Research Monograph Series

The Topological Difference Between Information and Wound:
A Generative Theory of Asymmetry, Irreversibility, Creativity, and Workhood

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Version: 1.0
Last Updated: July 2026
Status: Ongoing Research

Research Monograph

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Version 1.0, July 2026

Publication Information

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Suggested Citation

Tanaka, Tomokazu (bigakusha-haha). 2026.

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Abstract

This paper integrates information, asymmetry, possible worlds, entropy, computational complexity, wound, history, creativity, and workhood within Generative Topological Ontology. Contemporary society produces, stores, and circulates immense quantities of information, yet informational surfaces rarely retain the irreversible histories involved in their production. The paper analyzes this condition as a topological difference between the increase of information and the externalization of generative history.

Information is defined here not as an isolated sign or content but as a concrete event that differentiates possible states and transforms connectability. When information is actualized, asymmetries arise between selected and unselected states, before and after transmission, and sending and receiving. A non-actualized state, however, does not thereby become impossible. Actual worlds, non-actual but possible worlds, worlds that are logically possible yet practically inaccessible under resource constraints, and worlds impossible under a given rule system must be distinguished. An interface is not a transparent device connecting pre-existing terms; it is a generative condition that reorganizes the boundaries between possible and impossible, near and distant, self and non-self.

Thermodynamic entropy and informational entropy are not identical. Nevertheless, the dependence of local ordering on environmental dissipation clarifies the material conditions of artistic generation. Waka localizes a vast linguistic possibility space into thirty-one morae, while bonsai localizes multiple possibilities of growth into an irreversible form. Unchosen words remain as silence; removed branches remain as space and wound. A work may therefore contain little explicit information while retaining an immense history.

The P versus NP problem is used neither as a proof of artistic creativity nor as a direct analogy between computation and art. It functions as a limited reference model showing that the path to verification and the path to construction need not possess the same computational distance. Contemporary systems tend to replace creation with satisfaction of prior evaluative criteria. They mass-produce novelty while avoiding the risk that creation may render both self and world unable to return to their previous state. By contrast, the practices of bigakusha-haha—from graffiti, Web Installation, Sayama Aesthetics School, waka, and bonsai to Derivative Art—have treated the work not as an addition of information but as a wound that irreversibly alters relations.

The paper finally defines wound not as suffering or destruction but as a difference that prevents the states before and after an event from being reduced to identity. Creativity is the capacity to

transform such non-return into new connectability. Workhood is the operation by which an irreversible history remains open to future generation. This establishes the topological difference between a contemporary phase centered on informational novelty and the phase of bigakusha-haha centered on the generative power of the wound.

Keywords

Generative Studies, Generative Topological Ontology, information space, asymmetry, irreversibility, entropy, possible worlds, impossible worlds, P versus NP, wound, history, creativity, workhood, self-externalization, interface ontology, waka, bonsai

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1. Introduction: Information Excess and the Attenuation of History

The contemporary condition is not characterized by a scarcity of information. Texts, images, videos, evaluations, numerical profiles, and outputs from artificial intelligence are produced at unprecedented speed. Yet a greater volume of information does not entail a deeper history. Before one informational difference can transform the relation between a receiver and the world, another arrives and replaces it. Difference is updated before it can sediment. The result is a paradoxical condition in which everything is recorded but nothing is inherited.

An old bonsai or a waka poem presents the opposite structure. Each contains relatively little explicit information, yet may retain years of selection, interruption, failure, bodily labor, cultural memory, and nonhuman response. Thirty-one morae or a single tree form may be concise, but concision does not imply a small generative process. An immense irreversible history can be compressed into a restricted surface.

The argument begins from the following contrast:

> Information may be scarce while wounds and histories are immense; information may be abundant while wounds and histories do not remain on its surface.

The second clause does not mean that contemporary information lacks physical or social history. Data centers consume energy; devices require extraction, manufacture, labor, and disposal; artificial intelligence depends on training data, infrastructures, and institutional exclusions. The problem is that these histories are separated from the informational surface and displaced onto other bodies, places, communities, and futures. The smoothness of contemporary information is produced not by the absence of wounds but by their nonlocalization.

