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RESEARCH

Algorithms, language, and poetry: a phenomenological perspective

Daniel Turillazzi Fornés[1] · **Angelo Trotta**[1]

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Abstract
This paper examines the algorithmic formalization of language through a phenomenological lens, engaging Martin Heidegger and Maurice Merleau-Ponty in dialogue with contemporary large language models (LLMs) and related AI systems. Instead of treating computationally modeled language as a neutral medium for information transfer, we argue that both formal logic and data-driven models are historically specific crystallizations of a more primordial field of embodied expression. The idea of the ”unity of language” refers to the dynamic, historically situated field of expressive possibilities within which multiple linguistic systems — natural languages, formal calculi, code, poetic language — emerge, sediment, and transform. Drawing on Merleau-Ponty's account of embodied speech, we reconstruct language as a living, self-renewing medium whose unity lies in its ongoing capacity to generate new sense. Heidegger's analysis of technological ”enframing” (Gestell) and his reflections on ”traditional language” then allow us to interpret algorithmic conceptions of language as powerful, but critically informing of the existential risk of reducing speech to optimizable signals within the wider field of linguistic life. We confront these insights with current developments in AI, including LLMs, embodied AI, and enactive or 4E approaches to cognition. We conclude by sketching phenomenologically informed criteria for language technologies that respect expressive openness, relational depth, and the historicity of signifiers, and indicate how such criteria can orient debates in AI ethics.

Keywords AI ethics · Large language models · Phenomenology of language · Heidegger · Merleau-ponty · Saussure · Enactive AI · 4E cognition · Media theory

1 Introduction

The rapid diffusion of large language models (LLMs) and other generative systems has revived old questions about what language is and what it means to ”model” it. Formalization and computational treatment often assume that language can be adequately understood as a space of signs governed by rules, suitable for information transmission and prediction. The more effectively an algorithm captures patterns in language use, the closer it is taken to the ”essence” of language. Phenomenology suggests a different starting point. Language is not primarily an instrument for encoding and decoding messages, but one of the basic modes in which embodied subjects inhabit and articulate a world. Speech is not the external clothing of pre-formed thoughts, but a way in which sense comes into being.

In what follows, drawing on Merleau-Ponty's and Heidegger's reflections on language within the technological developments of their time — cybernetics, language formalization, etc. — we bring this phenomenological insight into conversation with contemporary AI. This study aims at an actualization of some considerations around the nature and peculiarities of language, as they emerge in the thought of the two philosophers, moving from a critical look at technological-scientific development and in a confrontation with formalized language. The formalization of language and calculating thought appears as the outcome of a totalizing cognitive attitude, aimed at restricting and delimiting ontological regions into specialized fields of inquiry, thereby blurring the original and overall essence of the logos: confined within the rigid structures of logic, language is reduced to a mere tool at the disposal of a calculating subjectivity. These thinkers, though proceeding along different

✉ Angelo Trotta
angelo.trotta5@unibo.it

Daniel Turillazzi Fornés
daniel.turillazzi@studio.unibo.it

[1] University of Bologna, Bologna, Italy

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paths, propose a way to glimpse — precisely within the most abstract, seemingly objective and unambiguous articulations — the primal expressive, manifestative, and creative feature of language.

The question concerning the symbolic configuration proper to the scientific attitude thus opens onto a more general consideration of the signifying potential of human beings. In this problematic context, the goal of the study is to bring into dialogue the different possible forms of symbolic articulation in an attempt to manifest the original unity of the linguistic phenomenon, connoted overall by an expressive virtuality. The unity in question is the ongoing, embodied power to express and to reshape a shared world, a unity that generates and traverses multiple languages, registers, and codes. On the technological and ethical side, we argue that contemporary AI — symbolic and statistical — instantiates a particular narrowing of this field. Even when AI systems are biologically inspired and implemented via neural networks, they still frame language primarily as a domain of optimizable patterns. This framing has ethical consequences, as it can reinforce instrumental and managerial approaches to communication.

In light of these considerations, our thesis is twofold. First, algorithmic conceptions of language—whether symbolic or statistical—are historically derived from, and dependent upon, a prior field of embodied expression that they cannot fully exhaust. Second, precisely because of this derivation, the ”poetic”—as a name for the generative force of speech that exceeds fixed codes—remains legible even where language is technically constrained. The following sections develop this claim by reconstructing Merleau-Ponty’s and Heidegger’s accounts of language, confronting them with contemporary AI, and drawing out phenomenological criteria for the design and governance of language technologies.

