially in time. For the initial measurement by A, there is a 50% probability of detecting spin-up or spin-down. In a subsequent measurement by B, due to the entanglement of the two-electron system, there is only one possible measurement result, namely a 100 percent probability of the opposite spin orientation. While measurement subject B, akin to measurement subject A, is required to assume a 50-percent probability of measuring either spin up or spin down, the second-order observer knows that this assumption is incorrect. A is incapable of transmitting the result of his measurement to B. Conversely, A's decision to perform a measurement—to make a distinction—exerts influence on B's remaining possibilities.

Quantum theory is presented as a theory in which all three of Luhmann's dimensions of meaning—those of factual realization (the measurement process), temporal sequence, and social relations—are constitutive. Quantum mechanical counterparts exist for other dimensions of meaning as well, including the local, the modal, and the motivational. Consequently, a novel interpretation of social relations emerges from the physical theory. The behavior, the distinction, that ego makes, alters the possibilities that alter can (still) realize!

The subsequent inquiries and associations are exhibited in the concluding segment of this paper. These are presented more as a collection of interesting research topics than they are examined in depth. From a quantum-theoretical perspective, Carl Friedrich von Weizsäcker inquired into the possibility of comprehending the world under the conditions of time, information, and observation. A concept of particular interest is his idea of deriving the fundamental structure of physics from elementary binary alternatives, known as Urs or primordial alternatives. These entities, in response to a specific inquiry or measurement, are capable of yielding a single response: the information contained in one bit, that is, a yes-or-no answer. Another unfinished idea is the attempt to formulate a logic of temporal statements — in

Weizsäcker's original German, eine Logik zeitlicher Aussagen. One of his students, Thomas Görnitz, has characterized quantum theory as a physics of relations. Nevertheless, for some readers, the conclusions drawn from this remain speculative.

The crux of the issue pertains to the discernment of a methodology that would facilitate the integration of two theories of considerable magnitude and comprehensiveness, independently developed, which, by necessity, both reduce complexity. The objective is to enhance the compatibility between these theories, with one delineating nature and the other society. The implications of fundamental scientific theories for the social sciences are significant, particularly when these theories imply that meaning can only ever be relevant to a specific, individual observer. This perspective aligns closely with Luhmann's theoretical framework, in which he conceptualizes meaning as a medium through which social systems operate. According to Luhmann, meaning resides in the discrepancy between the present, observable phenomena and the potential for future occurrences.

Programs as Media of Meaning: Re-specifying Observation in Sociosemiotic and Autopoietic Ecological Perspectives

The Luhmann Conference 2026 foregrounds meaning not as a fixed concept, but as a medium through which observation becomes possible. This paper builds on that premise by proposing that programs can be understood as operative forms through which meaning is structured, stabilised, and rendered observable across social, communicative, and material domains. In doing so, it extends Luhmann's treatment of meaning, communication, coding, and programming as central to the self-description of modern social systems (Luhmann, 1995, 2012, 2013).

Within Luhmannian systems theory, programs regulate the application of codes and stabilise expectations under conditions of contingency. However, programs are often treated as secondary to communication, decision, or organisation. This paper repositions programs as a central object of second-order observation. It develops a dialogue between sociosemiotics and autopoietic ecology (AE), reconceptualising programs as recursive formations that organise the conditions of both meaning and action. This approach also speaks to contemporary work on observation, undecidability, and meaning in systems-theoretical discourse (Andersen, 2003; Luhmann, 1995; Roth & Kaczmarczyk, 2026).

From a sociosemiotic perspective, programs can be analysed as discursive and performative structures. They are enacted through actuaciones (performances), stabilised through genres and styles, and mediated by material supports of communication. Following Verón's account of social discourse, meaning is not produced only through linguistic objects in the narrow sense, but through broader textual packages: texts, images, diagrams, codes, interfaces, bodies, and combined supports through which production and recognition grammars are organised (Verón, 1988). Sociosemiotics therefore provides tools for analysing how programs become visible, interpretable, and repeatable in communicative practice.

From an autopoietic ecological perspective, programs are understood as autopoietic systems in their own right. They persist through recursive operations that reproduce the conditions of their own continuation, stabilising structured expectations while remaining responsive to perturbations. Operations, in this framework, are not grounded in agency or intention, but are events of recursive viability. What appears as agency can therefore be re-

specified as an emergent stabilisation within programmatic processes, rather than as their origin (Watson & Brezovec, 2026).

This combined perspective allows us to treat programs as media of structured expectation: they organise what can be observed, selected, and rendered actionable. Meaning does not stand apart from programs, but is generated within their recursive constraints. Observation is therefore always already conditioned by programmatic organisation. This also allows the relation between sense and meaning to be reopened. Rather than treating the distinction as settled in advance, the paper asks how different theoretical traditions make sense and meaning operative across different levels of observation.

To address contemporary complexity, we further develop this argument through the notion of ecological entanglement. Programs are not isolated structures but distributed configurations of mutual conditioning across communicative, social, technical, and material domains. Transformation occurs as the reconfiguration of recursive conditions, where stability and variation are co-produced. In this respect, programs may be read as ecological formations: they stabilise continuation without control, while remaining vulnerable to drift, breakdown, and re-entry (Watson & Brezovec, 2026).

Rather than seeking synthesis, the paper proposes a structured convergence. It preserves the difference between socio-semiotics, semiosphere theory, Luhmannian systems theory, and autopoietic ecology, while making their points of contact analytically productive. The paper concludes by outlining the potential for a bridge vocabulary to clarify how key concepts - such as program, operation, meaning, sense, performance, and medium - vary across communicative, semiotic, disciplinary, and broader textual-material contexts. In doing so, it contributes to the conference aim of exploring how meaning is observed by shifting attention to the conditions under which observation itself becomes programmatically possible.

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Form-dependencies of meaninglessness. A systemic analysis of disrupted sense in Russia/Ukraine and Palestine

In Niklas Luhmann's systems theory, meaning acquires the status of a fundamental sociological concept—not least in the major article "Meaning as a Fundamental Sociological Concept," from the book he co-authored with Jürgen Habermas with whom he debated social theory at Inter-University Centre in the 1980s – and in each their series of conferences. Today, meaning is significant, partly because an increasing amount of communication is shaped and influenced by generative AI. Yet, in general, it remains as crucial as ever to be able to distinguish meaning and to discuss the distinction between meaning and meaninglessness. For Luhmann and Habermas meaninglessness was preponderant in the context of world wars. However, the present paper argues that modern society has not left the dark shadows of the world wars, which is obvious in Russia's war on Ukraine, and in the Israeli Zionist war on Palestine. Institutional path-dependencies and systemic form-dependencies are inherited in both wars.

Decision as Distinction: Artificial Agents and the Second-Order Regulation of Observation Forms

Artificial agents do not merely select among pre-given options; they condition the distinctions through which options become visible as options in the first place. This paper argues that their social relevance lies less in the actions they produce than in the observation forms they help stabilize, revise, and re-enter into decision contexts. From this perspective, artificial agents should be understood not only as action-selecting systems, but as technical arrangements that reorganize the distinction structure of decision-making.

This contribution develops Decision as Distinction as a second-order observational framework for describing artificial agents in contexts of social meaning-processing. Its starting point remains deliberately modest: artificial agents are neither psychic nor social systems in Luhmann's sense, but technical selection arrangements in the environment of social systems. Their operations do not themselves generate meaning in the sense of psychic experience or social communication. Yet they may structure alternatives that become meaningful once they are observed, used, or incorporated by psychic and social systems. The standard description of artificial agents usually begins with a pre-given action space in which a policy receives a state representation and returns an action. While productive, this framing leaves a prior question insufficiently clarified: how do alternatives become observable as selectable, risky, promising, obsolete, or irrelevant in the first place? The contribution is therefore observational rather than optimization-theoretic. It shifts attention from choosing well among already given alternatives to the constitution of alternatives as action-relevant. To address this question, the paper brings Spencer-Brown's distinction between distinction and indication into dialogue with Luhmann's theory of observation in meaning-processing systems. This requires a clarification. Irritation does not precede distinction in a logical sense. Irritation emerges only through prior distinctions such as expected/unexpected, tolerable/intolerable, or relevant/irrelevant. The schema proposed below therefore does not describe the genesis of distinction as such. It describes the activation and revision of distinctions within a technical selection arrangement as observed from the perspective of social meaning-processing. Understood as an observational sequence rather than a logical derivation, the agent-oriented cycle can be described as follows:

Irritation → Distinction → Indication/Marking → Selection → Consequence → Re-entry.

Irritation names the system-relative becoming-relevant of a distinction. Distinction names the observation form through which alternatives are structured. Indication or marking selects one side of the distinction and constructs a temporary action-relevant space. Selection tests this marking; consequence names the result; re-entry describes the return of that consequence into future conditions of distinction use. The paper's central conceptual claim is that artificial agents can be observed as technical arrangements that organize selection through nested distinction structures. A distinction such as feasible/infeasible does not merely classify alternatives; it establishes a horizon within which further distinctions can operate. A marked alternative may then be distinguished again as safe/risky, promising/unpromising, or reliable/obsolete. Selection is thus not merely a choice among pre-given options, but a path through ordered observation forms that progressively constitute what can count as a meaningful alternative for subsequent social observation. This perspective also differentiates first-order feedback from second-order re-entry. First-order feedback changes expectations about alternatives. Second-order re-entry changes the future stability, reliability, or relevance of the distinctions through which alternatives become observable and selectable. The point is not that technical systems themselves communicate or experience meaning. Rather, they can condition how social and organizational systems produce, revise, and stabilize distinctions in decision contexts.

From a Luhmannian perspective, the decisive question is therefore not whether artificial agents decide in a human sense. More interesting is how they enter social and organizational processes as technical structures that condition observation. In organizations, decisions function as *Entscheidungsprämissen*: premises that constrain and enable subsequent decisions through programmes, communication channels, and personnel. Artificial agents increasingly intervene in this field by pre-structuring what is visible, relevant, safe, or worth considering before any human decision is reached. The paper's core claim is that artificial agents should be observed not merely as action-selecting systems, but as technical arrangements that condition the production, revision, and stabilization of distinctions- and thereby the constitution of action spaces as meaningful for social and organizational systems. This does not collapse the difference between technical, psychic, and social operations. It clarifies why that difference remains essential while also showing how technical systems become relevant where observation forms are reproduced, modified, and re-entered into future selection contexts.

Meaning and the meaninglessness. On Luhmann's paradoxical concept of meaning

From Weber to Luhmann meaning is viewed as a basic concept in sociology. It is also a central theme in modern philosophy. In both the philosophical and the sociological theory traditions, meaning is constituted subjectively and defined as subjective intention. Luhmann connects to the tradition of thought from Weber and others. With Husserl, one can speak of a tripartite relationship between object (the object that the observer observes), meaning and act of consciousness. In this relationship, a horizon of possibility arises. Luhmann's starting point is a concept of meaning that takes into account the uncertainty of every form of meaning and it includes the negative form non-meaning. In his early works, Luhmann neutralizes the concept of meaning from its bond to the subject and later, based on the theory of autopoietic systems, he draws a line across the subject reference: "Meaning carries itself, in that it enables its own reproduction self-referentially." (Luhmann 1984) The idea of the transcendental subject is reformulated by Luhmann to define meaning as a characteristic of psychic and social systems. The issue, as he wrote in an early article, lies in: "integrating the actuality of experience with the transcendence of other possibilities and, inevitably, also the form of experience processing that brings it about. This (form) we call meaning. Consequently, according to this usage, there is no meaningless experience." (Luhmann 1971)

In his early main work Luhmann establishes that meaning is "a non-negatable, indifferent category" (1984) arguing that it, as a basic concept defining social systems, must be adapted to a more abstract level than the phenomenological one, and for this, he argues, both a more specific and a more abstract definition of meaning is required. Abstractly, it is defined as an unspecified general MEDIUM to which psychic and social systems are bound. Defined as a media of communication, meaning, like the media of the function systems, does not constitute a distinction. Unlike the other media, however, it is also non-negatable and like the medium of perception, light, meaning as a medium remains unobservable. In a specific sense, meaning is defined as FORMS related to experiences, situations and actions through the concept of meaning dimension. As such it denotes a form of observation in which a difference is marked between actuality and possibility. Related to the sociological tradition, Luhmann specifies and distinguishes between the 1) factual, 2) temporal and 3) social dimensions of meaning. The abstract formulation of meaning as

medium and form, one might add, is also important in his critical settlement with ontological metaphysics.

Two important features of Luhmann's theoretical approach can be summarized. First, meaning differs from the bulk of his social systems theory in that the starting point for the analysis and the considerations that follow from it are not as directly linked to systems theory as most other parts of his theoretical approach. Secondly, and as already indicated, meaning, unlike all other concepts in Luhmann's theory, is indifferent. This means that the negative correlate of non-meaning is included in the concept of meaning. The concept of world certainly has the same property, but it is linked to meaning. The aim of this paper is, firstly, to show how Luhmann developed his concept of meaning, and from different point of departures. The second aim is to discuss the issue of the form of meaning which commonly, and related to theological and philosophical tradition, is perceived and observed as non-meaning or meaninglessness. The meaning of non-meaning and its sociological implications is, it is argued here, one of the paradoxes that contributes to the topicality of Luhmann's theoretical approach to this theme.

The Fading Away of the Meaning of Love in Contemporary Europe

Is “romantic love” Romantic Love? That is the question posed here. Love appears to be universal, remaining identical across cultures and eras. Perhaps lovers think so. However, from a sociological perspective, there is no agreement on this at all. Even if we narrow down the concept of love to intimate relationships.

In *Love as Passion*, Niklas Luhmann described a transformation in the semiotics of love. Even if we talk about “romantic” love in 2026, what we mean by it could be very different from what Romantic Love meant in books, poems, and everyday life in 1820.

How is “love” interpreted today? In *The Unbearable Lightness of Being*, Milan Kundera talks about the hysteria of a person who is incapable of love and pretends to be in love. This is close to Luhmann’s ideas. Could Friedrich Schiller or Joseph von Eichendorff have asked these modern, reflective questions, too? Luhmann makes it clear that love is not a feeling itself, but a code of communication through which feelings can be expressed, formed and simulated. Perhaps our understanding of love is influenced more by social science and literature than we realise.

Drawing on Niklas Luhmann’s theses and argumentative framework, which show that the meaning of love in intimate relationships changes in an unilinear way over time, this paper will offer its own sociological interpretation and classification of contemporary love semantics. The paper will examine the historical forms of love — Courtly Love, Amour Passion and Romantic Love — and reveal the decisive factors that, according to Luhmann, indicate a change in meaning. Luhmann’s methods are analytical and comparative; the samples are from German and French literature. My presentation will use a small, easy-to-read table to show Luhmann’s methodology for analysing changes in the semantics of love. Although Luhmann completed his research in 1982, he did offer predictions regarding future semantics. The question that now arises is: How can Luhmann’s analysis of the semantics of love be expanded upon in the present day? Can his predictions be verified? This paper will explore how the semantics of love can be observed and analysed in the present day. In addition, I will present the preliminary results of my research on this topic.