This problem is fundamental to Generative Topological Ontology. In that framework, being is not a fixed substance but a continuously generated topological structure of relations, and topology is the structure of connectability generated by relations (Tanaka 2026a). Reality is the phase in which a generated relation becomes irreducible, while an interface is an ontological boundary that forms new conditions of generation between different phases. The present paper uses this framework to clarify the topological difference between information and wound.

2. Method and Basic Concepts

“Topology” does not here directly denote a mathematical topological space defined by a family of open sets. It is an ontological and operational concept describing what can connect to what, which boundaries are traversable, which transformations are reversible, and which differences remain as history. The paper crosses thermodynamics, information theory, complexity theory, modal theory, and art theory without reducing them to one physical law. The asymmetries in these domains are not identical; they disclose a shared generative structure at different descriptive levels.

Information, history, and wound must be distinguished. Information is a difference that differentiates possible states and changes the connectability of a receiver or system. History is not stored data about the past; it is the constitution of present conditions by irreversible state transitions. A wound is the local trace through which such history remains in a present form.

A record and a history are therefore not the same. A record is information about the past. A history is a present transformed by the past. Likewise, a wound is not merely damage. It is a difference that prevents the states before and after an event from being made completely identical.

Let A be a state, e an event, and A′ the state after the event:

$$A \rightarrow[e] A', \quad A' \neq A.$$

The reverse direction is not a simple return:

$$A \rightarrow A' \rightarrow A''.$$

Even if A″ resembles A, it bears the history of e and is therefore not ontologically identical with the first state. This non-return is the minimal structure of generative time.

3. Asymmetry: Direction, Surface, and Reverse Side

Where all states are indistinguishable, there is no information. Information arises when a difference occurs and makes a further difference in another state. A concrete informational event therefore does not merely transmit difference; it asymmetrizes a relation.

At least three dimensions of informational asymmetry can be identified. The first is the asymmetry of selection: when one state is actualized from several candidates, selected and unselected states no longer occupy equivalent positions. The second is the asymmetry of transmission: after information passes from A to B, B is no longer the B that existed before reception. If B returns the same sign to A, the return is not a reversal of the first transmission but a new event bearing B's interpretation. The third is the asymmetry of interpretation: the sender's intention, the sign carried by a medium, and the meaning generated by the receiver cannot be presumed identical.

This produces a surface and a reverse side. The surface is the difference selected, displayed, and made readable at a given interface. The reverse side is not a single hidden truth. It consists of the conditions that made the surface possible: excluded alternatives, bodies, institutions, energy, contexts, and silences. These sides are not fixed. A change of interface may bring a background condition to the surface and relegate a formerly visible content to the background.

Information space is therefore not a homogeneous container. If the operational distance from information state x to y is expressed conceptually through an admissible sequence of operations π and its cost $C(\pi)$,

$$d(x, y) = \inf \{ C(\pi) \mid \pi : x \rightarrow y \}$$

there is no general requirement that $d(x, y) = d(y, x)$. Information does not first possess direction as an intrinsic property; direction is generated by asymmetric reachability.

4. Possible Worlds, Impossible Worlds, and Interfaces

When information determines one state, every unselected state does not thereby become impossible. We must distinguish the actual world, non-actual but possible worlds, worlds that are logically possible but inaccessible under available resources, and worlds impossible under a given system of rules (Kripke 1963; Lewis 1986).

Information contracts a set of possible worlds. If the contents of a box may be red or blue, reliable information that it is red reduces the states compatible with present fact. Yet the same information opens new futures: the red object may be used, compared, exchanged, or incorporated into a work. Information closes with respect to past uncertainty while opening with respect to future action.

Impossibility is also frequently relative to rules and interfaces rather than an absolute property. A connection impossible for one body, technology, institution, or logic may become possible through a new interface. An interface is therefore not a passive wall between the possible and the impossible. It is a generative condition that redraws the boundary of connectability.

