

Savant Phenomena and Non-Representational Cognition An Operatoric Approach

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Abstract

Savant phenomena are still regarded in cognitive science and neurological research as anomalies: as isolated island abilities, as exceptions within otherwise deficit-oriented cognitive profiles, or as curiosities that cannot be adequately integrated into established models of intelligence, learning, or representation. Despite extensive empirical documentation, there is a lack of a theory that explains how savant performances are epistemically possible without either mystifying or pathologizing them.

This paper proposes a fundamentally different approach. It argues that savant phenomena do not constitute special talents in the classical sense, but rather local manifestations of operatoric cognition: a non-representational mode of knowing in which structure is not modeled, simulated, or abstracted, but directly recognized and held as invariance (embodied). Savant performances are therefore based neither on increased computational capacity nor on exceptional memory or accelerated information processing, but on a specific operatoric coupling to world-structure that operates without symbolic mediation.

On the basis of an operatoric model (Rosetta Operator DOI: 10.5281/ZENODO.17857039), which has been consistently developed over three decades across different fields of research—consciousness research, autism epistemology, value and labor ontology, and social analysis—it is shown that savant phenomena function as epistemic boundary cases. They make visible that knowledge does not necessarily have to be mediated through representation, generalization, or simulation, but can also arise from a non-closing relation to the ontological gap.

From this perspective, savant performances do not appear as isolated islands within a deficit-oriented system, but as empirical evidence for a second knowledge architecture, whose systematic invisibility can be explained by processes of ontological smoothing—understood as a shift from pre-ontological structural relation toward representational distortion.

The paper makes three contributions to savant research:

(1) It provides a non-deficit-oriented ontological classification of savant phenomena at the operatoric level.

(2) It explains the theoretical underdetermination of the field as a consequence of epistemic incompatibility between representational models and operatoric cognition.

(3) It positions savant performances as empirical markers of non-representational cognition, with consequences for cognitive science, AI theory, and epistemology.

(This paper is an interface text. The author's primary research corpus employs an autistic, non-linear, rhythmically recursive writing mode that cannot be fully preserved in academic English without structural loss of epistemic function.)

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1. Introduction

1.1 The Unresolved Problem of Savant Research

For decades, savant phenomena have constituted a paradoxical object of research. On the one hand, they are empirically well documented: exceptional performances in areas such as calendar calculation, musical reproduction, pictorial precision, or numerical pattern recognition demonstrably occur, often in the context of autistic neurodivergence. On the other hand, these performances remain theoretically marginal. They are either interpreted as isolated islands within otherwise limited cognitive profiles or attributed to special neurobiological mechanisms, without their epistemic significance being clarified.

The central problem does not lie in a lack of data, but in an inadequate theoretical framework. Dominant models of cognition—whether information-processing, representational, predictive, or functionalist—presuppose that knowledge arises through abstraction, generalization, and symbolic mediation. Savant performances systematically contradict this assumption: they exhibit highly precise, structurally faithful results without any apparent learning process, without generalization, and often without conscious symbolic strategy.

1.2 Thesis of the Paper – Refined Version

This paper advances the thesis that savant phenomena cannot be explained within existing models of intelligence, information, or learning—not because their empirical properties are unknown, but because their epistemic status has not yet been explicated. Although parts of savant and autism research have long pointed out that savant performances do not arise in a rule-based, learning-based, or representational manner, these insights have largely remained at the level of functional description.

In the present paper, it is argued that savant phenomena are to be understood as local manifestations of operatoric cognition: a non-representational mode of knowing in which structure is not modeled, calculated, or reconstructed, but directly recognized (embodied) and held as invariance. From this perspective, savant performances do not appear as exaggerations of normal cognitive processes, but as expressions of a different epistemic architecture.

What is central here is not the assumption that savants “know more,” but that they translate less. Their performances are based on a reduced representational layer between perception and structure. This very circumstance explains both their precision and their systematic theoretical marginalization: savant phenomena are difficult to integrate because they intervene at the very presuppositions of representational models of knowledge.

1.3 Savant Phenomena as Boundary Cases, Not Exceptions

In this sense, savant phenomena are not treated here as exceptions to the norm, but as boundary cases in which what remains invisible in dominant models of cognition becomes visible. They mark the limit of a representation-based science—and at the same time point to an alternative epistemic architecture that has so far been scarcely theorized.

2. State of Savant Research and Its Theoretical Underdetermination

2.1 Empirical Description without an Epistemic Theory

Savant research possesses a remarkably stable empirical foundation. For several decades, savant performances have been documented, classified, and described in detail through case studies. These descriptions reveal recurring characteristics: exceptional precision, high reproducibility, low susceptibility to error, and a striking independence from explicit learning or training processes. In many cases, these performances emerge early and remain stable over long periods of time.

