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In Search of Lost Meaning: Technologies of Writing and the Crisis of Representation

Original Study

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"If the sceptics think that any account can be given of the phenomena of the universe while they leave Meaning out of account, by all means let them go ahead and try to do it."

Peirce, 1903, Lowell Lectures, p.75.

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INTRODUCTION

The following paper explores the evolution and significance of *writing* as a *techné* within the context of digital culture. It examines how semiotic concepts such as logos, arche, and patterns of representation shape meaning and impact the semiotics of writing in the age of digital dissemination.

Writing is a vital tool for preserving and transmitting ideas and knowledge. Since its inception, it has been a means to communicate individual thoughts and emotions, encapsulating cultural narratives, collective histories, and unique human experiences for future generations—the readers of today.

To study writing through the lens of information technologies offers insights into the evolving functions of information tools, shedding light on their impact on human communication, social interaction, and cultural memory. Driven by language models, the technological age is primarily formed by binary dyadic models. By blurring the distinctions between the writer and the message, as well as between the physical and digital realms, writing today contributes to reinterpreting the history of literacy. This transformation is accelerated by an increasingly digital dissemination, where digital codes model the structures of social communication and fuel the creation of mass content.

Writing serves as a means to preserve the evolution of meaning. In his seminal work "Grammatology" (1997 [1967]),. Jacques Derrida critiques the restraints put on our understanding of meaning processes imposed by a dyadic definition of the sign structure. The inherent dynamics of Saussure's dyadic structure affect all signified concepts, restraining meaning between the signifier and signified. (Saussure 1966) Derrida confronts the challenge of uncovering the origins of meaning by proposing a shift from semiology—the study of the linguistic sign—to grammatology, the study of *writing*.

> "The advantage of this substitution will not only be to give to the theory of writing the scope needed to counter logocentric repression and the subordination to linguistics. It will liberate the semiological project itself from what, in spite of its greater theoretical extension, remained governed by linguistics, organized as if linguistics were at once its center and its telos […] The linguistic sign remained exemplary for semiology, it dominated it as the master-sign and as the generative model: the pattern [patron]." (Derrida 1997 [1967], 51)

Recent studies have sparked discussions about the efficacy of language as a prototype for constructing reasoning systems. For instance, a study titled "Language

is Primarily a Tool for Communication Rather than Thought"[1] explores the relation between natural language and reasoning, thus shedding some light on the technology-human interaction in communication. Such experiments serve to delineate the brain circuits involved in language-related tasks such as word recall and grammar. Participants were presented with nonsensical phrases followed by proper ones, and it was shown that different brain regions were stimulated only during the perception of meaning-bearing language.

The results confirm that strokes and other brain injuries can disrupt the language network, resulting in challenges with word processing and grammar, a condition known as aphasia. Notably, individuals with aphasia can still perform well in tasks like algebra and chess, raising an intriguing question: if language isn't essential for reasoning processes, what role does it play? The researchers suggest that language may primarily function as a tool for communication.

The notion that thought or reasoning and language can operate independently might help explain why artificial intelligence systems like Large Language Models excel in certain areas while struggling in others. Computer scientists train such AI models on extensive text data to discern patterns in word relationships. Although these systems are beginning to mimic the human brain's language network, they often lag behind in their reasoning capabilities.

This has led researchers to ponder: what is the missing link between language and reasoning?

WRITING AS THE PRESERVATION OF MEANING

In examining dyadic sign systems through a grammatological lens, we find that defining language solely as a dyadic structure overlooks the element of meaning semiosis and restricts the potential for the growth of signs. Derrida addresses this issue by referencing Charles S. Peirce, who significantly advances Derrida's concept of deconstruction regarding the transcendental signified. Peirce clearly illustrates that the process of signification cannot be reduced to a two-dimensional relation.[2]

To truly grasp the relationship between meaning and signs, we need to consider the concept of "thirdness." To clarify, a sign is defined as: "Anything which determines something else (its interpretant) to refer to an object to which itself refers (its object) in the same way, this interpretant becoming, in turn, a sign, and so on ad infinitum." (Derrida, 1997 [1967], 50) Thus, as soon as meaning exists, it is the manifestation of signs, and vice versa. Peirce's logic tirelessly postulates, we think solely in signs; neglecting the element of meaning in any study of signs ultimately undermines the very concept of the sign from its inception.