Logical possibility, physical possibility, computational feasibility, and institutional permissibility must nevertheless remain distinct. A problem requiring exponential time is not logically impossible. The inability to restore a severed bonsai branch with the same material and history is not merely an institutional prohibition. “Impossible world” is used here not as a single category but as a question: relative to which rules and interface has a world become inaccessible?

5. Entropy: Local Contraction and Global Expansion

Thermodynamic entropy and Shannon information entropy are distinct. The former concerns physical multiplicity, heat, dissipation, and irreversibility; the latter quantifies uncertainty relative to a probability distribution over signs or events (Shannon 1948). Yet information processing requires a physical implementation, and the two are not unrelated. Landauer's principle, in particular, shows that logically irreversible erasure entails a minimum physical dissipation (Landauer 1961; Bennett 1982).

Let L denote a local system and E its environment. The second law gives

$\Delta S(\text{total}) = \Delta S(L) + \Delta S(E) \geq 0.$

If local ordering produces $\Delta S(L) < 0$, the environment must receive at least a compensating entropy increase. In actual irreversible processes, total entropy increases.

This clarifies the relation between contraction and expansion in Generative Studies. To establish a local form is not to remove entropy from the whole. Heat, material, time, rejection, and failure required by form dissipate into the environment and remain as history. Local contraction entails nonlocal expansion.

Unchosen words or possible worlds do not literally migrate into the environment as heat. Semantic exclusion and thermodynamic entropy production belong to different levels of description. What connects them is not identity but the fact that the realization of a local selection requires physical operations, memory, bodies, and media.

6. P versus NP: A Limited Model of Generative Asymmetry

P is the class of decision problems decidable by a deterministic computation in polynomial time. NP is the class whose affirmative instances possess certificates verifiable in polynomial time. Whether these classes coincide remains unresolved (Cook 1971; Karp 1972).

The problem is often paraphrased as asking whether an answer that is easy to verify is also easy to find. This formulation requires caution. P and NP classify decision problems, not aesthetic value or creativity, and search problems require additional distinctions. Neither the second law nor artistic irreversibility nor informational asymmetry proves $P \neq NP$

Nevertheless, P versus NP provides a rigorous limit model for the proposition that, within the same problem setting, a route from certificate to verification and a route from problem to construction need not have the same computational distance. Verifying that a waka conforms to a 5–7–5–7–7 pattern is not equivalent to generating a poem with workhood from that constraint. Evaluating the present form of a bonsai is not equivalent to generating decades of growth, pruning, death, and response.

Contemporary institutions frequently specify verification criteria in advance and call the production of an artifact satisfying them “creation.” Creation is thereby converted into constraint satisfaction within a known evaluative space. The significance of P versus NP for this argument lies not in a proof about art but in exposing the unjustified inference from verifiability to generability.

7. Wound, Non-Return, and Creativity

A wound is neither the glorification of suffering nor an aestheticization of destruction. It is a difference that prevents the states before and after an event from being fully identified. In self-externalization, the self leaves a mark in the non-self, but the mark is not a copy of a completed interior. The encounter through the mark transforms both self and non-self (Tanaka 2026b, 2026e).

Mere damage and a creative wound are not identical. A creative wound requires three moments: an irreversible difference, a form that retains that difference, and a new connection opened from the trace. Irreversibility alone may be destruction. Retention alone may remain a record. The wound becomes an interface when its trace begins to generate another relation, time, meaning, or act.

Creativity is therefore neither creation ex nihilo nor the capacity to produce large amounts of novel information. It is the power to refrain from erasing a non-return and to transform it into new connectability:

$$A \to A', \quad A' \times B \to C.$$

Creation is not the restoration of A. It is the generation of C when the transformed A' connects with a different B. Hence:

> A work is a wound arising between self and non-self. Generation does not restore that wound to an original closure; it assumes the new connectability opened by the wound.