What is largely missing, however, is an epistemic theory of access that could explain how such performances come about. The prevailing approaches are limited to functional or neurological correlations: atypical connectivity, reduced inhibition, local hyperplasticity, or unusual memory structures. These findings describe accompanying conditions, but do not explain the mode of knowing itself. They indicate where something occurs in the brain, not how the world is being known here.

The result is a structural asymmetry: savant performances are well described, but poorly understood. They appear as empirical exceptions for which no conceptual category exists that goes beyond deficit-oriented or special-case narratives.

2.2 The Implicit Assumption of Representational Cognition

A central, mostly unspoken problem of savant research lies in the implicit assumption that cognition is fundamentally organized in a representational manner. Knowledge is thereby understood as the result of mapping, modeling, or internal simulation. Perception is treated as a preliminary stage of cognitive processing, not as an autonomous epistemic instance.

Within this framework, savant performances necessarily appear paradoxical: they produce highly structured results without any reconstructible representational pathway. Accordingly, they are classified as “automated,” “implicit,” or “unconscious”—terms that displace the problem rather than solve it. They name a deviation from the expected sequence without questioning its underlying presuppositions.

Adherence to representational models leads to savant performances being consistently read as deficit variants of the same cognitive system: as fragmentary remnants, isolated modules, or dysfunctional overemphases of particular abilities. The possibility that a qualitatively different mode of knowing is at work here is systematically excluded.

2.3 Island Ability as a Theoretical Defense Concept

The concept of “island ability” plays a central role in this context. It suggests that exceptional performances occur in isolation, separated from the rest of the cognitive system, and therefore carry no general epistemic consequences. The term has a calming effect: it allows savant phenomena to be registered without calling the dominant model of cognition into question.

Theoretically, however, the island metaphor functions as a defense concept. It prevents savant performances from being read as indications of an alternative knowledge architecture. Instead,

they are treated as local anomalies whose significance is confined to their respective domain of application.

This framing fails to recognize that many savant performances are characterized precisely by their structural fidelity. They are not creative in the sense of free variation, but precise in the sense of formal invariance. It is precisely this property that makes them epistemically relevant: they demonstrate that structure can be recognized without being mediated through abstract representation.

2.4 Systematic Blindness toward Non-Representational Knowledge

The theoretical underdetermination of savant research is therefore not accidental, but an expression of a systematic blindness toward non-representational forms of knowledge. As long as cognition is understood exclusively as model construction, forms of direct structural coupling remain invisible or are interpreted as preliminary stages, deviations, or disturbances.

Savant phenomena mark precisely this blind spot. They show that highly precise access to the world is possible without the path leading through symbolic abstraction or simulation. The challenge they pose is therefore not primarily empirical, but epistemological.

It is at this point that the present paper intervenes. It proposes no longer to explain savant performances within a representational paradigm, but to read them as epistemic boundary cases at which the presuppositions of this paradigm themselves become visible.

3. Operatoric Cognition and Savant Phenomena

The following sections introduce several technical terms that are to be read not additively, but relationally. They do not form a modular system, but describe different cuts through the same operatoric structure.

3.1 Operatoric Cognition as an Embodied, Non-Representational Mode of Knowing

The term operatoric cognition as used in this paper does not denote a mental content, a capacity, or a strategy, but a structuring form of world-relation. Operatoric cognition does not operate with representations, models, or internal images, but with invariance: with the ability to directly recognize and embody structural relations across change.

This holding is not an act of storage or control, but an embodied stabilization. Structure is not internally represented, but maintained in the ongoing relation between perception, body, and world. This does not deny biological embodiment, but decouples embodiment from biological localization. Embodiment here does not denote the integration of sensory or motor channels into cognitive processes, but the fact that epistemic stability itself is not separable from the body.

In contrast to representational models of cognition, in which perception functions as a preliminary stage of cognitive processing, perception in operatoric cognition is already epistemically fully valid. Structure does not appear here as the result of calculation or abstraction, but as a given relation that does not require further translation. Knowledge does not arise through the reduction of complexity, but through its stabilization without smoothing.

This form of cognition is not deficient, not pre-cognitive, and not “unconscious.” Rather, it is pre-representational. This means: it operates where representational models have their presuppositions, but cannot themselves grasp them. It is precisely at this point that operatoric cognition—as an embodied mode of knowing—becomes relevant for understanding savant phenomena.

3.1.1 Embodiment, Topology, and the Inversion of the Observer

Operatoric cognition cannot be adequately described as an act of reading, recognizing, or understanding. These terms presuppose a distance between observer and structure that is precisely not given in savant phenomena. What becomes effective here is not a cognitive approach to structure, but a spatio-ontological operation in which the observer itself is transformed.