The thesis that Romantic Love has lost its meaning in favour of a new form is supported by three particular tendencies: 1) the devaluation of self-

transcendence (e.g. "victim myth"), 2) the advocacy of individualistic tendencies, and 3) the increasing unassailability of individualism (even in critiques of it, as seen in the novels of French author Michel Houellebecq).

From Spontaneity to Reflexivity: Observation, Meaning, and Generative AI in Sociomedia Evolution

This paper develops a systems-theoretical mechanism for analysing how new media conditions of observation displace the relation between spontaneity and reflexivity in sociomedia evolution. The point of departure is Niklas Luhmann's formulation in *Trust* that systems which become capable of experiencing the trust they enjoy in their environment as a problem "lose spontaneity and gain reflexivity." The main claim of the paper is that the mechanism which makes increased reflexivity necessary in order to maintain trust must be explained sociologically through media. When new media expand the possibilities of communication across time and space, the potentiality for the production and stabilisation of social structures simultaneously increases. In connection with this, communication's potentiality for meaning-actualisation is also expanded, whereby societal complexity grows. This increase in complexity means that previously spontaneous, situation-bound, and self-evident forms of self-presentation, social orientation, and knowledge processing become more contingent, because communicative contributions can now be observed, compared, and evaluated across more social situations, relations, and temporal horizons than previously. Personal, organisational, and institutional self-presentation are thereby displaced toward increasing reflexivity in order to maintain plausibility and trust under changed media conditions of observation.

Theoretically, the paper combines Luhmann's Husserl-inspired concept of meaning with a sociomedia understanding of media as historical reorganisations of possibilities for observation. Media are thus understood not merely as transport forms for communication, but as conditions for what can become visible, comparable, and problematisable. When new media make new sides of social behaviour observable, social and psychic systems are simultaneously forced increasingly to observe themselves from the perspective of possible external observations. Reflexivity is thereby intensified through a continuous process in which new media possibilities for communication gradually reorganise what can be observed and attributed identity-related significance. During the latency of the initial period, where semantics only gradually develop in order to grasp the new social structures and conditions of observation, the risk of losing plausibility and trust is particularly high, because self-presentation must adapt to new forms of visibility without yet being able to orient itself securely within stable social expectations. Over time, however,

greater social familiarity with the new conditions of observation may develop, whereby more spontaneous forms of self-presentation again become possible. The paper develops this mechanism through a coupling of Erving Goffman's analysis of self-presentation, Luhmann's analysis of personal trust, and Joshua Meyrowitz's medium theory. In Goffman, spontaneity depends upon a relative control over the conditions of observation within the situation through the maintenance of frontstage/backstage distinctions and the handling of "expressions given" and "given off." In Luhmann, this problematic is historicised. In complex societies, individuals cannot simply say the same thing over time because social situations and expectation structures change. Self-presentation must therefore continuously be modified in accordance with changing circumstances, but in a manner that still appears plausible in relation to earlier self-presentations. Reflexivity thereby becomes necessary in order to maintain continuity and trust under dynamic social conditions. In Meyrowitz, this development is coupled to electronic media's reorganisation of social situations. However, the paper argues against the common reading of Meyrowitz's "middle region" as a stable hybrid between frontstage and backstage. Instead, middle region is understood as a transitional and latency phenomenon arising when new media conditions of observation destabilise established semantics of self-presentation before new forms of social familiarity and normative orientation have become established.

This sociomedia mechanism is unfolded through a series of historical moments. With writing, communication is detached from the concrete interaction situation, whereby the social dimension is reduced and the factual dimension expanded. Communication must increasingly be translated explicitly because meaning can no longer be carried by interaction's shared situational context. At the same time, social participation becomes possible for the individual who is alone. With print technology, the standardisation and typification of social roles intensify, while the modern reflexive self simultaneously develops through moral-philosophical conceptions of personal continuity, irreversibility, and responsible self-relation, as described by Locke, Hume, and Charles Taylor. The essay emerges here as a central genre for reflexive self-description. Electronic media subsequently destabilise established distinctions between frontstage and backstage by making previously hidden sides of social behaviour visible, while social media intensify this dynamic through context collapse, personalised surveillance, and permanent digital traces of observation.

Finally, the paper argues that generative AI marks a shift in the object of reflexivity. Whereas earlier media shifts primarily made persons, roles, and self-presentations reflexively problematic, generative AI makes the very conditions of cognition and knowledge production uncertain and observable.

The question thereby shifts from “How do I appear?” to “How can communicative actualisations be maintained as valid knowledge under conditions where probable and socially plausible communication can increasingly be produced without corresponding epistemic grounding?” Reflexivity is thereby no longer directed solely toward the self, but toward the conditions of meaning-formation, observation, and knowledge processing as such. Distinctions such as actuality/potentiality, self-/external-reference, and trust/familiarity become central here for analysing how spontaneity and reflexivity are reorganised under generative AI, including what happens to double contingency when both ego and alter can mediate their communication through probabilistic systems of reflection.

Defending Luhmann with the Ontological Turn: From Epistemological Constructivism to Systemic Realism

The sociological systems theory of Niklas Luhmann has long been the subject of a standardized set of critiques. Opponents frequently argue that the theory lacks empirical grounding, ignores human corporeality and agency, eliminates causality, and remains practically inapplicable due to its high level of abstraction. Traditionally, the "Luhmannian" response to these challenges has been a retreat into a radical epistemological constructivism. This standard defense posits that "everything is observation" and that the theory does not describe the world itself, but rather the observer's schemes of distinction and historically changing semantics. While logically consistent within the theory's own framework, this epistemological shield often reinforces the perception of systems theory as a self-referential "glass bead game" detached from objective reality.

This paper proposes a radical reorientation: an ontological defense of Luhmann's theory. By moving away from the purely epistemological reading, we argue for a "systemic realism" founded on Luhmann's own provocative claim: "Systems exist." This ontological turn allows for a robust reconstruction of the theory's core arguments in a way that directly addresses its most persistent critics.

First, the ontological defense reclaims the empirical status of systems. If systems are understood as real, autopoietic operations, their operational closure is not a barrier to reality but the very condition of their existence and their capacity for structural coupling with the environment. Within this framework, the problem of causality is resolved through a multi-level analysis. While systems theory, as a second-order observation, recognizes causality as an observer's schema, it simultaneously acknowledges that causality is a fully legitimate and necessary explanatory program within the system of science. By granting causality this functional place, the theory avoids the trap of scientific nihilism while maintaining its critical distance.

Second, this paper addresses the "missing human" and "missing technology." By grounding the definition of the person in the reality of communication, we move past the humanist illusion of the autonomous subject toward a more accurate description of how humans are constituted as "persons" through their communicative addresses. Furthermore, we argue that technology must be viewed as an ontological pre-determinant of observation, rather than a mere tool. In the modern world, technological infrastructures format the very

possibilities of observation and communication, proving the theory's structural and technological relevance.

Finally, the paper demonstrates the superiority of Luhmann's approach over competing paradigms like symbolic interactionism or interpretive sociologies. While these approaches treat meaning (Sinn) as a secondary product of human negotiation or "meaning-making," Luhmann's theory starts with meaning as its primary medium. In this ontological reading, meaning is not something humans do; it is the foundational environment in which both psychic and social systems operate.

By embracing this ontological turn, we transform Luhmann's theory from a distant meta-theory into a powerful, realistic tool for analyzing the structural, existential, and technological complexities of contemporary society. This shift does not abandon constructivism but rather completes it by acknowledging the objective reality of the constructs themselves.

When Meaning Blocks Itself

In Luhmann's concept of meaning, actuality is always given within a horizon of possibilities (Luhmann 1984: 95ff.). The distinction between actuality and possibility takes shape in the operation of observation. Observation is an operation that uses a distinction and indicates one of its sides. The indicated side appears as what is actual, while the non-indicated side is not eliminated but remains as a horizon of further possibilities. Accordingly, objects are not given in advance. What something can be observed as is constituted, in each case, through the operation of distinction and indication. Yet when observation turns toward the very conditions that make this distinction between actuality and possibility possible, the operation of meaning encounters a self-referential difficulty (Luhmann 1995).

So long as human beings and society are observed on the basis of distinctions, this difficulty becomes acute in a way that may bring the actualization of meaning to a halt. In the operation of observing human beings through alterity, the very distinction that distinguishes self and other is itself called into question. As a result, this distinction is applied to itself, destabilizing the criteria by which self and other are meaningfully distinguished. At precisely the point where meaning attempts to actualize the other as other, it thus encounters a paradox. By contrast, in the operation of observing society from within society, the circularity whereby society describes society comes to the fore, and the self-description that gives meaning to society as society becomes tautological. This paper rereads the forms of de-paradoxification and de-tautologization presented by Luhmann as ways in which observation continues to indicate something even in these two situations (Luhmann 1987), within the practices of knowledge concerning human beings and society. More specifically, it clarifies how anthropology and sociology, each under different problematics, have unfolded the impasses of observation. Both anthropology and sociology have repeatedly confronted paradoxes and tautologies under different problematics, and have sought to continue observation by unfolding them each time they arise (Calhoun 1992; Szakolczai and Thomassen 2019). This paper focuses on the ontological turn in anthropology and global historical sociology in sociology as two concentrated theoretical expressions of this tendency in recent years. Rather than treating these fields as fixed disciplinary essences, this paper reads them as sites in which the operations of de-paradoxification and de-tautologization become acute in different directions. The former unfolds the paradox of the self/other

distinction by taking the culture or ontology of the other as its point of reference (Holbraad and Pedersen 2017), while the latter seeks to unfold sociological tautologies by relocating the self-description of modern society within colonial, imperial, and global interconnections (Go and Lawson, eds., 2017).

By clarifying these strategies in both fields, this paper situates de-tautologization and de-paradoxification not as merely theory-immanent conceptual operations—or as Luhmannian jargon—but as forms through which observation in the medium of meaning can continue despite the risks entailed by its own distinctions. In this way, the paper argues that knowledge concerned with human beings and society—or with what is designated as non-human and non-social—can open alternative possibilities of observation only by reckoning with the consequences of the distinctions and self-descriptions on which it depends.

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Meaning of Academic Freedom in the 21st Century – Observations from the Systems Theoretical Perspective

The central aim to this paper is to reflect about the meaning of the academic freedom observed from the systems theoretical perspective. The academic freedom is a widespread topic nowadays, which often remains a type of “buzzword”, which understanding is often intertwined with vagueness though importance of academic freedom for persistence of democratic societies is indisputable.

One of the main theses we would like to advocate in the paper is that systems theoretical framework represents a suitable theoretical toolkit for analysing academic freedom, especially if expanded understanding of its multiple dimensions is considered (Roth and Kaczmarczyk, 2026). Of special relevance is to observe the meaning of academic freedom in its 1) temporal dimension by unfolding its evolutionary development from medieval university to the current state of affair. Moreover, it is equally urgent to address 2) spatial dimension as the examined context comprises diverse meanings or likeability to its actualisation in diverse social environments. In practical terms, potential to actualise academic freedom in semi-authoritarian political regimes is considerably constrained in juxtaposition to relatively democratic societies. However, this does not mean that even in the most advanced, in terms of economic development and democratic stability, academic freedom is not endangered. The mentioned of developments of jeopardizing academic freedom relate to continuous novel tasks imposed to the university alongside the central traditional roles of research and teaching, such is the capitalisation of knowledge of added demand for immediate and measurable social impacts. On the top of external constraining factors, a severe issue is also self-imposed censorship which heavily undermines capacities for having truly open academic debates. These attributes open question of 3) factual and 4) social dimension of meaning of the academic freedom concept as well as highlights complexity of its semantics.

No matter which semantical nuance is underlined in different interpretations of academic freedom in various social systems, there is an urgent need to insist of free seeking for the truth by providing ‘true/false’ code to objects of scientific analysis, i.e. to nurture main code of the scientific subsystem at the core of academic freedom concept. This is crucially important in a weird environment of 21st century where key categories of knowing of the world are under dispute. Within such context, protection of possibility of a free quest for the truth

emerges as the crucial task for preservation of scientific pillars of modern societies and their potential involution towards hierarchical societal forms ruled by “owners of knowledge” and “ultimate cognitive authorities”.

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Triferentiation as a Minimal Condition of Meaning: Beyond the Expansion of Luhmann's Dimensions

The tridimensional structure of meaning in Niklas Luhmann's theory—factual, temporal, and social—has become a canonical element of social systems theory. However, as recent contributions have noted, the underlying logic of this triadic architecture remains unresolved. In particular, the question persists: why should meaning be structured in exactly three dimensions, rather than more or fewer?

Most contemporary responses approach this problem by expanding the dimensional framework, introducing additional observational distinctions such as spatial, modal, or motivational dimensions. While these approaches enrich the descriptive capacity of systems theory, they do not address the prior question of what makes any dimensionalization of meaning possible in the first place.

This paper proposes a different approach. Rather than extending Luhmann's model, it introduces a formal framework—Relational Triferential Logic (LRT)—that operates at a prior analytical level (Lavanderos, 2025; Díaz-Barrera & Lavanderos, 2025; Lavanderos, 2026). LRT does not describe meaning as a structured system of dimensions, nor does it attempt to map observational categories. Instead, it specifies the minimal relational condition under which any distinction can be sustained as admissible.

Within this framework, meaning is not treated as a medium composed of dimensions, but as the effect of stabilized distinctions. A distinction cannot be reduced to a binary operation, as binary differentiation presupposes the persistence of difference without accounting for the conditions that make such persistence possible. LRT addresses this limitation by formalizing a triferential configuration in which three undetermined elements are required for a distinction to be sustained under a unit of reference (Lavanderos, 2026).

This triferential configuration does not introduce an additional dimension, nor does it expand the descriptive architecture of meaning. Rather, it defines the minimal condition required for relational differentiation to persist without ontological grounding. In this sense, the triadic structure is not one possible arrangement among others, but a condition of possibility for distinction itself.

From this perspective, Luhmann's three dimensions of meaning can be reinterpreted not as a closed or arbitrary structure, but as a specific stabilization of a more fundamental relational condition. The problem is

therefore not why meaning has three dimensions, but how triadic configurations enable the persistence of distinction.

This shift has important implications for systems theory. It suggests that the expansion of meaning into additional dimensions does not resolve the paradox of observation, but presupposes a prior condition that remains unformalized. By addressing this condition directly, LRT provides a framework for understanding why certain distinctions stabilize while others do not.

Finally, this approach reframes the limits of communication. Communication is not primarily constrained by noise, interpretation, or complexity, but by the restricted viability of distinctions themselves. Only those distinctions that achieve persistence within triferential configurations become communicable, while others collapse before stabilization.

In this way, the paper contributes not by extending the dimensional architecture of meaning, but by grounding it in a minimal relational logic. Rather than asking how meaning can be expanded, it asks under what conditions it can exist at all.