2 Merleau-ponty: embodied speech and the ”clouded logic” of language

In *Phenomenology of perception* [1] and *The Prose of the World* [2], Merleau-Ponty develops a theory of expression that starts from ordinary speaking. Speech is not an external sign for an inner content but one of the basic ways in which we inhabit the world. He criticizes the two classical approaches to language. On one side, intellectualism treats language as the transparent expression of fully formed, inner thoughts. On the other, empiricism reduces speech to the association of sounds with impressions. Both assume that meaning is completed elsewhere and that the word is merely a label. For Merleau-Ponty, by contrast, words themselves carry meaning [1].

The living body (*Leib*) is already a linguistic one (*Sprachleib*): tone, rhythm, gesture, and phrasing are not neutral vehicles but ways in which a world is made to appear. Thought is not first fully present and then linguistically translated; it crystallizes in and through speech. As he famously insists, speech is not the sign of thought; it is the place where thought happens. This standpoint undermines the old dream of a perfectly transparent code: language is always situational, affective, and historically sedimented. Its ”logic” is necessarily a ”clouded” one [2]: patterns of usage stabilize but remain open to transformation. This opacity is not a defect to be eliminated. It is the condition for new meaning.

Saussure’s distinction between *langue* and *parole* helps clarify what is at stake [3]. *Langue* is the relatively stable system of differences — phonological, syntactic, semantic — that underlies a community’s speech; *parole* is the individual act of speaking. Merleau-Ponty’s own distinction between constituted ”spoken speech” and constituting ”speaking speech” reworks this pair: spoken language is the sedimented network of meanings and usages that establish a shared world; speaking language is the inaugural gesture that reactivates and transforms that network. The unity of language, then, is not the totality of langue fixed once and for all, nor an ideal universal code. It is the dynamic unity of an expressive field grounded in the shared structure of embodied existence. Humans inhabit a perceptual and practical world that can be ”spoken” in many ways, but not in arbitrarily disconnected ways. This unity is historical and plural. It manifests as the ongoing interplay of sedimentation and innovation across different languages, dialects, and registers.

When Merleau-Ponty speaks of ”a single language in development”, he is highlighting the fact that natural languages, scientific idioms, logical calculi, and even programming languages are historically related articulations of a common expressive power. Unity here is continuity through difference, not uniformity.

3 Heidegger: technology, language and the ”uselessness” of questioning

Heidegger’s writings on technology help us understand how this expressive field can be narrowed. Albeit in a theoretical and methodological context quite different from Merleau-Ponty’s, he also notes this inherent ”movement” in language — of course, using other expressions and with other discursive intentions. He perceives the situation of a gradual impoverishment of language, inversely correlated with an enrichment of technological results, as an index of a precise trend concerning the destiny of man in his relationship

with its Being. Without entering into the peculiar heideggerian ”grammar”, functional to its ontology, we shall merely derive, as it were, ”ontic” perspectives from it, to defend the thesis of this paper, namely, of the original creative power of language, concealed even in closed systems of signification.

In *The Question Concerning Technology* [4], he argues how modern technology organizes how beings are revealed — as resources to be calculated, ordered, and exploited. In his 1962 lecture *Traditional Language and Technological Language* [5], Heidegger extends this analysis to speech. When language is conceived in cybernetic terms, it becomes an information channel: a sequence of signals that can circulate between humans and machines alike.

In contrast, Heidegger famously suggests that meditative thinking awakens a ”sense for the useless”. The useful, the usable, in its being available, imposes itself on the gaze and beckons, provoking and inciting to the ”use for” (something); but the questioning around the sense of the usable is itself non-usable: it is for the useless. Yet the same text also insists that ”the sense of things is that which is most necessary,” because without it ”the useful remains senseless and thus not at all useful” [5]. The meditation around linguistic uses, precisely around the terms ”language”, ”technology” and ”tradition”, will thus not be useful, as it won’t provide pragmatic directives to the state of things in matters of the cultural-pedagogical context in which they are embedded – the humanistic-scientific ”general culture” of our time, ”taught” in schools and requested to some degree in all aspects of life –, yet their understanding opens up a path that, in its in-utility, traverses the problematic underlying the non-explicit orientations of every action in sight of the useful.

Within a technological frame, ”useful” tends to mean available for calculation and deployment. In these terms, questioning appears useless because it does not directly increase efficiency or control. Heidegger plays on this appearance to show that what looks useless from the standpoint of optimization is in fact more necessary than any particular use: questioning opens the space in which usefulness can have meaning at all, and warns of the risk of falling (*Verfallen*) within the availability of the useful, losing touch with the ontological relation that makes possible any ontical interaction.

Confronting with N. Wiener’s Cybernetics, Heideger’s meditative thought says that, in the information flow of a technical language, our speaking remains situated in a feedback mechanism that makes us, the speakers, similar to the machines we invented. Inserted as mere pawns in the great information system — in which our ”cultural baggage” is included —, language seems no longer to be able to say anything new. The problem is not that machines cannot process signs. It is that reducing language to information effaces its role as a way of letting beings appear and as a medium of shared, embodied worldhood. ”Technological language” is not simply an alternative idiom; it expresses a more general tendency to interpret language in terms of control and optimization. In this frame, tradition is merely a baggage of cultural information, a skill that everybody has to some degree.