8. Waka and Bonsai: Little Information, Immense History

Waka localizes a vast linguistic possibility space into the 5–7–5–7–7 pattern of thirty-one morae. Counting morae is relatively easy, but formal conformity does not guarantee workhood. To select one word is to exclude others, yet cutting, omission, pivot words, and interval retain unselected possibilities as silence. Composition contracts the many into one; reception expands the one into another many. The latter is not a return to the possibilities preceding composition but a new field generated through the work.

Bonsai localizes multiple possibilities of growth into one form through pruning, wiring, repotting, care, and seasonality. A severed branch cannot return as a branch with the same material history. Yet the cut produces light, interval, a visible trunk line, and new directions for the remaining branches. The tree responds to human interruption with unpredictable growth, and that response alters the conditions of the next intervention. Bonsai is not unilateral human formation but an asymmetric circulation between human and nonhuman life.

In waka, unchosen words remain as silence; in bonsai, removed branches remain as interval. In both, the work is formed not only by what exists but by what no longer exists. Little information and immense history coexist.

This contraction is not identical with minimalism. Generative contraction does not acquire force merely by reducing informational quantity. It retains connection to lost possibilities within a restricted form. A small surface does not automatically possess a large reverse side. Contraction becomes generative only when the history of interruption remains in form and stays open to future interpretation and growth.

9. Modernity: The Proliferation of Novelty and the Forgetting of Generation

Modernity has not lost the capacity to make new things. It may produce novelty more intensively than any earlier period. What is being lost is the capacity to assume that creation may render self and world unable to return to their prior states. Modernity proliferates information that is new yet changes nothing.

At least four conditions support this tendency. First, evaluation precedes generation: makers internalize the criteria of markets, juries, platforms, and algorithms before a work emerges. Second, deletion, replication, replacement, and regeneration postpone the responsibility of losing alternatives through a decision. Third, labor, matter, failure, and ecological cost are externalized from smooth surfaces. Fourth, the velocity of circulation exceeds the time required for difference to sediment as history.

As the Theory of Language Derivatives argues, objects generated from reality begin to generate only further objects. Life produces evaluation; evaluation produces ranking; ranking produces a life adapted to ranking. A self produces a profile; the profile produces numerical evaluation; evaluation produces a self adapted to its metrics. Self-externalization does not disappear; it is delegated, proxied, and automated. Wounds persist while the circuits capable of sensing them are interrupted.

This condition may be called the forgetting of generation. It occurs when attention is restricted to a generated object and forgets the cuts, differences, intervals, bodies, responsibilities, and dissipations that made it possible. Contemporary information excess is not historical excess. Difference is updated before becoming a wound, while actual wounds are displaced from the surface.

10. The Topological Difference of bigakusha-haha

The preceding argument makes it possible to define the topological difference of bigakusha-haha not as a stylistic distance from mainstream art, nor as temporal advancement or delay, but as a difference in where the being of the work is located.

> The contemporary phase treats the appearance of new information as creation. Bigakusha-haha treats creation as the irreversible transformation of relations brought about by that appearance.

In graffiti, the work is not only an image added to a wall. The mark changes relations among wall, city, ownership, regulation, body, and passerby. Even after removal, a wall that has been marked and erased is not identical with the wall before the event.

In Web Installation, the screen is not a support displaying pre-existing content. Access, connection, latency, update, disappearance, and relation to distant places constitute the mode of existence of the work. The work is not an informational item but an interface that changes informational distance and connectability.

At Sayama Aesthetics School, art is not an exhibition added to a living space. Staying, eating, conversing, sleeping, and leaving alter boundaries between artist and guest, private and public, art and life. The guesthouse is a “reality display” and a long-duration installation in which relational history sediments into forms of living.

Derivative Art does not simply reject derivation. It discloses, from within, a structure in which information refers only to further information and loses contact with reality. Waka and bonsai approach the same problem from the opposite direction by retaining immense histories within restricted surfaces.

The topological difference of bigakusha-haha is therefore not matter versus digitality, tradition versus modernity, handwork versus artificial intelligence. It is the difference between informational difference and a difference that irreversibly transforms relation. Digital information may possess workhood when it assumes history and forms new conditions of connection. Material handwork may lack generation when it merely repeats an established form without risk or residue.