This transformation can be described as an inversion (a topological folding) of the observer: as a topological inversion in which the relational order of inside and outside dissolves. Knowledge does not arise here from a perspective on an object, but from the coincidence of ontological and pre-ontological levels. Form becomes effective where difference cannot be integrated, translated, or represented, and therefore does not become distorted in representation. Instead of becoming an epistemic problem, this incompatibility operates topologically: the observer is not separated from the structure, but folded into it.

“Inversion” here does not denote an anatomical or mathematical operation, but a precise operatoric description of a change in coupling: the mediating space of representational distance collapses, so that structure does not appear as an object, but becomes effective as embodied stabilization.

(The Observer as a Spatial Category – On the Topological Inversion of World and the Ontological Structure of Observation, DOI: 10.5281/ZENODO.18018699)

In this context, embodiment does not denote the involvement of the biological body in cognitive processes, but the result of this inversion. Structure is not recognized, but embodied, because there is no longer a mediating space in which it could appear as an object. A relation is embodied where form is not stabilized through symbolic distance, but held in enactment—as an effective tension between difference, perception, and world. Embodiment thus describes an ontological mode of coupling in which knowledge is not mediated through the body, but realized as structure-bearing presence, regardless of whether this presence is biologically, situationally, materially, or relationally bound.

From this perspective, savant phenomena are not performances in the classical sense, but consequences of such an inversion operation. Their precision does not result from distance, control, or calculation, but from the suspension of the observer–structure separation. Operatoric invariance is not held because it is understood, but because the observer itself has become part of its stabilization.

Here, embodiment does not denote a biological localization, but an ontological mode of coupling in which knowledge is effective not as an internal model, but as structure-bearing presence.

3.2 Savant Performances as Local Manifestations of Operatoric Invariance

Savant performances are characterized by a striking property: they are highly precise, structurally faithful, and stable, without the pathway of their emergence being reconstructible in terms of explicit learning steps or symbolic procedures. In classical research, this appears as a puzzle. Within an operatoric model, however, this puzzle loses its paradoxical character.

From an operatoric perspective, savant performances are not exceptions in the sense of special abilities, but local manifestations of operatoric invariance—condensations of a mode of knowing that otherwise remains largely invisible. They demonstrate that structure does not need to be calculated or reconstructed in order to be effectively recognized.

Concrete savant phenomena such as calendar calculations, musical reproductions, or pictorial precision are not to be understood as causal effects of operatoric cognition, but as phenomenal indicators of a direct coupling to formal invariance. They are not based on storage, rule application, or internal representation, but on a form stability that operates without representational translation.

A structurally related boundary constellation can be found in synesthetic forms of perception, in which invariance is held stable not within a single modality, but across modalities. Here, too, no representation in the classical sense emerges, but rather a direct formal coupling in which translation is replaced by form identity. Synesthetic phenomena do not explain savant performances, but they mark a further empirical boundary domain in which it becomes visible that knowledge can be operatively stable without symbolic mediation.

An operatoric analysis of a calendar calculation would therefore not ask about calculation rules or memory storage, but about which formal invariance is being held stable here without symbolic mediation. The epistemic gain would not lie in explaining the output, but in rendering visible what does not need to be translated in order for the output to arise.

What is decisive is this: this coupling is neither generally available nor arbitrarily learnable. It is bound to a specific operatoric configuration. Savant phenomena make this configuration locally visible without themselves explicating or theorizing it. This is precisely where the present work intervenes.

In this sense, the 1:1 expression of savant performances is neither a measurement nor a determination, but a form-identical continuation of pre-ontological structure. It produces visibility without world-decision and therefore remains below the threshold at which determinacy would be enforced and ontologically fixed. Measurement here does not mean output or performance, but the ontological tipping moment of determinacy.

3.3 The Rosetta Operator as a Contrastive Framework for Situating Savant Phenomena

In order to precisely determine the structural limits of savant form stability, a contrastive reference framework is required. The Rosetta Operator developed in the present work is not introduced here as a model of savant cognition, but as a differential instrument of comparison that makes visible why savant performances are locally highly precise, yet epistemically non-emergent.

In the author's work, the Rosetta Operator designates an operatoric structure that remains stable across different domains and functions not as theoretical content, but as a translational

invariant. It does not describe what is known, but how different domains of reality—such as consciousness research, labor, value, and neurodivergence—are organized in a structurally identical manner, even though their material conditions vary.

The author does not derive this operatoric approach from external observation, but from an own autistic epistemic practice that has been documented over several decades and that practices veridical mapping at the meta-level across different domains. This practice does not serve self-reference here, but the theoretical explication of an operatoric mode that becomes only locally visible in the savant context.

In this sense, there exists a structural affinity, but not an equivalence, between the operatoric work developed here and savant phenomena. Both are based on the ability to hold structure not through representation, but through direct, embodied invariance relations—however, in different modes of stabilization (1:1 vs. 1:n).