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Meaning Without Passage: Narrative Rupture and Aporetic Suspension Observed with Systems Theory

Across moral-purpose professions — teaching, healthcare, social work, public administration — practitioners increasingly describe episodes in which they can still perform role routines yet can no longer sustain a credible account of why the work matters. Such episodes are often absorbed by familiar diagnostic vocabularies (burnout, demoralization, attrition) that treat meaning loss as an individual attitude or a stress reaction. We argue that what is at stake is not an evaluative judgment that can be strengthened, but a medium of meaning that has become locally unavailable. In Luhmann's terms (1995, 2012, 2013), meaning is not assigned to work; it is the medium through which psychic and social systems operate. When that medium fails to provide passage between moral evaluation and feasible action, the practitioner does not merely feel disenchanted — the system loses its capacity to deparadoxify, and observation itself stalls.

We develop narrative rupture as a process construct describing this kind of meaning failure, and we introduce aporetic suspension as its distinctive failure mode: an interpretive impasse in which no available distinction reconciles moral evaluation with the action structures the organization permits. The construct draws its philosophical name from Derrida's (1993) treatment of aporia as a passage without passage — a decision demanded where every available route is blocked by irreconcilable requirements. We retain Derrida as the philosophical antecedent and route the systems-theoretic load through Andersen's (2003) re-specification of Derridean undecidability into Luhmannian paradox: the foundational distinction that constitutes a system (or a role) cannot include its own observation, and deparadoxification operates by displacing this paradox into new distinctions and new semantics. Aporetic suspension, in our reading, is the moment a role-occupant observes the foundational paradox of the role itself (e.g., care/accountability in teaching) and finds the available semantic stock insufficient to displace it.

We model this process across five analytically distinct stages — triggering discrepancies, aporetic suspension, intensified individual sense-making, sensegiving escalation and contestation, and narrative resolution — and recast the trajectory as a deparadoxification dynamic distributed across psychic systems, organizations, and field-level semantics. The outcome is either meaning capture (successful deparadoxification through new distinctions that restore operational coherence and programme-level evaluation) or thin

endings (paradox absorbed by exit, cynicism, or ritualism — displaced rather than processed, and prone to re-emerge in later roles). Organizational and institutional discourse function here as moral-semantic infrastructure: they can supply distinctions that widen the deparadoxification space, or foreclose it by denying conflict and individualising blame. We derive testable propositions linking discrepancy intensity, moral framing, and discretion to rupture onset, and linking sensegiving regimes to outcome trajectories.

A methodological contribution accompanies the conceptual one. We propose semi-narratives — fragmented, contradictory, and unfinished narrative forms — as observable indicators of blocked deparadoxification. Where Boje (2001) theorises antenarratives as pre-story potential, semi-narratives are coded specifically as linguistic traces of paradox surfacing under constrained passage: aborted plots, unresolved contradictions, moral hesitations, non-endings, fragmented agency. We provide a coding heuristic that maps semi-narrative density onto stages of the rupture process and makes meaning breakdown and repair empirically tractable.

From “What” to “How” and “Why”: The Twin Transition and the Reprogramming of Meaning

The twin transition understood as the intertwined digital and ecological transformation of contemporary society is typically analysed in terms of technological innovation, governance, or organisational adaptation. This paper instead argues that the twin transition reorganises the underlying architecture of meaning-processing itself. Whereas earlier forms of coordination stabilised object-centred observations organised around “what”-questions, contemporary transformations increasingly privilege procedural (“how”), temporal (“when”), and motivational (“why”) orientations. The result is a shift in meaning-processing from object-centred observation toward recursive, future-oriented coordination structured through meta-programmes. Building on prior work on decision-programmes, meta-programmes, and polycentric semantic coordination (Neisig 2026), the paper examines how contemporary transformations reconfigure the decision premises through which systems observe, stabilise meaning, and make decisions (Andersen 2003). Drawing on Niklas Luhmann’s theory of social systems, meaning is approached as the medium that enables the continuous actualisation of possibilities through distinctions (Luhmann 1995a; 1995b; 2012; 2013). Luhmann’s triadic differentiation of meaning into factual (what), temporal (when), and social (who) dimensions (Luhmann 1995b, pp. 74–91; Andersen 2011) has long provided a robust analytical framework. Recent debates suggest that this triadic architecture may represent a historically stabilised reduction of an expandable set of meaning dimensions (Roth and Kaczmarczyk 2026). The paper conceptualises the twin transition as a process of meaning reprogramming in which organisational decision-programmes become increasingly reoriented through meta-programmes functioning as second-order decision programmes across domains (Neisig 2026). While organisational decision-programmes stabilise expectations within specific contexts, meta-programmes circulating through digital platforms and polycentric networks such as sustainability metrics, digital reporting frameworks, and circular economy standards, structure the conditions under which heterogeneous decision premises become comparable, transferable, and scalable across polycontextual environments.

Previous work has conceptualised polycentric networks as sites of ongoing semantic programming and reprogramming through which meta-programmes emerge and evolve as second-order decision programmes that organisations

can observe to reprogramme their own decision programmes (Neisig 2021; 2024; 2026). The twin transition intensifies these dynamics by increasing requirements of programmability. Digital infrastructures increasingly standardise how decisions are communicated and evaluated, while ecological imperatives intensify orientations toward responsibility, regeneration, resilience, and long-term viability.

The transformation becomes visible in a changing hierarchy of meaning dimensions in which meta-programmatic coordination foregrounds procedural (“how”) and motivational (“why”) orientations concerned with decision-processing and justification, while meaning-processing increasingly operates through recursive procedures structuring expectations under uncertainty and future contingency.

This shift resonates with earlier analyses of semantic transformations in governance and organisation, where the growing prominence of “how”-questions (process design, protocols, optimisation, interoperability) and “why”-questions (purpose, impact, regeneration, sustainability) indicates a reorientation of meaning away from substantive definitions toward the recursive management of contingency (Neisig 2021; 2024; 2025). Meaning thus becomes increasingly temporalised and proceduralised, emerging through the coordination of observations, projections, evaluations, and decision premises (cf. Luhmann 1995b; Esposito 2011).

Empirically, the paper situates these developments in polycentric transition networks through which meta-programmatic semantics such as “sustainability,” “transition,” and “regeneration” are continuously programmed and reprogrammed (Neisig 2025). Regeneration is analysed as a semantic innovation that shifts evaluative logics from optimisation toward renewal, adaptive capacity, and long-term resilience.

Theoretically, the paper contributes to debates on the expansion and transformation of meaning dimensions through programmable meaning architectures (Neisig 2026; Roth and Kaczmarczyk 2026). The twin transition should therefore be understood not merely as technological or ecological transformation, but as a co-evolutionary transformation of decision premises and meaning architectures through which society recursively reprogrammes how it observes itself.

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The deficient dimensions of meaning in the Large Language Models. Or: How semantics and hallucinations emerge from syntax

The history of large language models (LLMs), which quite rightly have the word “language” between ‘large’ and “model” in their name, reveals their roots in the thscience of language, thus actually engaging in cultural and linguistic studies rather than neurophysiology or technical analysis. Biological metaphors, primarily the human brain, are usually used to explain the new technical systems, because their architecture and design are network-like: similar to, although much simpler than, the central nervous system of living beings. However, the materials presented here suggest a different origin for technical systems: it is not so much the central nervous system that helps us understand large language models, but rather a linguistic theory developed by Zellig Sabbetai Harris (1909-1992), Noam Chomsky’s doctoral supervisor. Harris, in stark contrast to Chomsky, based his language theory on a statistical foundation that could not be technically realized in his day, but has now found its machine realization in these artificial neural networks in the form of ChatGPT, for example. The main issue of my paper is to describe the relationship between syntax and semantics, meaning, coming from Harris’ syntax theory and applied to its computational manifestation, the LLM of today. Harris already knew that semantic aspects can be covered by syntax alone, but from a statistical syntax must emerge, as he called it schizophrenic talk, now better known as hallucinations. LLM have inherited this and generate semantically correct text to an astonishing degree but failing in simple matters. In these LLM not all of the dimensions of meaning are present. LLM lack the factual and the temporal dimension, because they have no connection to the real. Only a subset of the social dimension of meaning, the syntax of language, remains, thus focussing on the observer alone. I suppose that this is responsible for the astounding acceptance of LLM as chatbots in a restricted mode of communication, but also for the malfunctions we observe nevertheless.

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Reflexive Opacity and the Visibility of Platform Regulation: Meaning Configurations of the Digital Services Act on Social Media

Under what conditions does platform regulation become publicly visible — and what happens to its meaning when it does? This project examines the visibility dynamics of the European Union's Digital Services Act (DSA) on social media, asking two interrelated questions: whether a single regulatory programme produces structurally distinct visibility patterns across its lifecycle, and how the meaning of the regulation — understood as the horizon of the possible (Luhmann, 1984) — is configured and reconfigured in the process of its platform-mediated circulation. Which possibilities of observation remain open in each phase, and which are structurally closed? The DSA presents a theoretically distinctive case: it governs the very algorithmic selection mechanisms through which its own public observability is determined. The regulation imposes transparency and accountability requirements on algorithmic systems, yet the public circulation of the regulation itself is subject to the selection logic of those same systems. We theorise this condition as reflexive coupling — structural coupling between governance programmes and platform programmes that becomes operationally self-referential. This circularity is not a logical paradox but a structural condition that produces empirically observable effects on how the regulation is publicly observed. However, we depart from treatments of structural coupling as a static condition. Drawing on Maturana and Varela's (1987) original conception of coupling as activation-dependent, we argue that the coupling between the legal system and platform systems is dynamic: it varies in permeability depending on the compatibility between the programmatic complexity of regulatory content and the selection logic of the platform. Content whose form is compatible with algorithmic selection for engagement passes through the coupling; content whose complexity resists reduction is structurally filtered out. The coupling functions not as a fixed channel but as a variable filter — form-sensitive and activation-dependent. This has direct consequences for legitimation: if public contestability of regulation presupposes that regulatory programmes are observable not merely in their existence but in their complexity of meaning — as horizons of possibility open to scrutiny — then the selective permeability of the coupling reshapes the conditions under which regulation can be publicly contested as a

programmatic whole. One inferential limit applies: the design observes what passes through the coupling, not what is filtered out, so claims about selective permeability are read from the form of circulating content rather than from a suppressed counterfactual.

This argument builds on and extends the programme-visibility framework developed in Quintero Godínez and Terenzi (forthcoming), which identified three visibility configurations across cross-border fiscal reforms — strategic opacity, controlled visibility, and mobilisation-dependent visibility — each corresponding to a distinct relationship between programmatic complexity and platform-mediated circulation. The present project tests whether these configurations reproduce within a single regulatory instrument observed over time, and introduces a second analytical level that moves from visibility magnitude to meaning composition: not only how much the DSA becomes visible, but what kind of communication is selected, in what communicative form, and with what consequences for the horizons of meaning available to public observation.

We pursue these questions through a two-level empirical design using Meta Content Library data on DSA-related public content on Facebook and Instagram, from the Commission's proposal (December 2020) through implementation and enforcement (2024–2026). At the first level, we trace the DSA's visibility across its regulatory lifecycle and classify each phase according to its visibility configuration, replicating and extending the method developed in our prior comparative work. At the second level, we move from how much circulates to what circulates and in what form. For each phase, we characterise the meaning composition of public discourse along three axes: thematic scope (which aspects of the regulation enter public circulation and which do not), communicative form (the visual and textual formats through which the regulation is observed), and co-textual structure (the relationship between visual and textual elements within individual communications, and what this reveals about the attentional logic governing selection). The three axes capture what is selected, in what form, and how attention is structured within it. Together, these three axes produce a meaning profile for each visibility configuration: a description of what the regulation means — which horizons of possibility it opens — as it passes through each phase of platform-mediated circulation. The question is not whether meaning is reduced, but how it is reconfigured: which aspects of the regulation become foregrounded, which recede, and what structure of observability the platform programme produces in each case.

The paper contributes to current discussions on the relationship between meaning, observation, and functional differentiation in platform-mediated environments — including recent proposals to expand the canonical

architecture of meaning dimensions (Roth and Kaczmarczyk, 2026). By examining how the algorithmic selection logic of platforms configures the meaning of regulatory programmes, the project addresses the conditions under which regulatory instruments sustain public contestability, and offers an empirical investigation of how Sinn — as a medium that opens and closes horizons of possibility — operates under conditions of algorithmic mediation.

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Being(s), Metastable. Scientific Meaning as Asymmetrical, Complexity-Equivalent Feedback (from Beyond Meaning)

Studies on the concept of ‘meaning’ have repeatedly highlighted the limitations of the term (Stäheli 2000; Gumbrecht 2004), which make it impossible to observe its own negativity as a condition. The fact that the negation of meaning generates meaning again is due to the impossibility, within Luhmann’s theory, of distinguishing between negation and negativity. Negativity of meaning is unobservable with Luhmann, because it would coincide with the negativity of psychic or social beings. Nevertheless, Luhmann’s systems theory can define an ‘outside’ of systems of meaning within meaning, and sociology can conceive of negative (not only negated) sociality (Stäheli 2021). Drawing on Luhmann’s concept of meaning, we can term negativity the unmarked difference between Being and meaning (Adorno 1973): a residual. Art and sensory media, for example, release this negativity through the symmetry of perception and communication, thereby creating ostensive meaning (‘Wirkung’). Science, on the contrary, will test selected meaning for its stability and mark unmarked differences of “Being” (Heidegger) and meaning (Spencer-Brown 1957). It therefore produces instability of meaning according to the unmarked space of distinctive Being.

Unlike in art, law and politics, stability in science is not subject to affirmation of negative negation, but an equivalent of the asymmetry between meaning and Being. The observer is crossed out and can be experienced as an effect of the conditions of Being. Stability appears as an interim metastability, meaning as the positivisation of the negativity of the unmarked state arising from the feedback of Being in meaning. Negative feedback in science is not a lack of style programming as in art, nor conformity as in law, nor a power effect as in politics, but rather an equivalent of meaning complexity itself. Especially when it comes to couplings of meaning systems with things, living organisms and technical systems, our meaningful theoretical architecture must be able to recognise (via attribution) that part of the actualised meaning-core of meaning systems is generated outside of actual meaning itself (Luhmann 1975, 47ff.).

We can distinguish constructivism (selection/non-selection) and cognitivism (internal/external) (Tække 2025), operative and communicative closure, regulation (“Steuerung”) and control (“Kontrolle”) (Luhmann 2020, 528 + 530): A part of every meaningful observation is not only open to, but formed (distinguished) by environmental noise, which is not necessarily fully transformed into meaning. The same applies to science, which, in addition to

its own self-description, always relies on an external action selection of and an internal experience selection by its objects in order to claim truth (not only knowledge as a product of cognition) (Luhmann 1990). Under which (not only what) conditions and with which (not only what) goals are distinctions and differences formed (Roth and Kaczmarczyk 2026, 11)? The scientific coupling of experience and experience (Luhmann 2012, 200f.) is a “rationality” (Luhmann) of the indeterminacy of choice (premise/decision). The problem here is that Luhmann’s theory of science excludes key aspects of scientific experience of the world that appear as invisible markers, because they are not guided solely by systems of meaning. We can speak of remarkable “relevance” (Luhmann 2017, 90; Fuchs 2016) or “residual complexity” (Luhmann 2010, 43) of meaning, that cannot be left to value systems of political ideologies, without risking a memory deformation (resistance to updated information) or an operative blackout.