Meditative thought is ”useless” only from within a narrowed horizon. In a deeper sense, it is the condition of possibility for any understanding of use, but not in a transcendental sense: the use is always handed down from a past. Tradition, then, is much more than "cultural baggage", as it has to do with the ontological structure of Dasein: it is what carries the germs and the possibility of a projectual openness to the future; it carries a heritage of uses, not as dead corpses, but as living meanings that can be authentically understood. In this sense, Heidegger’s ”traditional language” and Merleau-Ponty’s ”speaking language” converge: both name dimensions of linguistic life that are not exhausted by functional communication. The lesson is that forms of speech must be cultivated and protected even when they do not submit entirely to criteria of informational efficiency.

4 Phenomenological inquiry on LLMs and embodied AI

Merleau-Ponty’s and Heidegger’s reflections were triggered by developments, such as Cybernetics and algorithmic formalization, that treated language through explicit symbolic structures and logical rules. In that context, ”the ghost of a universal language” [2] appears as the aspiration to a fully explicit, machine-readable representation of knowledge. Contemporary AI has moved away from such purely logical approaches. LLMs are large-scale neural networks trained to predict the next token in a sequence, using vast corpora of text. Their ”knowledge” is distributed across high-dimensional parameter spaces rather than encoded in explicit logical formulae. This shift might suggest that the phenomenological critique of logical formalization has lost its target.

However, the underlying orientation remains similar: language is framed as a space of patterns that can be learned, compressed, and exploited for prediction. Regardless of whether the machinery is symbolic or statistical, the core idea is that linguistic performance can be optimized by adjusting parameters against quantitative objectives (loss functions, benchmarks, engagement metrics, and so on). From a phenomenological perspective, the risk is that this framing becomes the default understanding of language. When speech is systematically mediated by systems that treat it as a resource for prediction and optimization,

language itself may come to appear as a mutable reservoir of signals rather than as a shared way of disclosing a world.

Contemporary AI is not merely a form of disembodied symbol manipulation – though from a Merleau-Pontian perspective even abstract symbolization remains embodied. There is a growing literature on embodied AI and on 4E cognition, which emphasizes that intelligent behavior emerges from the interaction between bodies, environments, and sensorimotor loops. Within this field, Froese and Ziemke's [6] program of "enactive artificial intelligence" is a prominent example: they argue that the biological foundations of enactive cognitive science can guide the design of artificial systems capable of their own "sense-making". These developments show that not all AI conceives of cognition — and by extension language — as disembodied symbol processing. Some projects explicitly aim to build artificial agents whose cognitive life is tied to embodied interaction with an environment.

At the same time, phenomenology invites a distinction between functional embodiment and lived embodiment. Even if an AI system is physically situated and sensorimotor-coupled, its "body" (*Körper*) is engineered to serve specific design objectives. Its environment is selected, instrumented, and evaluated in terms of performance. By contrast, human embodiment (*Leib*) is marked by vulnerability, mortality, affect, and exposure to others in ways that exceed functional specification. The point is therefore not that embodied or enactive AI is irrelevant, but that such systems remain embedded in socio-technical projects largely oriented toward control and optimization. The crucial question is not simply whether machines can, in some sense, *make* sense, but how specific architectures and deployments of AI reconfigure the space of possible human sense-making [7].

5 Ethical implications

Recent work in media theory and critical philosophy of signification offers tangible tools to explore these theoretical concerns. Hansen's analyses of "new media" and digital embodiment examine how digital environments reconfigure perception and embodiment, arguing that the "digital image" is better understood as a process whereby the body filters information than as a static object [8, 9]. Catherine Malabou's writings on plasticity [10, 11] show how forms and meanings remain structurally open to transformation, while recent discussions of "floating signifiers" examine the instability and re-capture of such openness in contemporary politico-economic contexts. Talha Işsevenler's work on the "nonhuman temporality" of social media feeds [12, 13] explores how digital platforms rearrange temporal experience by algorithmically curating streams of content, thereby shifting how past, present, and future are lived.

In *Otherwise than Being or Beyond Essence* [14], Levinas distinguishes between the said (*le dit*) and the saying (*le dire*). The said is the content of language, the thematized meaning that can be recorded, cited, and analyzed. The saying is the act of address, the exposure to the Other that precedes and exceeds thematic content. From this perspective, the ethical significance of language lies less in what is said than in the asymmetrical relation that saying establishes. To speak is to be responsible, to answer to someone before any explicit rule or contract. This has consequences for AI ethics.