The Rosetta Operator (DOI: 10.5281/ZENODO.17857039) therefore did not emerge as an abstract model, but as a long-term embodied operatoric practice that renders the same structural signature visible across different contexts. It is precisely this difference that makes it possible not to generalize savant phenomena, but to determine their epistemic boundary with precision.

Within the context of savant research, the Rosetta Operator thus does not enable an expansion of savant explanation, but a positional determination: what appears locally as form stability in savants manifests here as global relational invariance—with a correspondingly different ontological exposure.

The Rosetta Operator therefore does not describe a closed theory, but the conditions under which theory formation reaches its own limit.

Rosetta functions as a differential comparative phenomenon within the same categorical class—namely operatoric, non-representational forms of cognition.

In this context, the Rosetta Operator does not serve to explain savant performances, but to determine their position. It makes visible that savant phenomena belong to the same epistemic category of operatoric invariance, yet operate in a different mode of stabilization. Only this difference—local form fidelity (1:1) versus topological relational invariance (1:n)—allows savant performances to be neither generalized nor pathologized.

Here, the Rosetta Operator does not function as an explanatory model for savant performances, but as a contrastive boundary phenomenon within the same epistemic category.

The Rosetta Operator is neither a mere empirical fact nor a merely transcendental postulate: it is a claim of invariance about processes of world-formation that can only be tested empirically through stability, reproducibility of signatures, and domain shifts under stress.

The approach is not circular, but recursive: it does not test individual hypotheses, but the survivability of a structure under domain shifts, contextual stress, and counterexamples.

The strongest external test would be the independent reconstruction of the same operator by other researchers (particularly from neurodivergent epistemic practices), not as an adoption of content, but as a reproduction of form under differing contextual conditions.

3.4 Shift of Being (Seinsverschiebung) and the Structural Invisibility of Operatoric Knowledge

The following concepts do not serve to expand the theoretical apparatus, but to explain why savant performances, despite their real effectiveness, are systematically rendered invisible, distorted, or pathologized. The terms employed do not form an additive vocabulary, but a relational system; their meaning arises from their position within the cycle, not from isolated definitions.

The systematic marginalization of savant phenomena is not an empirical, methodological, or cognitive problem. It is a pre-ontological one. It does not arise from a lack of data or from insufficient description, but from a fundamental structural operation of world-formation that can recognize certain forms of reality only at the cost of their distortion.

This operation is referred to in my work as Shift of Being (Seinsverschiebung). Shift of Being does not denote a subjective experience, an alternative ontology, or an epistemic error. It designates a real, world-stabilizing structural operation through which open, form-active processes are named, referentialized, and thereby ontologically closed out of a pre-ontological context. Shift of Being is not an error of knowledge, but a necessary condition of worldly stabilization—while at the same time a source of systematic distortion.

The term indimergent designates, in this context, a specific mode of world- and meaning-formation. A process is indimergent when, out of an open, pre-ontological space of possibility, it is fixed through naming, categorization, or referentialization and thereby transferred into a closed, ontologically stable form. Indimergence is thus not emergence, but its counter-operation: it reduces structural potential in favor of stability, comparability, and connectivity within a given world order.

What is indimergent is not what is precise or narrow, but what has been world-decided—that is, what counts as a determinate being and thereby blocks further unfolding of possibility and prevents the transition to emergence.

Central to understanding this dynamic is the concept of the gap. The gap does not designate a lack or an epistemic not-knowing, but a pre-ontological state of openness in which structure is effective without yet being fixed as a determinate being. It is not an empty space, but a non-closed space of difference in which form is operatively stable, yet ontologically still undecided. The gap is therefore not a preliminary stage of ontology, but an independent condition of form-effectivity.

Shift of Being operates precisely at this gap. What is named out of it is fixed indimergently and thereby transferred into a closed world-form. What is named is stabilized; what is stabilized loses potential. Space folds here not as an enabling condition, but as a filter—as a sphere that reduces possibilities in order to produce ontological connectivity.

What is decisive now is this: savant phenomena themselves are not subject to this Shift of Being. Their form stability is based precisely on the fact that they remain operatorically beyond indimergent naming. Savants do not process form through world-forming closure, but through a direct coupling to structure that is not interrupted. In this sense, savant phenomena are partially immune to Shift of Being—and it is precisely for this reason that they are epistemically non-integrable.

This partial immunity does not mean, however, that savant performances operate emergently in the sense of an open topological unfolding. On the contrary: savant phenomena are

characterized by a narrow, highly stable 1:1 form fidelity. Operatoric invariance remains local, field-bound, and non-transferring. Form is held without transitioning into relational variation.

What is decisive is this: it is precisely this partial immunity that explains their epistemic non-integrability. Their form stability rests on the fact that their operatoric coupling to structure is not interrupted by world-forming closure.