In my paper, I aim to bridge this theoretical gap through an intertextual reading of Luhmann and Heidegger’s concepts of “Being” and “event” (Heidegger 2012, 2013, 2019). Luhmann’s postulate of science and society as ‘concrete systems’ (Parsons) is to be substantiated with Heidegger’s trans-substantial ontology as a self-founding foundation. In turn, Heidegger’s attempt at an analytical concept of Being is supplemented by a Luhmannian perspective of operative difference and self-organization, which does not reify Being through the question of its meaning. Being is only Being in the distinction of the internal differences of its being-together. In all this, the paradoxical autopoiesis of social meaning must not be abandoned or reduced to psychic, organic, political or other autologies. Likewise, the non-meaningful environment of society is not understood as its antithesis. On the contrary, the operative concreteness of meaning is taken seriously and understood as a functional equivalent of things, technology or organisms. With Heidegger, I will argue that meaning systems have more to do with the complexity and metastability of Being than is apparent in the scope of Luhmann’s sociological theory, yet at the same time Luhmann’s radicalization of autology and self-reference can help us to say more about the functional paradoxes of Being than Heidegger, existentialist interpretations of Heidegger and poststructuralist ontologies.

The functional interface between both theories will be the concept of action that no longer only refers to instances (like systems) or things, but to substances (functioning couplings of beings or systems) as the mechanism of actional closure itself and their appearance as opening through experience. The task of science is to describe with precision the difference between Being and meaning, thereby rendering real complexity less resistant without ignoring or deforming it. This becomes a problem on the level of social organization (as

double closure): The connections between operations through their simultaneous observations appear as metastable couplings of beings. The form of truth, problematic due to semantic inertia and structural diversity, is guided by the distinction between research and legitimation; the form of the event by the distinction between controlling exploration and regulative lived experience. As a distinction between actuality and possibility, meaning generates different paradoxes depending on whether it is observed as a medium or as a form (Luhmann 2013, 166f.) of communication or consciousness (Luhmann 2013, 163). As a medium, the paradoxes of meaning refer to the “reality infrastructure” (“Realitätsunterbau”, Luhmann), which emerges as the resistance of systems of meaning to their own operations; as a form, the paradoxes of meaning overwhelm a system through the inability to mark the unity of the difference between system and environment, and points to the inexhaustibility of the world. Since neither communication nor consciousness can close themselves off from their specific environment, the question arises as to how the contingency of the boundaries of meaning finds evolutionary points of reference in which systemic realities can differ from the world, in order to fit in with their environment. Whilst the process of the evolution of meaning in pre-modern times was intrinsically linked to its organic foundations, modernity has confined the organic to its motivational function (Luhmann 2005). Technological evolution has also led to a shift in the mechanisms of selection: In addition to speeding up and displacing the causal closure of communicative operations, technology’s capacity for resolution and recombination has led to an understanding of the instability not only of perception, but also of things themselves. Problems of reflection appear as problems of self-regulation. Luhmann’s question regarding the relationship between the dimensions of meaning (Luhmann 2013, 177) can be answered by pointing to a tension between an ever-increasing range of potential meanings and the limitations imposed by the fact that perception is still bound to the organism; this reality of the resistance of operations of meaning against themselves is reflected in attempts to address the psycho-organic overload through a spatial order and discipline of boundaries modelled on the organic, at the level of self-organization of society. What cannot be achieved through communication is left to the imagination and its medialization. The task of scientific truth here is to distinguish the media of meaning from its forms. Luhmann’s earlier proposal to assign this task of distancing to science (Luhmann 1968) leads to the question of how science distances itself from its environment and distinguishes between different systems and their environments. If (meta-)reflection is blocked, science gains distance by recognising metastability as its formal outside of organization from within.

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Organizational Neutrality as the Deparadoxification of Political Meaning

This paper develops a systems-theoretical account of organizational neutrality as a semantic form for processing political conflict. Contemporary organizations increasingly encounter political controversies that cannot simply be externalized: conflicts over identity, war, climate, inequality, inclusion, academic freedom, public responsibility, and democratic legitimacy enter organizations through employees, students, consumers, stakeholders, media publics, and regulatory expectations. This condition reflects the growing political entanglement of organizational life, where firms, universities, public administrations, and other formal organizations are increasingly exposed to political expectations that exceed their formally defined purposes (Scherer & Palazzo, 2011; Swigart et al., 2020; Zorn, 2025). In such situations, neutrality is often presented as restraint, balance, professionalism, institutional prudence, or the refusal to politicize organizational life. Yet neutrality is not the absence of political meaning. It is a communicative operation through which political conflict is observed, recoded, and made organizationally manageable. The paper asks how organizational neutrality deparadoxifies political meaning. The paradox is that organizations must respond to politically charged environments while maintaining the appearance that their decisions are organizational rather than partisan. Once political conflict enters an organization, both speech and silence become meaningful. Taking a position can be read as political alignment, but refusing to take a position can also be read as political alignment. Neutrality therefore functions not by removing politics, but by displacing political conflict into alternative organizational distinctions: professional/unprofessional, procedural/arbitrary, inclusive/exclusive, relevant/irrelevant, lawful/unlawful, managerial/unmanageable, or disruptive/non-disruptive. Through these distinctions, neutrality converts political undecidability into organizational decidability.

This argument builds on Luhmann's account of organizations as systems of decision communication and on subsequent organization-theoretical readings of Luhmann that emphasize distinctions, decision premises, and communicative self-reproduction (Cooren & Seidl, 2020; Luhmann, 2018; Seidl & Becker, 2006). Rather than treating neutrality as moral virtue, hypocrisy, or cowardice, the paper reconstructs it as an organizational semantics of deparadoxification. Deparadoxification does not solve paradoxes; it renders

them latent, actionable, or administratively processable (Seidl et al., 2021). Neutrality allows organizations to communicate a political refusal to be political. It stabilizes the organization's self-description as impartial, professional, inclusive, or procedurally fair while simultaneously reducing the complexity of conflict. In this sense, neutrality is not empty. It is a powerful technique for organizing the conditions under which political meaning may appear, be recognized, be delayed, be formalized, or be excluded. The analysis proceeds through Luhmann's dimensions of meaning. In the factual dimension, neutrality defines what a political conflict is for the organization: a reputational risk, a legal exposure, a workplace issue, a pedagogical problem, a moral controversy, or an operational disturbance. In the temporal dimension, neutrality structures when political meaning may be addressed: immediately or later, temporarily or permanently, during crisis or routine, before or after formal decision-making. In the social dimension, neutrality determines who may speak as a legitimate observer: managers, employees, students, experts, affected groups, publics, clients, or institutional authorities. This reconstruction follows the Luhmannian understanding of meaning as multidimensional selection, especially across factual, temporal, and social horizons (Baraldi et al., 2021). The paper then extends this reconstruction to modal and motivational dimensions of meaning. Modally, neutrality defines how conflict may be communicated: as dialogue, complaint, policy consultation, risk assessment, managerial escalation, or administrative procedure. Motivationally, neutrality defines why non-alignment should be accepted as legitimate: fairness, professionalism, institutional survival, psychological safety, academic freedom, legal compliance, or fiduciary responsibility.

On this basis, the paper develops a typology of organizational neutrality. Professionalizing neutrality translates political conflict into questions of expertise, civility, competence, and role-appropriate conduct. Proceduralizing neutrality transforms conflict into rules, protocols, due process, and formal consultation. Inclusivizing neutrality reframes antagonism as balanced participation, mutual recognition, or respectful dialogue. Managerial neutrality converts political disagreement into issues of risk, reputation, productivity, culture, or disruption. Each form stabilizes meaning, but each also produces characteristic blind spots. Professionalizing neutrality may suppress dissent as incompetence or immaturity. Proceduralizing neutrality may reduce normative conflict to rule-following. Inclusivizing neutrality may erase antagonism through the language of respect. Managerial neutrality may transform political disagreement into an object of administrative control. These blind spots correspond to broader critiques of neutrality as a politically

consequential, rather than merely technical, organizational posture (Triantafillou, 2015).

The paper's central claim is that organizations participate in political culture not only when they take sides, but also when they refuse to take sides. Neutrality is therefore a political semantics of apoliticism: a way of observing and handling conflict while preserving the organization's self-description as non-political. This reconstruction contributes to systems-theoretical organization studies by linking neutrality, deparadoxification, decision premises, and organizational self-description to the problem of political meaning. It also clarifies why neutrality becomes especially attractive under conditions of polarization: it promises to reduce conflict without appearing to decide the conflict politically. Its effectiveness, however, depends precisely on this concealment. Neutrality renders political meaning decidable by making the organization's own political operation appear as procedure, professionalism, inclusion, or necessity.

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AI, Decisions and Responsibility in Organisations: Meaning, Contingency and the Organisational Processing of Artificial Communication

Purpose

This article develops a systems-theoretical account of AI, decisions and responsibility in organisations. Its purpose is to reframe generative AI not as an autonomous decision-maker, neutral answer engine or merely technical innovation, but as technological mediation of meaning inside contested organisational life (Luhmann, 2012a; Esposito, 2017; Esposito, 2021; Tække, 2025b).

AI does not create additional organisational complexity from nothing. It enters organisations already shaped by trust problems, power struggles, hierarchical constraints, selective communication, professional conflicts, weak review practices and unstable legitimacy (Meyer and Rowan, 1977; Suchman, 1995; OECD, 2024; Nielsen, 2024).

Without reflected organisational change, AI may intensify these patterns: dominant framings can appear technically neutral, premature closure can be accelerated, existing power positions can be strengthened, and uncertainty can be hidden behind fluent and persuasive language (Besio et al., 2025; Stingl de Vasconcelos Guedes et al., 2026; Tække, 2026). The article therefore asks how organisations can process AI-generated possibilities responsibly before they are converted into decisions.

Design/methodology/approach

The article is conceptual and design-oriented. It combines Niklas Luhmann's theory of meaning, epistemology of observation, distinction between psychic and social systems, theory of organisations as decision systems, and the functional method (Luhmann, 2006a; Luhmann, 2006b; Luhmann, 2012a; Luhmann, 2018; Knudsen, 2010, Watson, et al. 2025). The analysis begins from observation by distinctions: organisational problems are constituted through distinctions that make some possibilities visible while leaving others unmarked (Schiltz and Verschraegen, 2002; Besio and Pronzini, 2010; John and Rückert-John, 2010). AI is reconstructed as a producer of selectable communicative offers. It may irritate consciousness, formulate vague concerns, support interaction, generate alternatives, summarise disagreement and draft possible decision premises (Esposito, 2017; Esposito, 2021; Nielsen, 2026; Tække, 2025a).

However, AI does not understand in the mode of consciousness and does not decide in the mode of organisation (Luhmann, 2018; Seidl and Mormann, 2015; Tække, 2025b). AI-CATCH for Statistics (see ai-catch.com) is used as a design case for guided communication, premise conversion and reviewable decision preparation (Nielsen and Thygesen, 2026; Nielsen, 2026). The article also places the argument within current debates on AI ethics and governance. It discusses the EU AI Act's risk-based framework, including its requirements for high-risk AI systems and human oversight, alongside the Anthropic dispute concerning safeguards against mass domestic surveillance and fully autonomous weapons (European Union, 2024; Anthropic, 2026). The EU AI Act is treated as a legal programme that translates concerns about AI into regulatory distinctions, while the Anthropic case illustrates how ethical red lines may become unstable when they are not anchored in enforceable organisational premises (Luhmann, 1969; Ocampo, 2025). A further implementation problem is that regulation, guidelines, frameworks and AI-readiness strategies do not automatically become organisational practice. The EU AI Act, CCSA, UNECE/HLG-MOS and PARIS21 provide important regulatory and strategic orientations, but they do not by themselves change everyday decision-making. Their practical effect depends on whether they are translated into local work instructions, review routines, escalation rules, defined roles and decision premises that can be used, checked and challenged in concrete organisational situations.

Findings

The article demonstrates that the common implementation gap is better understood as a premise gap (Nielsen, 2026). Standards, ethical principles, regulatory categories and AI outputs often circulate as external descriptions or ceremonial references without becoming re-enterable criteria in later decisions (Meyer and Rowan, 1977; Knudsen, 2007; Nielsen and Thygesen, 2026). This also applies to AI regulation and guidance: laws, guidelines and readiness frameworks can define expectations, risks and responsibilities, but they do not by themselves change organisational communication. They must be converted into practical premises that can be used, cited, reviewed and challenged in daily work (European Union, 2024; CCSA, 2026; UNECE/HLG-MOS, 2025; PARIS21, 2025).

Responsible AI use requires premise conversion: selected AI-generated possibilities must be rewritten as goal programmes, conditional programmes, review obligations, interrupt rights, escalation procedures, documentation duties and role responsibilities (Luhmann, 2018; Nielsen, 2026). The analysis also shows that “human in the loop” is insufficient. A human may privately

doubt an AI output, but this psychic observation has no organisational effect unless it becomes communicable, contestable, recordable and capable of interrupting decision chains (Luhmann, 2012a; Luhmann, 2018; Besio et al., 2025). AI can support movement from private irritation to communicative clarification and from interaction to organisational premise formation (Nielsen, 2024; Nielsen and Thygesen, 2026). Yet it can also reinforce mistrust, power asymmetries and blind spots when introduced without reflected change (Davies, 2017; OECD, 2024; Stingl de Vasconcelos Guedes et al., 2026). In the factual dimension of meaning, AI changes what the issue is taken to be. In the temporal dimension, it accelerates proposal, review and closure. In the social dimension, it changes expectations about what others will accept as relevant or authoritative (Luhmann, 2012a; Esposito, 2017). The EU AI Act and the Anthropic case show the same problem at different levels: normative distinctions such as lawful/unlawful, safe/unsafe, human/non-human and responsible/irresponsible are necessary, but they do not decide (European Union, 2024; Anthropic, 2026). They become consequential only when translated into enforceable organisational premises (Luhmann, 1969; Ocampo, 2025).

Originality/value

The article contributes a systems-theoretical vocabulary for analysing AI responsibility beyond the opposition between automation and human control (Luhmann, 2018; Esposito, 2021; Tække, 2025b). Its originality lies in treating AI as a contingency amplifier and formatter of possible meanings rather than as a decision subject (Esposito, 2017; Tække, 2026). It connects Luhmann's dimensions of meaning to practical AI governance by showing how psychic observations, interactional discussions and organisational decisions are coupled through communicative forms (Luhmann, 2012a; Luhmann, 2012b; Drepper, 2006).