Grammatology, the science of writing, investigates meaning both prior to and within language, examining each speech and writing system as deeply rooted in the world and its history. It explores what the very first meanings might be—those primary meanings and questions how can we uncover the origins and initial formations of symbolic interaction and meaning-making?

From Peirce, we learn that there can be no thought without signs, but where do our thoughts, and consequently our signs, originate from? Peirce explains that symbols evolve by carrying latent meanings that await future revelation. Humans are inherently symbolic beings because of their constant engagement in interpretation, and it is only time that can unfold the richness of this interpretive journey. Consequently, as long as this process continues, the final outcome and hence, the source, remains uncertain. As to technology as a meaning processing system, a symbolic form, its study shouldn't center on what it represents. Instead, it should focus on how technology exemplifies the traits of symbolic configuration, particularly regarding the modeling laws within cultural contexts.

Understanding the journey of meaning-making is essential, as it begins well before we usually associate it with comprehension. Instead, the roots of meaning-making reside in biological and cultural evolution and is intricately inscribed in physical realities by unfolding through complex neural, social, and cultural layers.

Furthermore, cognitive pattern formation is fundamental for shaping meaning. Considering the neural patterns that generate reasoning and lead to meaning shows that our understanding of reality arises primarily through sensory nerve fibers that transmit merely electrical signals to the brain. These signals, originating from sensory channels like the eyes, ears, and skin, are fundamentally the same—just electrical spikes, devoid of sound, image, or light. In parallel, the brain also sends signals to the muscles, prompting bodily movements that shape how we interact with the world and what sensations the brain processes. As Damasio explains, through continuous sensing and movement, our brains compile a model of the external world. (Damasio 1994)

Consequently, neurons' activity reflects our current thoughts and perceptions, which are constructed according to this internal model rather than the external world itself. Thus, the reality we experience is a representation or simulation shaped by the patterns created in our minds. This is where the symbolic function, or thirdness, resides, encompassing the process of semiosis.[3]

Similarly, for Peirce and Derrida, the process of signification opens up a space for the evolution of meaning, which serves as a laboratory for mental experiments; this space is essential for negotiating universal meanings. While it naturally includes language,

1 Fedorenko, E.et al., 2024. Language is primarily a tool for communication rather than thought. Nature, 630, 575–586.
2 More on Peirce's Logic of Thirdness in: Peirce, C. S. (2009). The logic of interdisciplinarity. The Monist Series. E. Bisanz (Ed.), Akademie Verlag
3 By semiosis Peirce means "[…] an action, or influence, which is, or involves, a cooperation of three subjects, such as a sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs." Peirce, MS. 318

its scope extends both before and beyond linguistic expression.

All this helps us understand, that meaning, by definition, binds information through relationships. It constitutes the fundamental framework of existence. Peirce writes, "For this reason, I refer to this element of the phenomenon or object of thought as the element of Thirdness. It is that which is such as it is by virtue of imparting a quality to reactions in the future." (Peirce 2024 [1903], p.75)

The essence of our immediate consciousness—what we experience as real and tangible—is Firstness. Conversely, the future, or what Peirce terms "what is to be," as a form of meaning, can never fully become past. Therefore, we can assert that meanings are inexhaustible.

Some examples of Thirdness provided by Peirce are:

- The thread of life is a Thirdness; the destiny that cuts it serves as the Secondness.
- Continuity exemplifies Thirdness nearly perfectly.
- Action is categorized as Secondness, but conduct is framed as Thirdness.
- Order and legislation represent Thirdness.
- Sympathy, the ability to empathize with others' feelings, is also a form of Thirdness.