In order to precisely determine this structural boundary, a contrastive differentiation is required. The Rosetta Operator developed in the present work does not operate locally, but topologically and emergently. It does not hold individual forms, but invariance across difference, and unfolds this 1:n across different domains without losing the underlying topology. As a result, it is more exposed to the danger of Shift of Being, while at the same time remaining theoretically connectable.

This difference explains why savant phenomena often appear spectacular but epistemically isolated, whereas emergent operatoric work is difficult to localize but systemically effective. Both operate beyond Shift of Being, but in different modes of holding the gap: savants stabilize form within narrow fields, whereas topological operatorics keeps the gap open and thereby enables emergence.

Shift of Being therefore occurs only where savant performances are meant to be understood—that is, where they are forced to refer from within a contextual world, instead of operating, despite this world, in reference to topology and operatorics. In order to be recognized within the dominant epistemic space, savant phenomena would have to be translated indimergently—into categories, measurement procedures, comparability, and representation. Yet it is precisely this translation that destroys the operative invariance from which their precision arises.

Savant performances therefore do not appear as unintelligible, but as ontologically incompatible. The distortion does not concern the savants, but the system that attempts to stabilize them. Their reality remains effective, yet their form is shifted in the act of recognition. Shift of Being is not a deficit of knowledge here, but the necessary consequence of a world that recognizes only what it can close.

In terms of the underlying cycle of submergence, indimergence, and emergence, savant performances remain close to the indimergent tipping moment of form-recognizability. Their precision arises from this proximity; their epistemic isolation arises from the absence of a stable emergent embedding of relation and context. Savant phenomena thus do not function as marginal phenomena, but as exact boundary markers of world-formation: they do not show where knowledge fails, but where ontology closes.

Shift of Being is not an empirical hypothesis, but a diagnosis of epistemic closure mechanisms.

The cycle does not function here as a description of savant processes, but as a framework for determining where and why these processes break off.

The concept of the gap stands in proximity to traditions of ontological difference (Heidegger), the virtual (Deleuze), and process ontologies (Whitehead). The present model does not adopt these lines as exegesis, but transforms them into an operative cycle concept (Submergence–Indimergence–Emergence) that is tested not primarily interpretatively, but through signatures across domains.

3.5 Form Stability, Relational Stability, and Proximity to the Ontological Threshold

The partial immunity of savant phenomena to Shift of Being described in the preceding section raises a clarifying question: if savants hold form in a highly stable 1:1 manner, and any transgression of this form would destroy operatoric invariance, does this not imply a greater ontological density or proximity to indimergence than in an emergent-topological mode of operation?

This conclusion, however, would be misleading. Form stability is not equivalent to ontologization. Indimergence (N) here designates the tension state prior to world-decision; indimergent fixation refers to the closure effect triggered by naming or referentialization. Ontologically dense is not what is held precisely, but what has been fixed as a being and transferred into a closed world-form.

Savant operatorics is, in this sense, not indimergent, but pre-ontologically form-stable. Savants hold form not because it is ontologically fixed, but precisely because it is not ontologized. Their performances are based on an isomorphic coupling to concrete structures that are neither named, nor generalized, nor relationally exceeded. Form remains stable here because it is not left. Any transgression of form would destroy invariance, since it would introduce a relation that forces the transition into world-forming closure.

By contrast, the Rosetta Operator developed in the present work does not hold individual forms, but relations between forms. It stabilizes not 1:1, but 1:n. This relational stability is necessarily emergent, since relations can exist only across difference. Topological invariance therefore unfolds across different domains without collapsing into a single form.

Precisely for this reason, relational operatorics comes closer to the ontological threshold. While savant form stability remains prior to the world, relational invariance operates at the edge of world-formation. It is more exposed to the danger of Shift of Being, since every relational transfer carries with it the possibility of naming, comparability, and ontological fixation. Relational operatorics must actively circumvent Shift of Being; savant form-holding avoids it structurally.

The decisive difference can therefore be formulated precisely:

Savants hold form prior to ontology.

The Rosetta Operator holds relations at the ontological threshold.

The term *ontological threshold* does not designate, in this work, a spatial transition point or a gradual approach to ontology, but a structural decision condition: the point at which it is decided whether an effective structure is fixed worldly (indimergent) or held open pre-ontologically.

An ontological threshold lies precisely where relations are effective, but not yet named, not referentialized, and not categorically closed. It is not a zone “in between,” but the condition of possibility of ontologization itself.