This also links to the concept of the multifunctional organisation, since AI-supported decisions must be defensible across several function-system references at once: legal, scientific, economic, political, technological and public/media-related (Roth and Sales, 2025). It clarifies the organisational weakness of normative AI discourse: ethical, legal and strategic expectations become responsible only as premises capable of guiding, stopping, reviewing or legitimating later decisions (Luhmann, 1969; Ocampo, 2025; European Union, 2024; CCSA, 2026; UNECE/HLG-MOS, 2025; PARIS21, 2025). The article offers a design logic: keep AI at the level of variation, comparison, drafting and memory support, while reserving authorisation, responsibility

and re-entry to organisational decision communication (Nielsen, 2026; Nielsen and Thygesen, 2026).

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Legal Liability: Meaning, Vaporization, and Distillation in the Information Society

This paper examines the transformation of legal liability within contemporary information society, arguing that the migration of human activity into digitally mediated environments has fundamentally altered the conceptual, institutional, and normative foundations upon which liability has historically operated. Prescriptions concerning liability have traditionally been distributed through identifiable legal subjects — institutions, corporations, public authorities, and individuals — within material and territorially bounded systems of interaction. In the information society, however, this distribution is interrupted by a process of technological abstraction in which conduct, communication, identity, authorship, and causation become data flows, algorithmic operations, and platform-mediated exchanges. The paper conceptualizes this phenomenon as the “vaporization” of liability: a process through which legal meaning becomes destabilized when social actions lose part of their physical, territorial, and evidentiary anchors and are reconstituted within digital architectures. The article develops the metaphor of vaporization not merely as rhetorical imagery, but as an analytical framework for understanding liability in digital ecosystems. In cyberspace, harmful conduct rarely appears in legally recognizable form. Instead, it is dispersed through layers of infrastructure, intermediaries, automated systems, recommendation algorithms, hosting services, cloud architectures, and transnational platform governance arrangements. Actions become encoded as data, interactions become metrics, and accountability becomes increasingly difficult to localize. As a consequence, traditional legal categories (i.e. fault, causation, foreseeability, negligence, editorial control, and even personhood) encounter significant strain. Liability no longer attaches easily to discrete acts or actors but circulates through interconnected technological environments in which multiple entities participate simultaneously. Against this background, the paper argues that contemporary regulatory initiatives seek to “distill” liability back into recognizable legal forms. Distillation, in this context, refers to the effort by the legal system to extract structures of responsibility from the dispersed and vaporized conditions of digital communication. The principal object of analysis is the Digital Services Act, examined alongside other European and transnational normative developments addressing intermediary responsibility, platform accountability, algorithmic governance, online harms, and systemic digital risk. The paper contends that these

instruments represent an attempt to encode liability into the architecture of the information society itself by imposing procedural obligations, due diligence requirements, transparency duties, notice-and-action mechanisms, risk mitigation obligations, and governance standards upon digital intermediaries. The paper further argues that the encoding of liability within digital regulation reflects a deeper transformation in the relationship between law and technology. In traditional legal systems, liability emerged retrospectively through adjudication after harmful conduct had occurred. In digital environments, however, liability is increasingly operationalized prospectively through technical design, automated moderation systems, algorithmic detection tools, terms of service, content governance policies, and compliance infrastructures. Consequently, legal responsibility becomes embedded within code, platform architecture, and data governance processes. This development raises significant questions concerning legitimacy, privatized enforcement, procedural fairness, freedom of expression, and the delegation of quasi-regulatory authority to private technological actors.

Soil Semantics – on the meaning of soil

Soil has become an increasingly important issue in literature concerning the unfolding planetary crises. It has been observed that 'at least 100 million hectares of healthy land' were lost each year between 2015 and 2019 (UNCCD, 2023). This degradation is expected to continue and may be further accelerated by the climate change, deforestation, and multiple negative feedback loops. Clearly, chemical- and fossil-fuel-based conventional and intensive agriculture and land use is unsustainable and must be replaced with alternatives. Meanwhile, the demand for food is increasing year by year.

In the social sciences, these severe tensions have been addressed through studies of alternative forms of production and indigenous understandings of soil and land, as well as the development of 'soil ethics' (Sage, 2025). The various discussions about soil demonstrate that the distribution, ownership, cultivation, and use of soil are political issues, as is the meaning of soil. While soil is often scientifically observed as a 'dead' resource and a neutral growing medium, it is also considered to be a living, more-than-human, and agentic phenomenon, prompting the need for 'soil ethics' (Bellacasa, 2015, 2019; Grunwald, 2023). Thus, in critical studies, soil has emerged as something with which humans should have a deep relationship as a means of challenging the instrumental resource-based view of soil that underpins environmental crises. We argue that soil (along with related concepts such as land, ground, humus and mould) is not just an immediate material fact but is always imbued with meaning. Soil means something to someone. Agriculture is, of course, particularly important in this context. In this paper, we investigate the meaning of soil (and land) among Danish conventional farmers. Based on 30 interviews with conventional farmers, we observe how they make sense of soil. Soil ('jord' in Danish) is associated with different meanings ranging from a medium for growth, a heritage, status, economy, identity, cleanliness (the field is described as 'dirty' if covered with weeds), property, boundaries, Denmark etc.

Luhmann's three heuristic meaning dimensions can be used to cover the many meanings of soil. However, we lose some distinctions, meaning that some quite multiple, overlapping, and heterogeneous meanings fall into the 'rest' category, namely the factual dimension. Although farmers depend on the land for their livelihood, it means much more to them as a resource. A sense of duty to cultivate the soil is also described, as is the description of the field as either clean or dirty. Different forms of knowledge of the land are also unfolded. To

capture the heterogeneous meanings of soil, we experiment with different dimensions, such as aesthetics, ethics, and epistemology.

In sum: we explore the meaning of 'soil' and propose productive dimensions of meaning to conceptualise them. In the final section, we discuss opportunities for green transitions within the soil semantics of conventional farmers.

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Deadline as a Modern Temporal Form

Deadlines are essential for today's research activities. If asked "What is a deadline?", participants of this conference would likely answer immediately (though, of course, they often find themselves at a loss when asked "When will you submit it?"). Academic researchers are constantly faced with various deadlines: submission deadlines for journal articles, deadlines for commissioned manuscripts, deadlines for scholarships or grant applications, and deadlines for documents at their institutions or for job applications. (They might even face application deadlines for concerts they want to attend on holidays, nursery school for their children to enroll in, or insurance products with approaching age restrictions.) Administrative staff at university faculties or academic societies seem to constantly exchange deadlines with each other. These deadlines, crucial to modern organizational activities, are underpinned by the development of modern concepts of time, clock time, and calendar systems. They permeate various domains alongside modernization. Even in the present day, with advances in information and communication technology and transportation networks, the setting and utilization of deadlines have not ceased, but have only intensified. Deadlines are a familiar part of our daily lives, but sociological research on their effects remains limited. Therefore, this paper explores the potential for sociological research on deadlines, specifically by reconstructing deadline theory from Niklas Luhmann's article, known as the "Deadline Paper."

Based on Luhmann's paper "The Scarcity of Time and the Urgency of Deadlines" and his theory of time (see: Umemura 2020, 2024), a deadline can be understood as a temporal form that (1) indicates the specific point in time or term by which a certain action should be performed, (2) distinguishes whether the point at which an observation takes place is "before" or "after" that deadline, (3) links the evaluation of an action and its relevance for subsequent actions when it is performed at that specific point in time.

As the question "Why are deadlines always suspended?" suggests, we daily experience the plasticity of deadlines; this is because the deadline is, after all, a temporal form serving as an observational schema. Furthermore, to summarize Luhmann's argument, as functional differentiation and increasing complexity in modern society make it increasingly difficult to achieve correspondence at the event-dimension and social dimension of meaning, correspondence in the temporal dimension is sought as a "practical value" that substitutes for event-level values and social consensus, leading to a situation

where time-bound projects utilizing temporal media are given priority. In this regard, following his debate with Jürgen Habermas, Luhmann frequently pointed out that Habermas's concept of deliberation lacked "temporal constraints." He also identified a function whereby the temporal form of the "project"—which is heavily relied upon in contemporary academic research—"coordinates temporally" with the economy and politics, allowing academia to secure the necessary scope for activity and resources. In a sense, deadlines can be described as the "norms of an era without norms." In this presentation, I will examine the significance of deadlines as observational schemas grounded in modern concepts of time, based on Luhmann's considerations.

Affectivized Conflict and the Weakening of Law: The Operational Turn in Public Administration

This article examines the rise of hostility, harassment, and emotional escalation in encounters between citizens and public administration, arguing that these developments should not primarily be understood as signs of declining civility or increasingly aggressive citizens. Instead, the article conceptualizes such phenomena as symptoms of a structural transformation in the form of conflict within contemporary welfare states.

Drawing on Niklas Luhmann's systems theory, the article approaches law as society's immune system: a structure that does not eliminate conflict, but enables, organizes, and processes it productively. Historically, administrative law institutionalized structured conflict by establishing contestable administrative acts, procedural rights, and juridical avenues through which citizens could articulate disagreement with public authorities. Administrative law thereby created what the article terms an "expectation economy of conflict," specifying who could enter into conflict, when conflict could occur, and what it could concern. Through these structures, conflicts became calculable and could be transformed from personal disagreements into legal conflicts concerning norms and rights.

The article argues that this juridical infrastructure is increasingly weakened by what is described as an "operational turn" in public administration. Across welfare sectors, governance reforms emphasizing concepts such as "citizens first," "co-creation," "dialogue," "public value," "agility," and "relational coordination" have shifted authority away from formal decision-making structures toward situated interaction between professionals and citizens. Decisions become provisional, reversible, and continuously renegotiated within interaction processes rather than stabilized through formal administrative acts. This operational turn has profound consequences for conflict. First, it becomes increasingly unclear what exactly can be contested when decisions are temporary or diffuse.

Second, legal and professional justifications are replaced by fluid and situational considerations, making it difficult to determine what a disagreement concerns.

Third, authority becomes distributed across networks and interactions, obscuring who the citizen is actually in conflict with.

Finally, because interaction increasingly replaces formal legal procedures, conflicts remain within the interactional sphere rather than being transported

into juridical systems capable of processing them. The article introduces the concept of “affectivized conflict” to describe the resulting transformation.

Affectivized conflict does not refer to irrationality or purely emotional behavior. Rather, it describes a communicative form that emerges when structured, argument-based channels for disagreement erode. Whereas traditional “objectified conflict” is symbolically structured through arguments, legal claims, and procedures, affectivized conflict operates through intensity, immediacy, and diffuse negation. The “no” communicated by citizens no longer attaches itself clearly to decisions, norms, or procedures, but appears instead as frustration, hostility, accusation, or emotional escalation.

To conceptualize this transformation, the article distinguishes between symbolic and iconic forms of conflict communication. Symbolic conflict refers beyond itself to reasons and norms that can be debated and evaluated. Iconic or affectivized conflict, by contrast, presents itself directly as intensity: raised voices, public accusations, threats, or expressions of outrage that communicate an unmistakable “no” without clearly specifying its object. Such conflicts are therefore simultaneously unambiguous in intensity and diffuse in substance.

The argument is illustrated through empirical vignettes from Danish welfare administration. Media reports describe municipal employees exposed to threats, public shaming, and harassment. Citizens increasingly direct conflict toward individual professionals through social media and public campaigns rather than through institutional complaint systems. Administrative responses increasingly take the form of “immunization” strategies: panic alarms, anonymization of staff, conflict-management training, avoidance strategies, and categorizations of “difficult citizens.” In these responses, citizens are gradually redefined from legal subjects into potential threats whose affective intensity must be managed rather than whose disagreements must be processed. The article conceptualizes this development as a “negative spiral.”

The weakening of juridical conflict channels produces affectivized conflict; affectivized conflict prompts administrative strategies of protection and avoidance; and these strategies further erode opportunities for structured disagreement, thereby intensifying affectivization. Conflict does not disappear, but returns in forms that public administration struggles to process institutionally.

The article concludes that the contemporary problem is not an excess of conflict or emotion, but rather the weakening of institutional structures capable of giving conflict juridical form. Affectivized conflict should therefore be understood as a second-order immune response: a way of preserving the possibility of saying “no” when institutionalized channels for structured negation have eroded.

The central political and organizational challenge is thus not how to suppress affective citizens, but how to rebuild institutions capable of inviting, structuring, and processing conflict productively within democratic governance.

Sustainability Meaning, Observed with Brand-Consumer Structural Coupling

Sustainability marketing research often begins from failure: greenwashing, consumer scepticism, backlash, or the unintended negative effects of sustainability claims. Industry measurement often reproduces the same failure skew. When sustainability becomes a shared category expectation, brand-level instruments calibrated to differentiation may no longer register the movement they helped produce. What appears as weak brand performance may instead be the structural invisibility of success: the category floor has risen, the meaning baseline has shifted, and the original distinction has lost its differentiating force.

This paper makes that movement visible by observing sustainability meaning through structural coupling between brand organisations as social systems and consumers as psychic systems. In line with Maturana and Varela (1980, 1987), coupling is understood here as a dynamic, activation-dependent history of mutual perturbation rather than a stable institutional interface. Meaning is a medium without an outside (Luhmann, 1995a). Organisations and consumers draw from the same *Semantik* and process selections through their own Sinn. Consumers process claims through the distinction sustainable/unsustainable; organisations process them through the distinction profitable/unprofitable. The coupling produces a sustainability semantic cycle with three observable stages. Early: few organisations communicate sustainability and claims carry high information value. Active: communication intensifies, competition drives the *Semantik*, and evidence-based claims outperform generic ones. Evolved: sustainability has become the baseline expectation, the distinction has lost information value, and the mechanism has succeeded itself into structural invisibility. Information value is understood in Luhmannian terms: a claim informs only when it is contingent, when it could have been otherwise. Each stage therefore generates the conditions for the next, as yesterday's marked distinction becomes tomorrow's unmarked baseline.

Across 3.5 million consumer observations in 20+ European markets and 50+ FMCG category-market combinations, sustainability perception correlates with communication activity rather than brand size or declared mission. Organisations with strong credentials and low communication activity score at category average: credentials remain organisationally present but communicatively unavailable to consumers. On the brand side, purpose-based claims carry low information value and fail to produce irritation; evidence-

based claims remain contingent and activate the coupling. The same organisation occupies different stages in different markets because local *Semantik* determines stage position. The cycle stalls when original claims, such as recyclable packaging, lose information value, and restarts on a higher layer when new claims, such as supply-chain traceability, enter the marked state. The observer is part of this architecture. The researcher does not stand outside the coupling but operates a research infrastructure within it. Measurement instruments are channels through which consciousness participates in communication, translating consumer selections into organisationally usable observations. In this sense, the research design operationalises the paper's theoretical claim: sustainability meaning can only be observed through the same coupling by which organisations and consumers make it available to one another.