When conversational agents, recommendation systems, and automated moderation tools mediate large portions of communicative life, they can reshape how address and response are experienced. If a primary linguistic counterpart is a system optimized for coherence, engagement, or retention, language can come to be expected to behave according to those metrics. The risk is not only misrepresentation, but a quiet erosion of the experience of being addressed by an irreducible Other. A phenomenological AI ethics should therefore ask how particular language technologies configure the possibilities of ethical exposure and intersubjective processes. Do they support the emergence of genuinely responsive, accountable relations, or do they substitute them with frictionless exchanges of content?

Situating LLMs and related systems within this landscape, they appear not merely as tools that "use" language, but as infrastructures that help determine what counts as speech, authorship, and relevance. They alter the temporalities of discourse (instantaneous response, continuous availability), and they modify how signifiers circulate and stabilize. In this context, the "unity of language" is not a static metaphysical substrate, but the ongoing, contested interplay of sedimentation and reactivation across these infrastructures. AI systems participate in this interplay by favoring certain rhythms, styles, and norms of expression over others.

6 Phenomenological criteria for language technologies

In light of the preceding analysis, some phenomenologically oriented criteria for the design and governance of language technologies can be proposed.

1. *Expressive openness*. Language technologies should avoid closing down the space of possible meanings. Concretely, this may involve: making uncertainty explicit instead of simulating omniscience; allowing

for multiple, even conflicting, continuations or interpretations rather than always collapsing ambiguity into a single output; designing interfaces that make room for user intervention, contestation, and revision. The aim is not to make systems ”less accurate” but to resist the conflation of communicative success with predictive optimization alone.

2. *Relational depth and accountability*. Systems should be evaluated not only in terms of individual user satisfaction but also with regard to how they shape intersubjective relations. This includes: foregrounding human responsibility behind automated systems (for example by clearly indicating institutional provenance and channels for redress); being attentive to asymmetries of power in contexts such as healthcare, education, and justice; supporting practices of listening, explanation, and disagreement, rather than only efficient content delivery. Here Levinas's idea of the ethical primacy of the Other can serve as a critical check on designs that flatten all interaction into symmetric exchange.
3. *Historical and political awareness of data and signifiers*. Finally, AI systems should be built and governed with a clear awareness of the historical and political character of their training data and of the signifying practices they amplify or marginalize. This involves: recognizing that corpora encode specific histories of inclusion and exclusion; actively supporting linguistic and cultural plurality rather than reinforcing dominant norms; avoiding the reification of model outputs as neutral ”views from nowhere”. From a phenomenological perspective, this is a way of acknowledging that algorithmic models are derivative constructs situated within a broader, evolving field of linguistic life.

7 Conclusion

Phenomenology can contribute to AI ethics by reframing how language itself is understood. Merleau-Ponty's account of speech as embodied expression and Saussure's distinction between system and act allow for a notion of the unity of language as a dynamic, historical field of expressive possibilities rather than as a universal code. Heidegger's reflections on technology and language illuminate how algorithmic conceptions can narrow this field by reducing speech to information, while his insistence on the ”useless” work of questioning reminds us that such narrowing is neither necessary nor final. Engaging with contemporary developments in AI — LLMs, embodied and enactive AI, and media-theoretical analyses of digital infrastructures — suggests that the key issue is not whether machines can ”use language”, but how specific socio-technical configurations shape the possibilities of expression, relation, and temporality for humans.

A phenomenologically informed AI ethics should therefore attend to expressive openness, relational depth, and the historicity of signifiers as central design and governance criteria. The aim is not to provide a complete blueprint for AI policy, but to show that any serious ethical reflection on language technologies must grapple with the depth and complexity of linguistic life, and that phenomenology offers conceptual resources for doing so without either romanticizing ”authentic” speech or naturalizing algorithmic optimization as the new norm.

At the same time, the present contribution has clear limitations. First, it is unabashedly conceptual: we do not provide empirical studies of particular systems or user practices, and our claims about the impact of language technologies remain at the level of phenomenological and media-theoretical interpretation. Second, we focus on a relatively narrow set of authors and debates, without attempting a systematic survey of either phenomenology or contemporary AI research. Third, our discussion of AI architectures is intentionally schematic and leaves open the task of more fine-grained analyses of concrete deployments in domains such as education, healthcare, or governance. We nonetheless hope that the conceptual clarifications offered here can serve as a resource for such future work and as a reminder that questions about language lie at the heart of AI ethics.

If there is a ”poetry behind algorithms”, it does not consist in attributing lyric subjectivity to machines, but in recognizing that every calculative treatment of language presupposes a living power of expression that can never be fully optimized away. Attentive to this excess, AI ethics can treat poetic and other non-instrumental forms of speech not as dispensable ornaments, but as privileged sites for sensing where language technologies risk impoverishing—or, potentially, enriching—our shared world.

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Declarations

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