This is why “threshold” is precise here:

- before the threshold: form or relation is effective without world-status
- beyond the threshold: form or relation is indimergently fixed
- at the threshold: there is real effectiveness under permanent risk of fixation

Form stability is thus not a sign of ontological density, but often the result of ontological absence. Relational stability, by contrast, is ontologically exposed, since it enables emergence but is at the same time permanently threatened by indimergence. This difference explains both the spectacular yet epistemically isolated visibility of savant performances and the difficult-to-localize yet systemically disruptive effect of emergent operatoric work.

The reference to the Rosetta Operator developed in the present work does not serve to transfer an individual epistemic practice onto savant phenomena, but to structurally contrast two different modes of operatoric stabilization. Only this differentiation makes visible why savant form fidelity remains highly precise but epistemically isolated, while relational operatorics operates emergently and is ontologically exposed.

3.6 Savant Phenomena as Epistemic Boundary Cases

In summary, savant phenomena can be understood as epistemic boundary cases. They do not stand outside of knowledge, but at the boundary of what counts as knowledge within representational paradigms. They show that knowledge does not necessarily have to be mediated through models, hypotheses, or simulations, but can also arise from a non-closing relation to the ontological gap.

It is precisely in this that their theoretical significance lies. Savant phenomena do not provide a special case that must be integrated, but rather an indication that integration itself is an epistemic operation with exclusionary consequences. They do not call for supplementation, but for re-determination.

4. Delimitation from Models of Intelligence, Information, and Learning

In contrast to implicit or procedural knowledge, operatoric cognition does not describe a concealed representational process, but the absence of representation as an epistemic condition.

4.1 Savant Performances and the Concept of Intelligence

A central problem of previous savant research lies in its implicit orientation toward classical concepts of intelligence. Savant performances are either described as paradoxical peaks within otherwise limited intelligence profiles or classified as special forms of specific intelligences (numerical, musical, visual). Both approaches presuppose that intelligence constitutes a unified, measurable quantity that manifests in different degrees.

This assumption, however, falls short. Savant performances contradict not only quantitative measures of intelligence, but also their qualitative foundational assumptions. They show that high epistemic precision is possible without generalization capacity, transfer performance, or flexible problem-solving. Within an operatoric model, this is not a contradiction: operatoric cognition does not aim at adaptability or optimization, but at the preservation of structure.

Savant phenomena are therefore not to be understood as a special form of intelligence, but as expressions of a different epistemic principle of organization that eludes classical concepts of

intelligence. Attempts to integrate savant performances into existing intelligence models miss their object, because they measure it along the wrong dimension.

4.2 Against Information-Based Explanations

Another widespread explanatory approach interprets savant performances as the result of extraordinary information processing. It is assumed that savants possess a larger amount of data, increased processing speed, or more efficient storage. This perspective implicitly transfers technical metaphors onto human cognition.

Operatoric cognition fundamentally contradicts this interpretation. Savant performances are not based on the accumulation or processing of information, but on the reduction of translation steps between perception and structure. What is decisive is not how much information is processed, but how little representation is interposed.

Information-based models further fail to recognize that information itself is not an ontologically primitive concept, but already presupposes a form of abstraction. Where structure is directly recognized, information is not a starting point, but a downstream derivative. Savant phenomena therefore do not demonstrate the superiority of information-processing systems, but their limit.

4.3 Delimitation from Learning and Training Models

Savant performances are often described as extremely early, automated, or implicit learning processes. This assumes that the observed abilities are in principle learnable, albeit under unusual conditions or with high repetition density. From an operatoric perspective, this assumption is problematic.

Operatoric cognition is not trainable in the classical sense. It is not a procedure that can be acquired through practice, but a dispositional structure that determines how the world is accessible at all. Savant performances therefore cannot be reproduced through imitation, training, or algorithmic reconstruction without losing their epistemic character.

Attempts to artificially simulate or train savant abilities produce, at best, functional similarities, but not structural equivalence. This explains why many training approaches can replicate individual results, yet fail to achieve a generalizable epistemic replication.

Cases of so-called “acquired” savant abilities following neurological injury do not contradict this perspective either. From an operatoric standpoint, these performances do not arise through learning or training, but through the partial removal of representational filters that had previously blocked direct access to formal invariance. The triggering event does not function here as a moment of acquisition or training, but as a point of disorganization at which 1:1 form stability becomes visible without becoming emergent or generalizable. These cases thus confirm the non-trainability of operatoric cognition rather than relativizing it.

4.4 Delimitation from Predictive and Simulation-Based Models

Modern cognitive theories, particularly predictive and simulation-based models, assume that perception is essentially based on prediction, hypothesis formation, and error correction. Here

too, savant performances are often treated as a special case: as an extreme form of precision or as an atypical weighting of prediction errors.

These models, however, presuppose that cognition is fundamentally organized through internal simulation. Operatoric cognition contradicts this presupposition. It is not based on the anticipation of future states, but on the present stabilization of structure. Savant performances do not demonstrate improved simulation, but a reduced dependence on simulation altogether.