Each iteration elevates the floor. The evidence registers across all six meaning dimensions (Luhmann, 1995b, 2012; Roth and Kaczmarczyk, 2026): spatially, identical regulation produces different local baselines; temporally, claims move from novelty to normalisation; factually, different sustainability claims enter and exit the marked state; socially, organisations and consumers reconstruct the same *Semantik* from different system positions; modally, evidence-based claims outperform generic purpose claims; and motivationally, brand communication remains intentional while consumer shifts are structurally accidental. Misreading these dimensional asymmetries leaves organisations observing yesterday's distinction after the category has already moved.

Where sustainability marketing research concentrates on when sustainability backfires (Acuti et al., 2022), this framework makes visible when and how it succeeds structurally. Sustainability communication raises the category floor through the semantic cycle, and each iteration elevates the baseline. It extends the expanded meaning architecture (Roth and Kaczmarczyk, 2026) by demonstrating all six dimensions at population scale in one domain, with the expanded dimensions capturing structural features the canonical three cannot. Its anticipatory power follows from the theory's logic rather than from retrospective pattern-matching: if information value declines as claims become normalised, then organisations can anticipate where the *Semantik* stands, which claims still irritate, and when new distinctions are needed.

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The war in Ukraine as a clash of opposing semantics

Russia's war against Ukraine is not merely a war over territory; it is also a war centred on the assertion of a particular political semantics. Drawing on Luhmann, one might even say that wars - which are always part of a society's communication structure - are fundamentally about conflicts over the production of meaning. It could be said that each side of the conflict seeks to establish its own narrative, its key political distinctions or ideas as dominant and legitimate. These are intended to make sense and be accepted. It is about meaning that provides the interpretation required by a political system - above all by its state - in order to secure interpretative sovereignty over political communication within the country, internationally, or vis-à-vis the enemy. This can be called the semantics with which a regime describes itself, society, or the war.

This does indeed correspond to how Luhmann defines semantics, namely as forms that govern the reproduction of meaning (Luhmann 1995: 19; 2008: 55). On the other hand, however, Luhmann uses 'semantics' to refer to the long-term evolution of, for example, ideas that interact with a given dominant social structure. It is therefore important to recognise that the meaningful terms used by an autocratic regime such as Russia to justify its war of aggression against Ukraine should not be confused with long-term historical developments in political semantics, such as the concepts of sovereignty or nationhood. When we speak of semantics, particularly political semantics, which is used by the political system to describe itself and its intentions, we must look more closely and determine what the significance or function of these terms should be in a specific context - in this case, in the context of war. In other words, it is also a question of how artificial and arbitrary the distinctions are that a political regime establishes to justify its goals.

If we take modern, functionally differentiated society as our starting point, we can see how regional societies deal with modern structures and the corresponding concepts or ideas, and how they describe themselves - for example, as a nation, an empire or a civilisation, as Russia does. Furthermore, we might ask how misguided the circulation of certain political semantics is - for example, 'civilisation' or 'empire' - which convey meanings that no longer fit with modern society at all, unless they are enforced politically, regionally, through power or violence.

We view the war in Ukraine as a place where not only do incompatible semantics, ideas, narratives and the like clash, but where specific semantics are

also produced or brought to the fore, such as ‘anti-fascism’ or ‘denazification’ by Russia. In Russia, one can see how a backward-looking political semantics is being used by an autocracy to justify war and war aims, as well as the legitimacy of its own political regime.

In contrast, in Ukraine we have a political semantics that circulates in a political context quite different from that in Russia, namely in a reasonably democratised political system which, in its institutions, organisations and political self-description, is oriented towards modernisation and Europeanisation and thus towards distancing itself from the Russian narrative. This paper aims to examine this clash of incompatible political semantics - which war reveals and sets in motion - on several levels and from various perspectives. As a first step, we must examine the nature of the political semantics at play here, how they are established and controlled by the political regime, and to what end. This question can only be answered by distinguishing between several levels of conflict between opposing political semantics. First, there is the immediate friend-foe semantics dictated by the war. Here, one must also take into account the specific linguistic convention in Russia that the war is not a war, but a ‘special military operation’.

Then a much older set of concepts comes into play; in Russia’s case, the concept of empire, which the Russian regime invokes to justify Russia’s claim to Ukraine. Added to this is the idea that Russia is a ‘civilisational state’. And this context also includes the invocation of memory politics (the Soviet Union in the Second World War), through which Russia’s war is anchored in history. Finally, a third level comes into play: the international order and its semantics, e.g. concepts such as sovereignty, self-determination and statehood - terms that are interpreted very differently on both sides.

This clearly illustrates how the war also acts as a semantic disruptor. Through the war, political terms are being redefined; in Russia’s case, quite clearly in the sense of weaponisation: the country is distancing itself politically - and thus also semantically - from the West and its ‘dominant semantics’ regarding the international order.

The paper examines these levels using selected semantic fields and contrasts the case of Russia with that of Ukraine. It also demonstrates how political semantics influence sense-making, not only in domestic communication but also internationally, where support for one side or the other is at stake. And one can also see how conflicting political semantics form part of communication during war. Semantics marks out positions of observation that are continually adjusted depending on how the situation develops in the war or in international relations.

Finally, from the perspective of the theory of functional differentiation, it can once again be demonstrated that Russia’s political semantics are not only

backward-looking but also misguided: the discourse on imperial grandeur and the corresponding imperialist policies may be to the taste of regional elites and nostalgics, but they certainly no longer fit into modern society. One might counter: nor does it need to, for dictatorships are not concerned with the achievements of modern society, but with the preservation of power, which includes control over the relevant concepts through which people interpret reality. Be that as it may, autocracies may attempt to create their own realities – including through ‘sense-making semantics’, which is not only anti-modern but can also have a destructive effect, as we can see from the war. But they certainly do not herald a new social order.

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Ralf Rogowski

The Meaning of Reflexive Law

Abstract available upon request: prof.rogowski@web.de.

Meaning, risk and danger in quantum computing

Quantum computing is emerging as a technology that introduces profound and multifaceted threats to existing digital infrastructures. In the hands of malicious actors, quantum computers could render contemporary cryptographic protections obsolete, jeopardising critical societal infrastructures such as payment systems, healthcare services, and defence communications. Ensuring societal resilience therefore requires addressing the quantum threat proactively. Quantum Cryptography, and particularly Quantum Key Distribution (QKD) as a form of quantum communication, has been proposed as a potential mitigation strategy by promising quantum-secure communication. Yet a shared difficulty persists: many organisations recognise the quantum threat but struggle to determine what meaningful action it calls for.

Although quantum-secure communication technologies are frequently presented as possible solutions, their emergence has not resulted in straightforward adoption or clear strategic direction. Instead, our empirical research finds that innovation ecosystems around quantum communication are characterised by persistent uncertainty, oscillation between urgency and hesitation, and fragmented expectations regarding viable technical pathways, appropriate time horizons, and criteria of legitimacy.

This paper argues that these dynamics point to a more fundamental problem of meaning, specifically concerning how future possibilities are observed, filtered, and synchronised across structurally differentiated systems. In Luhmannian systems theory, meaning arises through the observation of contingencies and the selection of one possibility as actual (Luhmann, 1995, 2002). Such selection presupposes observation, yet systems never observe their environment directly. Rather, they rely on evolved structures that channel observation, filter relevance, and constrain which possibilities can be envisaged as selectable futures. As a result, different systems construct different horizons of possibility, even when confronted with ostensibly shared challenges.

This structural condition has crucial implications for the conversion of danger into risk. Following Luhmann (Luhmann, 1990, 1993), danger refers to potential harm attributed to a system's environment, whereas risk refers to potential harm attributed to a system's own decisions. Risk presupposes that a system can relate possible harm to its own future-oriented selections and thus treat loss as a consequence of choice rather than fate. Such attribution depends

on stabilised expectations regarding which futures are possible and how present decisions relate to them. And when systems in an ecosystem operate with divergent, incompatible, or incommensurable horizons of possibility, shared expectations fail to emerge (Pretorius et al., 2024). In these situations, danger remains externalised and coordinated action becomes structurally improbable.

The development of quantum technologies provides an instructive context for analysing this problem. Innovators, end-user organisations, policymakers, regulators, and standardisation bodies are structurally positioned to observe the quantum future in different ways. Technology developers tend to perceive multiple prospective technological trajectories, each associated with distinct research agendas, investment profiles, and performance promises, and depend on user and policy input to evaluate and select among them. At the same time, potential users often lack the internal structures and temporal horizons required to assess which of these trajectories are relevant, legitimate, or timely for their operational contexts as understood through their meaning making processes. Policymakers, regulators, and standards bodies introduce further criteria and temporalities, multiplying observed possibilities. Consequently, stakeholder interaction often slows rather than accelerates convergence, and collective attempts to address the quantum threat result not in alignment, but in an expansion of contingency.

This paper advances the argument that such proliferation of futures can itself obstruct meaning making processing. While the observation of multiple possibilities is a precondition for decision-making, an excess of unsynchronised contingencies may overwhelm systems' capacities to stabilise expectations internally. Rather than enabling the conversion of danger into risk, the expansion of perceived possibilities may delay it, keeping the threat diffuse, external, and resistant to coordinated action. The central problem is thus not the absence of imaginable futures, but the absence of shared, socially observable horizons of futurity that allow different systems to orient themselves toward overlapping sets of possibilities through their respective meaning-processing mechanisms

Empirically, the paper draws on qualitative research conducted within the quantum innovation ecosystem in the Netherlands, including semi-structured interviews with technology developers, end-user organisations, policymakers, and ecosystem intermediaries involved in quantum communication initiatives. These data are used to reconstruct ecosystem-level dynamics through which meaning is produced, contested, and stabilised in relation to emerging technological futures.

Analysis of the empirical material results in the development of a causal loop diagram (CLD) that models these dynamics at the level of the innovation

ecosystem. Drawing on systems thinking and Luhmann's theory of social systems, the CLD articulates how perceived danger, inter-organisational observation, sense-making practices, expectation formation, disappointment, learning, and legitimation interact in reinforcing and balancing feedback loops. Particular attention is paid to mechanisms through which shared possibilities can emerge, including structural coupling between developers and users, scenario practices, pilot programmes, and standardisation and certification processes. These mechanisms are interpreted as meaning-producing structures that reduce unsynchronised contingency by rendering certain futures jointly observable and decision-relevant.

The paper contributes to ongoing debates on meaning and possibility by advancing a systems-theoretical account of future synchronisation as a condition for coordinated action under conditions of high complexity. It shows how the conversion of danger into risk depends not only on technological maturity or cognitive anticipation, but on the collective stabilisation of shared horizons of possibility. By integrating Luhmannian meaning theory with empirical analysis of quantum innovation dynamics, the paper offers both a theoretical elaboration of future-oriented meaning and a diagnostic framework for understanding coordination failures in emerging technology domains.

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Meaning observed with communicative translatability: Health Communication and the reconfiguration of digital inequalities in later life

Over the past two decades, the digitalisation of healthcare systems has profoundly reconfigured the ways in which individuals access information, interact with institutions, and participate in processes of care. Within health communication research, these transformations have largely been interpreted through the lenses of access, skills, and health literacy, often assuming that inequalities arise primarily from deficits in individual competences or uneven distributions of resources. While these perspectives have significantly advanced our understanding of digital health disparities, they tend to treat communication as a secondary or instrumental dimension, thereby overlooking its role as a constitutive process in the production of social inequalities.

This proposal argues that digital health inequalities are not primarily inequalities of access or skills, but inequalities in the conditions under which meaning can be produced and translated into communication. Drawing on Luhmann's systems theory, communication is conceptualised not as the transmission of information, but as a selective operation in the production of meaning. From this perspective, digital technologies function as communicative infrastructures that shape how meaning becomes available and operationally processable within social systems. The proposal observes these transformations through the distinction between communicative translatability and non-translatability, introduced as a second-order observational device that specifies how meaning is observed when attention shifts from what is communicated to how communication becomes possible across systems.

Digital health inequalities are thus reinterpreted as structured variations in how meaning is translated into operationally relevant communication. The analysis shows that communication in digitally mediated healthcare environments may fail even in the presence of accessible information, thereby shifting the explanatory focus from individual deficits to systemic conditions of communicative alignment.

Within this framework, health communication emerges as a privileged empirical domain for observing how meaning is processed across its dimensions. In the factual dimension (what), inequalities concern the accessibility and intelligibility of communicative objects such as digital

services, interfaces, and health information. In the temporal dimension (when), they relate to the continuity of interaction and the possibility of sustaining communicative processes over time. In the social dimension (who), they emerge through asymmetries in expectations between systems and participants, particularly in the recognition of communicative competence and legitimacy.

However, the analysis shows that digitally mediated environments foreground additional conditions of observation that cannot be fully captured within this triadic architecture. In particular, communicative translatability can be interpreted as a modal dimension of meaning (how), concerned with the manner in which communication becomes operationally processable (thus/otherwise) across systems. By introducing this distinction, the proposal contributes to ongoing debates on the possible expansion of meaning dimensions beyond the canonical triad.

The empirical analysis, based on a PRIN-PNRR funded research project on digital health literacy in later life (University of Cassino), further highlights how these dynamics are situated within specific communicative contexts. In the spatial dimension (where), inequalities emerge in relation to the locus of observation, particularly in the shift from relationally mediated environments to digitally standardised interfaces. In the motivational dimension (why), they relate to the orientations that guide participation, including trust, perceived relevance, and the attribution of necessity to digital health practices. Focusing on later life as an analytical device, the proposal demonstrates that ageing trajectories are embedded in communicative environments characterised by relational mediation, interpretative stability, and institutional interaction patterns that differ from those presupposed by digital platforms. This misalignment does not primarily indicate individual deficits, but reveals the selective character of communicative configurations across dimensions of meaning.

If meaning cannot be translated into communication, the very possibility of action becomes unstable. Agency, within this perspective, is reconceptualised as a relational and contingent outcome of communicative processes rather than as an individual property. It emerges when communications generated through technological devices can be translated into recognisable and operationally relevant forms within social systems. When communicative translatability is not achieved, agency appears as fragile, intermittent, or delegated.

By reframing digital health inequalities as inequalities in the conditions of access to meaning, this proposal contributes to current debates on how meaning is observed, structured and expanded in complex societies. It demonstrates that digitalisation does not simply produce new forms of

inequality, but reorganises how meaning is processed across dimensions, thereby requiring a reconsideration of the architecture of meaning in technologically mediated environments.

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Meaning and the observation of identity: A systems-theoretical approach to discourse and reflexivity via a multilingual pedagogical encounter

Much of contemporary society is characterised by increasing differentiation, instability and ideological fragmentation. In such contexts, identity categories frequently function as mechanisms of complexity reduction through which social systems organise meaning and stabilise expectations. Language continues to function as one of the most powerful of these social markers, particularly in South Africa, where linguistic identities remain deeply entangled with the historical legacies of colonisation, apartheid, racial categorisation and continuing social inequality. In South Africa, language is closely linked to broader assumptions concerning culture, race and social belonging, with divisions along these lines persisting despite democratic transformation and constitutional commitments to multiculturalism and social cohesion.