11. Workhood: Irreversible Form and Unfinished Meaning

Workhood is neither institutional recognition nor an intrinsic property of an object. It is the operation through which a self-externalized mark exceeds reduction to the author's intention and ownership and begins a new generation with others (Tanaka 2026e).

A work bears the irreversible history of having come into being. Yet if its meaning closes into one determination, it becomes a fixed sign. Conversely, if possibility disperses without limit and acquires no local form, it cannot persist as a work. Workhood arises in the tension between irreversible localization and non-closure toward the future.

Conceptually:

Workhood = Irreversible History + Generative Non-Closure.

This is not a quantitative equation but a statement of two conditions. Wound binds the work to the past; non-closure opens it to the future. A work is a form that cannot return and a meaning that does not end.

This definition also reorganizes the discrete positions of creator, viewer, and evaluator. Creation contains observation and selection; viewing contains the generation and evaluation of meaning; evaluation changes preservation, circulation, citation, and future production. The three are not serial roles but functions locally foregrounded within the same generative phase. A work is the interface that connects, exchanges, and redistributes these positions.

12. Conclusion

This paper has integrated information, asymmetry, possible worlds, entropy, P versus NP, wound, history, creativity, and workhood within Generative Topological Ontology.

Information is not static content but an event that differentiates possible states and changes connectability. A concrete informational event asymmetrizes selection and exclusion, sending and receiving, before and after. Information contracts possibilities with respect to the past while opening possibilities toward the future. Interfaces reorganize the boundaries between possible and impossible, near and distant, self and non-self.

Local ordering entails global dissipation. The concise surface of a work does not imply a small generative history. The thirty-one morae of waka and the single form of bonsai retain unchosen words, severed branches, bodies, time, and environment as silence and interval.

P versus NP does not prove artistic creativity. It nevertheless offers a limited model showing that proximity to verification need not coincide with proximity to generation. Contemporary systems tend to erase this difference by replacing creation with compliance with prior evaluative criteria. Novelty consequently proliferates while irreversible generative history disappears from the surface.

A wound is not suffering itself but a difference that prevents the states before and after an event from being reduced to identity. Creativity is the power to transform such non-return into new connectability without erasing it. Workhood is the operation by which irreversible history remains open to future generation.

The topological difference of bigakusha-haha may therefore be formulated as follows:

> The contemporary phase proliferates difference as information. Bigakusha-haha assumes difference as wound and gives it form as history. A work is not new information but the wound of a non-returning connection between self and non-self. Creation begins when that wound connects with another being and opens a world that did not previously exist.

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Research Method

This text is published as a Research Memorandum within the continuing development of Generative Topological Ontology.

The concepts, definitions, hypotheses, and arguments presented here record the theoretical position reached at the time of writing and publication. They should not be understood as a finally established theoretical system. They may be expanded, revised, redefined, or reorganized through future research, artistic practice, interaction with reality, academic dialogue, and peer review.

This research does not regard only completed theories as legitimate research outcomes. It also treats the processes through which concepts emerge, become interconnected, undergo transformation, and are integrated into a theoretical structure as significant objects of inquiry. Accordingly, this memorandum should be understood not merely as an incomplete draft, but as a record of a particular phase in the generation of the theory.

The public release of a Research Memorandum is not intended to present a developing theory prematurely as a completed one. Rather, it is a method of documenting the generative processes of thought and practice, enabling their subsequent examination and reconstruction, and opening them to academic and artistic dialogue from different perspectives.

If the contents of this memorandum are subsequently developed into a peer-reviewed article, scholarly monograph, or other formal research output, the finalized work will be identified as a separate and fixed document.

When citing or referring to this memorandum, please include the title, author, version number, and date of the most recent update. Different versions may contain substantive differences in concepts, definitions, and lines of argument.

This Research Memorandum is not a final conclusion. It is one theoretical position reached within the continuing formation of Generative Topological Ontology and, at the same time, an interface open to further generation.