Thirdness plays a crucial role in the evolution of meaning, facilitating essential properties such as *growth* and *surprise*. Growth encompasses the idea, the act, and the life-giving principle. However, growth cannot progress until the elements that determine its functions are well delineated, similar to processes in biology.

For Peirce, meaning processes are also inherently tied to reasoning and involve drawing inferences. The specific mental habit that dictates this inference can be articulated as a proposition, the truth of which hinges on the validity of the inferences guided by that habit. In logic, "meaning" serves as a technical term representing the conclusion of an argument, recognized as its intended interpretant. By defining the meaning of a term, proposition, or argument as the complete general intended interpretant, we specify the meaning of the argument: it is its conclusion. Conversely, the meaning of a proposition or term encompasses everything that proposition or term may contribute to the conclusion of a demonstrative argument.

Peirce gives us a further logical tool for clarity. All propositions relate to a singular, ever-reacting totality that define all objects. This indicates that meaning processes are reasoning activities rooted in hypothetical inferences, a concept Peirce refers to as abduction. Abduction is the method of forming an explanatory hypothesis and is the only logical operation that introduces new ideas. In contrast, induction merely determines values, while deduction elaborates on the necessary consequences of a given hypothesis. Deduction demonstrates that something must exist, induction indicates that something is currently active, and abduction proposes that something may emerge in the future. All established scientific theories have been made possible by the process of abduction.

Let us now apply these rules to the study of meaning processes within technology.

If we consider the ultimate purpose of technology in light of our earlier definition of writing, it is legitimate to assume that from its inception, technology has been a means of conveying the thoughts and emotions of individuals, their cultures, collective histories, and experiences of the human condition—all preserved for future generations, for us, the *readers*.

Therefore, technology remains fundamentally the same tool it has always been, aligned with the principles of Homo faber—the concept of humans as manufacturers and tool creators. In his bestselling book "So Much Stuff: How Humans Discovered Tools, Invented Meaning, and Made More of Everything" (2023), Chip Colwell expands this idea and explores humanity's evolutionary journey over the past three million years, from the creation of our earliest tools to the advent of artificial intelligence. He identifies three significant leaps in this evolution: The first phase which he traces back around four million years ago when humans recognized that natural materials could be transformed through imagination and creativity. The ability to innovate is what sets us apart from artificial intelligence. For instance, a simple stone could be shaped into a spear, or a log might be crafted into a vessel. The revelation marked a turning point in our evolution. As each new tool was developed, it created opportunities for further innovations, sparking a chain reaction of advancements over the millennia – all evolving from our basic survival needs.

Colwell sees a second leap in the quest for meaning. Human beings came to understand that tools can have more than utility. They can have sacred power, wealth, or ritual status. The symbolic feature of meaning not only added to objects' meaning but also created new economic and social forms, closely entwining them with human cultural development.

Lastly, he associates a third phase with the Industrial Revolution, characterized by the reproduction and hoarding of resources—a pattern that continues to this day. This era marks our growing tendency to hoard information, effectively transforming how we interact with the world and each other.

Colwell's work reflects on how these leaps have shaped human experience and the ongoing importance of creativity, meaning, and knowledge in our lives. He identifies three essential elements for the discovery of tools: working memory, reasoning-based learning, and physical capability. Within this triadic framework, a variety of crucial skills emerge, including insight, observation, perception, realization, experimentation, manipulation, motor skills, planning, physical flexibility, focused attention, information integration, decision-making, and ultimately, discovery and invention. (Colwell, 2023)

Comparing these categories with the features of programs in digital tools, particularly generative and agentic AI models, we realize that many of the AI systems tend to

adopt a reductionist approach. By focusing primarily on natural language as their basic model for reasoning and communication, they adhere to a dyadic model that is fundamentally "meaning-blind." This reveals a significant limitation in digital programming: it overlooks essential elements such as cultural familiarity, logical reasoning, and what can be termed as *triadic symbolic intelligence*.