Common-sense assumptions surrounding linguistic groups frequently operate as stabilised social distinctions that shape perceptions of both self and other. Such assumptions may appear natural, neutral or self-evident, yet they often function to perpetuate stereotypes and reinforce social divisions through implicit oppositions between ‘us’ and ‘them’. In this respect, discourse surrounding language and identity continues to influence social boundaries and to perpetuate polarisation in South African society.

From a systems-theoretical perspective, such processes may be understood in terms of observation and distinction. For Luhmann, observation is always dependent upon distinction and the act of observing something essentially requires that one distinguish it from something else (Luhman 2012). Every observation therefore contains an implicit boundary through which meaning is constituted. Social perception consequently depends upon distinctions such as self/other, insider/outsider or educated/uneducated. Although distinctions are unavoidable conditions of meaning-making, they also carry the potential to solidify contingent observations into apparently fixed social realities. When distinctions become naturalised through discourse, they generally obscure their own contingency and begin to function ideologically as unquestioned aspects of meaning.

Drawing on Niklas Luhmann’s theory of social systems, particularly the concepts of meaning, self/other distinction and second-order observation, this paper explores how classroom discourse may facilitate movement from

unreflective participation in stereotypical identity constructions toward reflexive awareness of how such constructions emerge through communication itself. Using data drawn from a three-part multilingual classroom task focusing on linguistic identity, commonsense assumptions and discourse, the paper examines how students begin to observe not only others, but also the contingency of their own observations and the role of discourse in shaping social meaning.

The student task, which is the empirical focus for this paper, forms part of a module introducing students to concepts such as language, ideology, discourse and commonsense assumptions. The task itself is designed to encourage reflexive engagement with linguistic identity and social categorisation in a multilingual context. In the first stage of the three-part task, students individually reflect on the language group with which they identify and on another language group in which they feel they do not belong. Students then identify commonsense assumptions associated with both groups and evaluate the perceived validity of these assumptions. In the second stage, multilingual groups engage in structured discussion informed by Gadamer's concept of the explanatory conversation, collaboratively reflecting on assumptions surrounding the language groups represented within the classroom. In the final stage, students individually reflect on whether their perceptions of their own language group, other language groups, language in society, and even their own 'inner discourse' have shifted through participation in the task. The paper proposes that these stages correspond to increasingly reflexive forms of observation. The initial individual reflections demonstrate how discursive commonsense assumptions operate as first-order observations that stabilise distinctions between self and other through seemingly natural or self-evident assumptions about linguistic identity. However, the multilingual group discussions expose students to the contingency of these distinctions by confronting them with alternative observational perspectives. Drawing on Luhmann's understanding of the social dimension of meaning (ego/alter), the paper argues that the classroom interaction generates conditions under which students become aware of the contingency of their own observations. The task thereby facilitates second-order observation, namely, the observation of observation itself (Moeller 2017).

The final reflective component of the task is particularly significant in this regard. Student reflections indicate not only shifts in perceptions of other language groups, but also reflexive transformations in self-description and awareness of how discourse shapes identity and social reality. The paper argues that these reflexive shifts may be understood in systems-theoretical terms as changes within the coupling between psychic and social systems (Morales 2025). Rather than treating identity as either an internal essence or a socially

imposed construct, the paper conceptualises linguistic identity as emerging through communicative processes of observation, self-description and reflexive meaning negotiation.

This paper emphasises the contribution inherent in the interaction between discourse studies, sociolinguistics and Luhmannian systems theory by demonstrating how classroom discourse can function as a site for observing the observation of identity itself. As such, it attempts to align with broader discussions concerning meaning, reflexivity and second-order observation in social and psychic systems while also incorporating the fields of multilingual pedagogy and discourse analysis.

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Protest as Meaning Production: From Appeals to Equality and Balance toward the Observability of Cruelty

This paper analyses climate justice movements and urban commons movements in South Korea as forms of protest communication, reconstructing—through Niklas Luhmann's social systems theory—how these movements construct and organise the problem of 'imbalance'. Protest movements are traditionally understood as oriented toward the elimination of imbalance. This paper challenges that perspective: the contemporary relevance of these movements lies not in restoring an idealised balance but in transforming the conditions under which imbalance becomes socially and systemically observable.

In Luhmann's framework, protest operates as a meaning-form. Since all negation potentialises and preserves what it negates—the form continuously re-entering itself (re-entry)—the complete elimination of imbalance is not merely politically improbable but meaning-theoretically impossible. Instead, protest reconfigures how specific systemic consequences are registered as unacceptable. 'Cruelty' is introduced not as a moral category but as a threshold of observability within social systems: the point at which systemic effects can no longer be processed as normal variation but are compelled to enter resonance as intolerable irritations. Protest mobilises society against society through the distinction between those who protest and those who are protested against. Luhmann identifies two prominent forms for generating protest topics—the probing of internal equality and the probing of external equilibrium—both characterized as 'utopian', since inequality and disequilibrium are structural outputs of functionally differentiated society rather than deviations from it.

Building on the expanded architecture of meaning proposed by Roth and Kaczmarczyk (2026), the paper shows that ecological destruction and social inequality are simultaneously articulated across multiple overlapping dimensions: protest redefines consequences as damage rather than mere difference in the factual dimension, constructs urgency and irreversibility in the temporal dimension, redistributes responsibility in the social dimension, maps the concentration of harm in the spatial dimension, and activates counterfactual openness in the modal dimension. In the motivational dimension, protest exposes the gap between what movements intend—the elimination of imbalance—and what they actually achieve: the rendering of cruelty observable. Yet protest movements typically fail to distinguish between

(a) the structural asymmetry constitutive of modern society's differentiation vis-à-vis its environment and across functional systems, and (b) the inequalities produced by how systems allocate opportunities, resources, and recognition among persons. By collapsing these analytically distinct layers into a single object of critique, protest gravitates toward appeals for a balance that society cannot deliver, thereby circulating without generating resonance within functional systems.

The concept of cruelty is specified through Richard Rorty's account of the 'final vocabulary': the symbolic resources through which communities make sense of their existence (Rorty, 1989). Cruelty consists in the destruction of these vocabularies—rendering persons unable to articulate their experience in any socially recognisable form. Urban commons movements mobilise the language of community and shared life, only to find these reduced to 'illegal occupation' or 'inefficient asset' by legal and economic codes; climate justice movements articulate land as life-ground, only to find this translated into costs and data. Protest performs a critical translation operation: converting the destruction of final vocabularies into communicable differences—selecting information about irreversible damage, attributing responsibility, enabling understanding across systems—and thereby creating the conditions under which functional systems are compelled to register what their own codes had rendered invisible. This analysis also reveals a structural category error: movements frequently direct 'why' questions at functional systems—treating them as motivated actors—as if they possessed intentions or moral accountability, when systems operate through codes and programmes rather than motives. Such protest tends to circulate as moral communication that reinforces internal solidarity while leaving the operations of functional systems largely undisturbed. Social change therefore emerges not from the direct application of norms or values to systems but from transformations in the observability of what can no longer be tolerated. For the sociology of social movements, this clarifies that protest efficacy lies in constructing the unacceptable as social fact. For Luhmannian theory, it applies the re-entry structure of meaning-forms to protest communication and connects the expanded architecture of meaning to empirical analysis—thereby filling a recognised theoretical gap without abandoning normative abstinence as a methodological commitment.

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The questions of observation. Expanding the dimensions of meaning in Niklas Luhmann's theory programme

This article revisits the concept of meaning in Niklas Luhmann's theory programme and addresses the unresolved question of why meaning should have precisely three dimensions. It proposes a systematic expansion of the triadic model to a six-dimensional architecture grounded in the concept of basic questions and their capacity to orient observation. The article reconstructs Luhmann's three dimensions of meaning - factual, temporal, and social - in terms of the basic questions what, when, and who. Building on this reconstruction, it develops an extended framework that incorporates three additional dimensions - spatial, modal, and motivational - linked to the questions where, how, and why. Each dimension is associated with a characteristic code and a specific focus of observation. The analysis shows that the dimensionality of meaning can be systematically derived from the basic questions of observation. This allows Luhmann's triad to be understood not as an arbitrary choice but as a reduced form of a broader schema. The proposed sixfold architecture outlines a more comprehensive framework for analysing meaning, suggesting the existence of further theoretical sub-programmes beyond differentiation, evolution, and communication theory. By linking the architecture of meaning to the logic of questioning, this article offers a novel rationale for both the established triad and its expansion. It provides social systems theorists with a systematic basis for extending the concept of meaning, and it opens new directions for theory-building by pointing to additional sub-theories that remain to be developed.

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Universities, systems theory, and polycontextuality: The crisis of college disability accommodations

In the United States the number and proportion of students accommodated is skyrocketing, and disability offices are overwhelmed. There is a simultaneous concern about overaccommodation of students opportunistically seeking to gain a competitive advantage and underaccommodation of the most severely disabled students. There is a further concern about students from privileged backgrounds being overaccommodated and underprivileged students being underaccommodated. Also of concern is the rise in the number of students with so-called hidden disabilities (learning disabilities and psychiatric conditions) relative to the number with physical disabilities (blindness, deafness, physical limitations), which is leading to a crowding out of services for the latter, many of whom are among the most severely disabled students. Buried in the crisis as it is presented in the news media is a more subtle crisis, having to do with polycontextuality, or intra-organizational incommensurable communication demands placed upon the disability accommodation decision.

The ideal-typical description of the granting of a disability accommodation goes as follows. A doctor writes a doctor's note confirming that a student has a medically recognized disability. The student takes the doctor's note to their college disability office where a disability specialist studies the doctor's note and the syllabus for a course the student intends to take; interviews the student and consults with the instructor; and issues an accommodation letter tailored to the specifics of the student's disability and the specifics of the course.

This is not what happens in practice. Because of the skyrocketing number of student registered as disabled, college disability offices are overwhelmed. In the University of California the recommended ratio of disability specialists to students registered with the disability office is 1: 150-250. Actual ratios routinely exceed 1:500 and occasionally run in excess of 1:1,000. Disability specialists are burning out and quitting, which makes things worse. Over time disability accommodations are increasingly being issued in a factory-like semi-automated manner leaving no room for consultation and tailoring.

Disability offices are under the gun all around: disabled students are mad because of service delays and bureaucratic unresponsiveness; their classmates are resentful because they believe disability accommodations go to opportunistic students seeking competitive advantage; instructors are mad because the faculty consultation system is dysfunctional; the campus

leadership is unhappy with the number of lawsuits and the negative press; and politicians, depending on their left-right ideological stripe, criticize universities for not doing enough or doing too much. Lawsuits are plentiful.

The disability accommodation decision is at the center of a multitude of incommensurable demands: accessibility (equal access), academic (e.g., academic freedom, data privacy), disciplinary (e.g., Student Code of Conduct violations, plagiarism), legal (Americans with Disabilities Act, Civil Rights Law, lawsuits), economic (disability specialist availability, disability office budget), governance (e.g., policies requiring, for example, faculty consultation and the balancing of academic freedom and accessibility), public relations (negative press), and political (e.g., state legislatures, Trump).

This paper analyzes for the University of California disability offices, first, the bureaucratic mechanisms by which they square the circle of the incommensurable demands; second, increasing mechanism failure over time as the number of registered students with disabilities increases year for year rendering the various constraints ever more binding; third, mechanism variation with factors such as physical vs. hidden disabilities, mild vs. severe disability, academic discipline, and external political environment (Biden vs. Trump); and mechanism adaptation to a currently emerging major system shock, namely, the insert of generative AI (artificial intelligence) which affects, for example, the Student Code of Conduct and disability accommodation-related plagiarism.

The Meaning of Lyfe: Considering Self-Referential Systems Theory as a General Theory of Lyfe

Luhmann's conception of meaning describes a specific mode of processing complexity and contingency: the actualization of one possibility against a horizon of further possibilities (Luhmann, 1990a, 1990b). Within his theory of self-referential systems, however, Luhmann restricts meaning-constituting systems primarily to consciousness and communication. Biological systems are conceptualized as autopoietic, but not as meaning-processing systems (Luhmann, 1990c).

In this paper, we revisit this boundary. We argue that Luhmann's own abstraction of meaning allows for a more general reconstruction: meaning can be understood as the system-relative actualization of potentiality under conditions of operational closure. If every self-referential system must select its next operation from a horizon of other possible states, then meaning can be observed as the basic form of systemic autopoiesis. Biological systems, too, process meaning insofar as they select differences as relevant for their own autopoiesis.

Contemporary astrobiological debates on lyfe (Bartlett & Wong, 2020, 2025) provide the external irritation for this reconstruction. By shifting attention from terrestrial substances to processes such as dissipation, homeostasis, autocatalysis, learning, and information use, lyfe research challenges narrow definitions of life and, at the same time, irritates Luhmann's conceptual separation between living systems and meaning-processing systems. We therefore propose an extension of Luhmann's theory. Biological, psychic, social, and not-yet-known systems are not separated by the presence or absence of meaning, but by different modes of meaning-processing. For the three forms currently available to observation, these modes can be described as organic/physiological operations, experience, and communication. For systems not yet known, the relevant mode would be an operation not yet available to our present observational schema. In this sense, Luhmann's theory of self-referential systems can be reconstructed as a general theory of lyfe: a theory of self-referential, operationally closed systems that continue by selecting differences as meaningful for their own continuation.

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Inclusive education and dimensions of meaning

This paper focuses on the subject of inclusive education from an educational science perspective. It explores the question of which distinctions and indications can be observed in relation to the concept of meaning within selected psychic and social systems of the education system, with regard to the implementation of inclusive education. The argumentation of the paper is based on the following theoretical and conceptual premises:

- (1) In German-speaking and international research on inclusion, inclusive education is treated as a (supposedly) global paradigm that focuses on processes of inclusion and exclusion within various functional systems. With regard to the education system, the aim is to identify barriers to participation and work towards their removal (Richardson & Powell, 2011). Findings from literature reviews on the concept of inclusion reveal considerable theoretical and conceptual ambiguities in theory formation, as well as a lack of evidence-based approach in the studies (e.g. Amor et al., 2019; Artiles & Dyson, 2005; Göransson & Nilholm, 2014). Furthermore, against the backdrop of explicitly systems-theoretical analyses, the Eurocentric perspective on education and diversity is critically questioned, and a case is made for the inclusion of indigenous and Global South perspectives (Lien, 2025).
- (2) Psychic and social systems within the education system operate with meaning or, in principle, inscribe arbitrary and infinite forms into the medium of meaning. For autopoietic systems, there are fundamentally no restrictions on permissible meaning – independently of this, however, a system may impose restrictions on itself, for example through the distinction between remembering and forgetting (Krause, 2005).
- (3) The experiences and actions currently being carried out by social and psychic systems within the context of inclusive education simultaneously point to “a surplus of references to other possibilities of experience and action” (Luhmann, 1995, p. 60), which, at the time of observation, were considered but not realised. Distinctions and indications acquire meaning precisely through their redundant possibilities. Meaning itself is thus not observable – if only because every observation generates a new form (cf. the distinction between medium and form).
- (4) When talking about ‘form’ in this context, already the reference to the concept of form constitutes in itself a second-order observation, for a form cannot be observed in an unformed state. Only a second-order observer, who

observes an observation, is capable of observing a form. The form observed in each instance may change when another second-order observer is taken into account. That is to say, potentially possible dimensions of meaning are bound to forms, and these in turn are part of second-order observations. In this respect, the contribution to be presented follows the key orientation of 'Meaning and observation' set out in the call for papers: second-order observation, reflexivity, and the observation of observation in social and psychic systems.