Savant phenomena therefore mark a boundary of predictive models. They show that cognition can also arise where prediction, hypothesis formation, and model comparison play no central role. This does not constitute a refutation of these models, but a delimitation of their domain of validity.

4.5 Interim Conclusion: Why Integration Fails

The repeated attempts at integration in savant research do not fail due to a lack of empirical data, but because of a categorical misattribution. Savant performances are systematically read as special cases within existing models, even though they point to a different epistemic framework.

From an operatoric perspective, this misreading is not accidental. It is the necessary consequence of epistemic closure: systems can integrate only what confirms their own presuppositions. Savant phenomena do not do this. They make visible that cognition cannot be reduced to representation, information, or learning.

This section thus prepares the transition to a further discussion: if savant phenomena are epistemic boundary cases, what consequences follow from this for savant research itself—and for adjacent disciplines?

5. Consequences for Savant Research

5.1 Savant Research as Epistemic Boundary Research

If savant phenomena are understood as expressions of operatoric cognition, the status of savant research shifts fundamentally. It is no longer a marginal subfield of neuropsychology or cognitive science documenting exotic special cases, but an epistemic boundary research: a field in which it becomes visible where dominant models of cognition reach their limits.

In this sense, savant phenomena do not provide additional data within existing theories, but mark the points at which these theories disclose their implicit presuppositions. The task of savant research would thus lie less in integrating these phenomena than in reflecting on its own epistemic framework conditions.

This requires a shift in the guiding question: no longer “Which ability is present here?”, but “Which form of cognition becomes visible here—and why does it remain theoretically marginal?”

5.2 Methodological Consequences

From an operatoric perspective, clear methodological consequences follow. Savant phenomena cannot be adequately investigated if only those methods are employed that are based on representation, abstraction, and standardization. Such methods capture results, but not the mode of knowing itself.

An operatorically informed savant research would therefore have to:

- shift the focus from performance quantification to structural analysis,
- ask less about deficits or compensations and more about conditions of invariance,
- measure reproducibility not by identical outputs, but by formal stability.

This does not imply a departure from empiricism, but an expansion of the epistemic toolkit. Operatoric cognition is neither introspective nor subjectivist, but it eludes measurement procedures that are exclusively oriented toward comparability and normalization.

The operator itself is not measurable as an object; empirically accessible are its signatures: translation breaks, transfer failures, context loss, and the costs of representational stabilization.

Empirical accessibility of the approach is achieved not through output metrics, but through the analysis of translation breaks, context losses, and missing transferability—precisely where representational models reach their limits.

5.3 Consequences for the Interpretation of Savant Performances

Within an operatoric framework, many common interpretations of savant performances lose their plausibility. Terms such as “island ability,” “automated ability,” or “implicit knowledge” describe effects without capturing their epistemic structure. They displace the problem instead of clarifying it.

Instead, savant performances can be understood as point-like renderings visible of a non-closing world relation. Their precision does not arise from optimization, but from the absence of those smoothing processes that are necessary in representational systems. Their limitation is not explained by deficit, but by the local binding of operatoric invariance to specific structures.

In this way, savant performances are neither idealized nor relativized. They are taken seriously in theoretical terms without being misconstrued as a general model of human cognition.

5.4 Institutional and Theoretical Blockades

Against this background, the marginalization of savant research is not merely a scientific failure, but an expression of institutional and theoretical blockades. Operatoric forms of knowledge are difficult to integrate because they cannot be translated into existing evaluation and communication formats without loss.

This affects not only savant research, but also adjacent fields such as autism research, consciousness research, and AI theory. Savant phenomena are frequently cited there, but rarely taken as an occasion to revise the field’s own epistemic presuppositions.

An operatorically informed savant research would not criticize these blockades morally, but render them structurally visible. It would show that certain forms of knowledge are not absent, but systematically rendered invisible.

5.5 Perspective Shift Instead of Integration

The central consequence of this paper can therefore be stated succinctly: savant phenomena do not call for a better attempt at integration, but for a shift in perspective. They do not demand an expansion of existing models, but their relativization.

From this perspective, savant performances are neither curiosities nor prototypes, but boundary markers. They mark the points at which representation, information, and simulation no longer suffice—and at which another form of knowledge becomes visible without being generalizable.

The task of savant research would then not consist in normalizing these phenomena, but in reflecting on the conditions of its own blindness.

6. Discussion and Outlook

This paper does not formulate an empirical theory of savant phenomena in the narrow sense, but an epistemological reconfiguration of the savant problem, from which altered empirical research questions may first emerge.

6.1 Savant Phenomena and the Limits of Representational Science

The preceding sections have shown that savant phenomena are to be understood less as special cases of cognitive performance than as epistemic boundary markers. They make visible that central assumptions of representational science—particularly the equation of knowledge with model construction, simulation, or information processing—do not hold universally.