A theory of technology cannot discover meaning by principles based solely on observation and experimentation; it must study the laws that govern technology. Consequently, the essence of technology can be better comprehended through its performance and use, particularly as a writing tool, along with the features that drive transformation, its functions and effects on users.

Technology as a *writing* tool has far reaching and novel effects on culture. Generally, tools serve to bridge the rational world and the objective world. When a person relies solely on their physical abilities to achieve their goals, that connection remains unestablished. However, once tools are introduced, the goal becomes more distant and abstract. This shift allows individuals to transition from merely reacting to their immediate surroundings to anticipating future outcomes. This skill to anticipate becomes both a method and a necessity for gaining new insights, setting intentional human actions apart from instinctual animal behaviors or mechanical responses.

Ada Lovelace, a pioneer in computational machines, envisioned the humanistic computation tool as a "prediction machine". The use of predictive tools enables us to transcend our physical limitations, allowing a focus on goals that are not physically apparent but exist further in space and time. This approach contrasts with simply responding to immediate sensory stimuli.

Technology as a symbolic representation can be considered as an extended tool of the human body and mind. As technology advances and new tools automate various functions, humans can engage in more creative endeavors, which may not yield immediate results but hold significant meaning. While meaning expands across different forms of representation, it increasingly becomes detached from human influence. This disconnection from the established laws that individuals have created, and the profound implications of this detachment, are especially evident in the evolution of modern technology. Therefore, it is crucial to understand that this alienation is not the root cause of a technological problem but more a reflection of it. The focus should not be solely on specific cultural elements, but rather on the overarching purpose of culture, on the overall direction it is moving toward.

The evolution of writing in digital culture fosters a more participatory environment where readers take on the role of co-creators, merging the roles of author, writer, and reader. This fluidity challenges the rigid hierarchies of traditional authorship and necessitates a reevaluation of how knowledge and cultural meaning production are perceived. Furthermore, the concept of arche, which signifies the origin of meaning or guiding principle that drives a phenomenon, gains new significance within the context of digital dissemination. In an era where information spreads rapidly and sources often lack clear attribution, the authoritative basis for claims is increasingly questioned. Digital culture is characterized by ongoing negotiations of truth and ownership—elements that blur the distinctions between creator and appropriator. Analyzing the arche of writing in digital environments uncovers the complexities associated with attributing originality and authority to any given piece of writing. The challenge lies in discernment: how do we, as participants, navigate this intricate web of influences when the very origins of content have become ambiguous?

Lastly, the central category of representation is fundamentally redefined in the digital era. Derrida's critique of the boundaries and authority of representation invites us to reconsider the operation of writing as a medium and witness to meaning. Representation within digital culture is frequently fluid and multi-layered, as Peirce very early summarized: symbols grow. It can shift its meaning based on framing, recontextualization, and the interactive possibilities provided by technologies. The way a text is presented contextually can significantly influence its reception and interpretation, highlighting that writing is not merely a reflection of reality but a mediating force that actively shapes perception. The semiosis of writing—the process of meaning-making through signs—becomes a complex interplay where the reader's agency is crucial. As users engage with content, they participate in the cycle of meaning, indicating a shift away from static textuality towards a more participatory understanding of writing.

The simple question remains: how can we assess the value of technological evolution and its significance as a writing tool? If the advancement of technology increasingly enslaves and constrains users instead of serving as a means for self-representation, then we relinquish control over technology. Conversely, if the notion of self-expression itself guides and ultimately transforms technology, then the significance of this pursuit cannot be diminished by the challenges encountered along the way.

Ultimately, it boils down to an intellectual triadic reflective activity that involves engaging with the game of future meaning, embracing the freedom of invention, fostering the joy of anticipation, and navigating the regulations surrounding current technologies, such as artificial intelligence, which primarily operate by accumulating past data. Understanding the principles of meaning processing, or semiosis, is essential for comprehending and controlling technologies of writing effectively.

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