Within the theoretical and conceptual framework of this paper outlined above, an empirically exploratory approach is employed, centred on an analysis of selected web documents produced by the educational establishment. The educational establishment encompasses institutionalised role systems or multifunctional organisations (Roth & Sales, 2025) that are only indirectly related to the delivery of teaching, but are nevertheless primarily attributable to the education system. The educational establishment essentially pursues two interests. Firstly, it concerns the demand for improvements to the system and, secondly, the demand to avert expected deteriorations in the system. Since it is not anchored in a single role but differentiates itself across a multitude of administrative, political and academic contexts (Luhmann & Schorr, 1988), it is difficult to grasp from an empirical perspective.

Using the web-based communication of a German higher authority at regional state level as an example, this paper examines the forms that can be observed in this medium of meaning. The selected state authority, the 'Centre for School Quality and Teacher Training' (ZSL), was established in 2019 as part of quality assurance measures to serve as a training, further education and support system for public general and vocational schools (GBL., 27 February 2019, Art. 1, §2, (1)). Given the remit assigned to it by law, it can be assumed that the ZSL will focus its work on the implementation of inclusive education as a specific semantic context. The web documents to be analysed are freely accessible ZSL documents relating to the keyword 'inclusion'. For practical research reasons, the document search is limited to a specific time period.

The expected added value of the chosen approach could provide insights into how the educational establishment deals with a supranational standard such as inclusive education under the current societal conditions of complexity; more specifically, how meaning, as a dynamic medium of observation, is constituted differently depending on the distinctions and indications guiding the observation—which go beyond Luhmann's triad of factual, temporal and social dimensions (Luhmann, 1995, pp. 83–85; Roth & Kaczmarczyk, 2026).

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Interpenetration and psychiatric patients

In the presentation I postulate that treatments in the medium of meaning (Luhmann, 1971; 1984) for psychiatric patients' communication and behaviour are able to make their meaning-disordered expressions meaningful again. I apply Luhmann's (1984, pp. 286-345) term "interpenetration" for the analysis, i.e. that the psychic system and the social systems and influence one another as both put their complexity at the disposal of the other system without merging. In my analysis of psychosocial disorders/"mental illness" I connect to the communication part of Luhmanns systems theory within the domain of psychiatric institutions and the communication and behaviour of psychiatric patients. Psychosocial disorders/"mental illness" have the same tripartite structure as somatic diseases, but in contrast to diseases, which originate from the body, they mainly take place in the medium of meaning. The three parts consist of the involuntary element, function reduction/impairment and suffering

The empirical material, I am building on is from a project of Evaluation of Community Psychiatry in the Municipality of Copenhagen from 1989-1992. The results still hold for the "psychiatria major" phenomena, which I had ample opportunity to observe in the two community psychiatry daycare centers as second order observation. They would be psychoses with or without hallucinations, massive delusions, paranoid ideas about a malevolent social environment, self-referential delusions, non-stop psychotic speech streams, bizarre communication and behavior etc. For most people the "communication" of psychotic patients seems meaningless, as we are always searching for meaning. My term would rather be, that they are meaning-disordered, because their "communication" originates from their private world of imagination. Thus, they cannot communicate effectively in interaction systems as their "communication" does not result in understanding from their social environment. Psychotic patients are to varying degrees removed from reflective perceptions and reflective expectations - momentarily at least.

Treatments in the medium of meaning are consistently both more efficient and have more long-term beneficial effects than treatments in traditional psychiatry, where psychotropic treatments often have a dominant role. Examples of the former would be the Open Dialogue approach, psychotherapy, voice-hearing- groups, peer-support in psychiatric institutions, digital psychiatry, "virtual reality" in connection with voice- hearing, various

interactions with professionals and non-professionals, family and friends etc. Authors from the Open Dialogue approach come up with detailed differential communication suggestions in interaction systems (Seikkula, 2008; Seikkula, 2024; Seikkula, & Arnkil, 2006; 2022) The basics of the O.D. method is the network meeting, where a meeting is set up between the professionals from inside the psychiatric subsystem and various other professionals plus the family of the patient and the patient herself. The authors name this type of meeting a “border-system”.

The dialogue of the border-system should be polyphone, i.e. it can consist of many different “languages”, the everyday semantics of the family members, an (adapted) version of professional languages and eventually the psychotic speech of the patient and the voices she is hearing. In the latter case family members and professionals can ask for the meaning of the psychotic speech and the voices the patient hears. All the languages used are seen as equally valid. Some questions present themselves here:

What kind of problems do these border-systems present and how are they solved or not solved? How do the border-systems reconcile or not reconcile the different languages - and do they do justice to the psychotic patient, if her language is not immediately understandable? How is a common linguistic understanding constructed between the participants in the border-system meeting considering their different levels of understanding of the patient’s problems? Is there a pattern in the expectations of the family members, of the patient herself - and how are the expectations different on the professionals’ side of the border-system? I intend to conduct an analysis of some border-system meetings as described by the cited authors - using Luhmann’s concept of interpenetration and other relevant concepts.

The presentation thus taps into the areas of psychic and social systems and different levels of meaning

Reconstructing Educational Observation: A Systems-Theoretical Approach to Meaning and Dialogic Reflexive Practice

Observation is widely positioned as a foundational mechanism for improving teaching and learning in education. Across practices such as lesson observation, learning walks and performance review, observation is typically treated as a means of accessing and evaluating pedagogical reality. This paper challenges that assumption by reconceptualising observation through a systems-theoretical framework. Drawing on the work of Niklas Luhmann, observation is understood not as representation but as a distinction-based operation that produces meaning through selective indication.

The paper argues that first-order observation in education stabilises meaning by compressing its factual, temporal, and social dimensions into seemingly self-evident statements. Observational judgements such as identifying on/off task behaviour or effectiveness of learning and teaching are shown to be contingent outcomes of distinction rather than neutral descriptions of reality. Through empirical re-description of everyday classroom observations, the paper demonstrates how meaning is constituted, sedimented and institutionalised through recursive observational processes.

While second-order observation exposes the contingency of these processes, it remains limited if confined to theoretical reflection. In response, the paper introduces Dialogic Reflexive Observation (DRO) as a structured methodological intervention. DRO reconfigures observation as a co-experienced and dialogically reconstructed process, enabling participants to engage with the conditions under which meaning is produced.

The paper contributes to both systems theory and educational practice by demonstrating how theoretical insights into observation and meaning can be translated into operational forms. It proposes a shift from evaluative observation toward reflexive reconstruction as a basis for professional learning in complex educational environments.

Meaning, Observed with LLMs: Generative AI as a Medium of Second-Order Observation

This article argues that large language models (LLMs) are better understood not as artificial minds endowed with an inner subjectivity, but as media through which the process of meaning generation becomes observable. Within the frameworks of autopoietic ecology, second-order cybernetics, and Luhmannian systems theory, observation is not a passive reflection of an external reality, but an operation that generates a field of relevance through distinction and indication; meaning, likewise, is not an entity to be discovered, but a structure maintained and re-entered through recursive selectivity. From this perspective, the significance of generative AI lies not in whether it truly understands, but in the fact that it technically externalises the conditions under which meaning takes shape: framing, exclusion, recoding, and re-entry. The article first reconstructs the recursive relation between meaning and observation; it then explains how Luhmann's systems theory emerges at the intersection of autopoiesis theory, second-order cybernetics, and formal logic; it proceeds to define LLMs as a medium of second-order observation, then discusses prompts as environmental perturbations, and further analyses the outputs of human-machine interaction through Luhmann's three dimensions of meaning: factual, temporal, and social. The article argues that LLMs are not carriers of meaning, but operational interfaces for the recursive generation of meaning. What they transform is not only the technical conditions of knowledge production, but also the sense in which "observing observation" becomes an everyday practicable epistemic activity.

Meaning Observed through Operational Catalysts: Autopoietic Social Movement in Israel

Contemporary research on social movements predominantly focuses on "contentious politics" and the interplay between movements and institutionalized political systems through the lens of "political opportunity structures" (McAdam and Tarrow, 2018). Such approaches, most notably the theory of "Strategic Action Fields" (SAFs), tend to view social movements as collective actors vying for "strategic advantage" and control within a given social order (Fligstein and McAdam, 2011). Shifting away from this actor-centric perspective, which emphasizes struggles and interests, this presentation proposes to observe social movements as autopoietic social systems producing meaning (Sinn) (Luhmann, 1995b; Tække, 2025). This approach allows for an understanding of movements not as external entities disrupting the order, but as an inherent part of the modern social fabric—serving as a metaphorical "immune system" that enables society to perform reflexive self-observation of its own consequences (Luhmann, 2013; Kern, 2021).

The central theoretical innovation presented in this paper is the identification of how these movements produce and stabilize meaning through what I define as "Operational Catalysts." These catalysts are foundational material concepts within movements that function as operational singularities, enabling the system to observe and distinguish itself from its environment (Andersen, 2003; Fuchs, 2006). Drawing on the work of Hannah Richter, which enfoldes Luhmann and Deleuze to demonstrate that "worldmaking in sense" inextricably binds materiality and textuality, I argue that these constitutive movement concepts are not static anchors (Richter, 2021). Rather, they are dynamic catalysts driving a process of "ungrounded self-production," mediating between the system and its environment while opening new horizons of possibility (Richter, 2021; Luhmann, 1995a).

The paper will demonstrate how these operational catalysts function as "programs" that reorganize meaning over time, allowing the system to cope with the complexity and contingency of its environment (Luhmann, 1995b). This development will be illustrated through two empirical case studies from the contemporary Israeli context:

1. Zionist-Socialist Social Movements: An ethnographic study conducted during 2023 examined movement activities with evacuees during wartime. The analysis focuses on the autopoietic processes sustained through the operational catalysts of "Realization" (Hagshama), "Pioneering" (Halutziut), and "Mission" (Mesima). These material concepts allowed the communicative system of movement members to convert a state of crisis into a semantics of relevance and significance, thereby creating a "simulation of an alternative" in the face of failing political systems (Blühdorn, 2007; Luhmann, 2013).

2. Conservative-Republican Social Movements: Based on document analysis from recent years, the concepts of "Citizenship" and "Mutual Guarantee" (Arevut) are examined as internal codes structuring the social dimension of meaning within these movements. These catalysts serve as strategies for the "deparadoxification" of the paradox of observation, creating value commitments that distinguish the movement from the instrumental rationality of other functional systems (Andersen, 2003; Morales, 2025).

In conclusion, the paper will show that in a "society without a center," operational catalysts (foundational movement concepts) are the key to understanding the ability of social movements to ensure their autopoietic continuity (Tække, 2025). The original contribution of this research lies in identifying the productive power of the material concept as a catalyst that enables these movements to operationalize the "negation of society within society," providing points of orientation in sense amidst the increasing complexity of Israeli society (Fuchs, 2006; Luhmann, 1998).

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Sinn as Inter-Systemic Resonance

Niklas Luhmann's concept of Sinn (meaning) is frequently interpreted as a purely operative medium that enables autopoietic psychic and social systems to reduce environmental complexity. This paper proposes a closely related yet markedly distinct reading: Sinn is not merely a device for handling world contingency, but a multi-level structured, self-referential mechanism without which neither psychic nor social systems could sustain autopoietic operations over time.

In Luhmann's foundational analysis in Chapter 2 of *Social Systems*, Sinn functions as operative selection from the infinite contingency of the world: behind every actual operation stands an open horizon of further possible experiences and actions. This selection, however, is strongly conditioned. The psychic system receives its first filters through biological irritations—neuroevolutionary predispositions, attentional mechanisms, and emotional preferences. These filters are never static. Through its own autopoiesis the psychic system continuously reformulates them as structured variations of its previous operations.

This internal dynamic never occurs in isolation. The social system's communicative operations exert constant irritation upon the psyche—and vice versa—via double contingency. The “alleys” of communication (language, semantics, narratives) bend back into the psychic system, generating further structured couplings. What emerges is the phenomenon the psychic system experiences as the continuous operability and self-continuity of its own meaning-processing. In reality, however, this experienced self-continuity is never the exclusive achievement of the psychic system; it is the transient product of inter-systemic resonance between psychic autopoiesis and social communication.

The three meaning dimensions—the fact dimension (internal/external horizon), the temporal dimension (past/future horizon), and the social dimension (ego/alter horizon)—play a decisive role in this conditioning. They supply the differentiated horizons through which every selection acquires directionality while preserving the openness of other possibilities. Within these dimensions, the psychic system's operative self-simplifications are recirculated by the social system as symbolic generalizations (expectations, semantic stocks, typifications). Thus Sinn functions simultaneously as the psychic system's self-management of its own complexity and as the social system's semantic repertoire.

Luhmann emphasizes that meaning is basally unstable and “forces itself to change,” confronting both consciousness and communication with a constant “compulsion to self-alteration.” Far from contradicting this insight, the proposed reading explains precisely how autopoiesis remains possible despite that instability. The form of meaning—through redundant possibilities, the unity of actualization and virtualization, and the three meaning dimensions—prevents operational paralysis. A psychic system that continuously thematized its own radical contingency would indeed collapse; the inter-systemic resonance enabled by Sinn generates the sustained connectability that keeps operations flowing.

This operative construction of experienced self-continuity is functionally indispensable. It enables rapid, resolute, risk-taking chains of operations. From an evolutionary perspective, this constitutes a decisive selective advantage: such psychic systems are more likely to persist and, in turn, to sustain those social systems that further reinforce the same inter-systemic resonance. Consequently, Luhmann’s Sinn emerges not as a simple reductionist tool but as a refined, multi-level self-referential mechanism. The individual is neither the source nor the passive carrier of meaning, but the necessary site of psychic-social resonance in which biological irritations, autopoietic self-reformulation, and communicative double contingency continuously generate the experienced self-continuity required for continued operation. Far from granting the psychic system ontological priority, this reading follows Luhmann’s explicit insistence that psychic and social systems “have evolved together” and are each other’s necessary environment: “Persons cannot emerge and continue to exist without social systems, nor can social systems without persons.”

By foregrounding the inter-systemic, dimensionally articulated, and symbolically generalized character of Sinn, the paper offers both a close textual reading of one of systems theory’s foundational chapters and a productive extension of its framework. It demonstrates that the experienced self-continuity of psychic operations is in fact a central condition of possibility for the ongoing autopoiesis of both consciousness and society. In doing so, it activates the productive tension between basal instability and sustained operability that runs through Luhmann’s analysis, opening new avenues for contemporary applications of systems theory in the study of consciousness, communication, and their co-evolution.

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