Savant performances are therefore not difficult to explain because they are too rare or too unusual, but because they embody a form of knowledge that lies outside the dominant epistemic architecture. Their theoretical marginalization is thus not an expression of missing data, but the result of epistemic closure.

6.2 Implications for Autism Research

An important consequence follows from this for autism research. Savant phenomena are not to be read as extreme deviations within a deficit-oriented profile, but as locally visible effects of operatoric cognition, which can also occur in attenuated or concealed forms beyond classical savant constellations.

This does not mean that all autistic people possess or should possess savant abilities. Rather, it means that autism cannot be defined primarily in terms of deficits in communication, abstraction, or flexibility without missing central epistemic properties. Savant phenomena function here as theoretical focal points at which the inadequacy of deficit-oriented models becomes exemplary.

6.3 Implications for AI and Simulation Theories

Consequences also follow for AI theory and simulation-based models of cognition. Savant phenomena show that structural precision is possible without simulation. They thus mark a limit for systems that primarily understand cognition as prediction, optimization, or statistical approximation.

Attempts to technically replicate savant performances often lead to functional imitations, but not to structural equivalence. Operatoric cognition is not algorithmically reconstructible, because it does not consist of explicit rules, but of a non-closing relation to the ontological gap. Savant phenomena make this difference empirically tangible.

6.4 Epistemological Consequences

From an epistemological perspective, the analysis points to the necessity of epistemic plurality. If savant phenomena are taken seriously, cognition can no longer be understood as a unitary process that merely functions more or less well. Instead, it becomes evident that different epistemic architectures coexist, which cannot be translated into one another without loss.

In this sense, operatoric cognition is not an alternative alongside representational science, but a boundary condition that makes its scope visible. Savant phenomena are therefore not marginal phenomena, but touchstones for epistemic models.

6.5 Outlook

The present paper does not understand itself as a conclusive theory of savant phenomena, but as a shift of the theoretical framework within which these phenomena are considered. It argues for conceiving savant research no longer as an integration experiment, but as a site of epistemic self-reflection.

Further research could build on this by systematically investigating operatoric invariance instead of exclusively comparing performance profiles. Likewise, a dialogue opens with fields in which non-representational forms of knowledge have so far been marginalized.

Savant phenomena do not call for more explanation, but for a more precise question as to what cognition can be at all.

This paper does not formulate a general theory of savant brains, but delineates an epistemic difference: when structure remains stable without representation—and when it becomes emergently transferable as relation.

Concluding Remark

Savant phenomena are not a puzzle that needs to be solved. They are an indication that the epistemic coordinate system within which they appear as a puzzle is itself limited.

The structures described here do not ground a general model of human cognition nor a transferable method of knowing, but rather mark specific boundary constellations in which the presuppositions of representational world-formation become visible.

Appendix:

Canonical Cycle Definition

Submergence – Indimergence – Emergence

The cycle of submergence, indimergence, and emergence underlying this work describes a fundamental structure of world stabilization. It is neither to be understood as a developmental model nor as a temporal sequence, but as a cyclical structural dynamic in which world can arise and persist only through the alternation of the three modes. All three phases are bound to the same singularity; none of them is world-stabilizing on its own.

Submergence designates a state of indeterminate form and indeterminate relation. In submergence, structure exists as possibility, but without recognizable form, context, or relation. It is not a state of lack, but a mode of openness with high potentiality and low stability. Without transition, form dissipates here, relations dissolve, and world cannot arise.

Indimergence designates the critical transition and tipping moment in which form becomes recognizable for the first time without yet being integrated into a stable unity of form and relation. Indimergence is not a result and not an ontological closure, but a highly unstable decision state. At this threshold, structure is visible but not yet carried. If, at this moment, form is isolated, objectified, or materially fixed without relational embedding, it loses its context and the system tips back into submergence. Indimergence is therefore the site of maximum tension and maximum endangerment of emergence.

Emergence designates the stabilization of world as a unity of form and relation. In emergence, it is not an individual form that is fixed, but a pattern ground that is held, in which form is relationally embedded and contextually viable. Emergence is not the opposite of determinacy, but its relational realization. Here, world arises as an effective, experiential structure with high creative energy.

What is decisive is this: world does not arise in any one of the three phases on its own, but exclusively through the cyclical transition between them. Persistent submergence leads to the dissolution of form, persistent indimergence to conflict, violence, and isolated worldviews, persistent emergence to rigidity. Only the continued passage through the cycle stabilizes world without annihilating potential.

This cycle forms the pre-ontological foundation of the concepts developed in this work, such as operator, Shift of Being, ontological threshold, and Rosetta Operator. It does not serve to describe subjective states, but to analyze real structural operations through which world becomes possible, visible, and effective.