Special Issue
Data, Society and Sustainability in a Digital World: Epistemological, Methodological and Governance Challenges



FUORI LUOGO

Journal of Sociology of Territory, Tourism, Technology

Guest Editors
Marina Marino
Gabriella Punziano

Editor in Chief: Fabio Corbisiero
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Edmondo Grassi[1]

Algomorphic Epistemologies. The Threshold as a Heuristic Tool between the Human and the Algorithmic[2]

1. A Post-Anthropocentric Reconfiguration of Knowledge

The widespread diffusion of generative artificial intelligence algorithms marks a significant epistemic discontinuity that challenges the anthropocentric framework upon which the legitimacy of scientific knowledge has historically been founded. This rupture compels a critical rethinking of the theoretical and methodological categories through which the sciences—particularly the social sciences—have constructed their own validity claims, as well as of the paradigmatic complex that has guided the analysis of transformations in global societies. The theoretical horizon known as the Novacene (Lovelock, 2019)—conceived as a new era co-inhabited by human beings and artificial intelligences endowed with increasing operational autonomy and design capabilities—emerges as the context in which such epistemological transformations are taking shape. In this new phase, technical artifacts do not merely extend human faculties; they take on the role of cognitive actors capable of producing and reorganizing knowledge from cultural, historical, and symbolic materials generated by humanity itself, giving rise to hybrid and at times unprecedented configurations of epistemic agency. The field of generative artificial intelligence, in particular, introduces agentive modalities that cannot be reduced to human heuristic logic, thus outlining an emergent regime of epistemic co-production in which the boundaries between subject and tool, between intentionality and automation, between creativity and computation, become increasingly porous and open to renegotiation.

In particular, Large Language Models (LLMs) function not only as computational tools but also as genuine epistemic actors, capable of actively participating in the co-construction of meaning within digital discursive environments. Alongside them, a broader constellation of architectures—from deep neural networks to Natural Language Processing models, from computer vision systems to multimodal frameworks and generative adversarial networks—contributes to the emergence of new forms of sense-making, selection, and inference, intervening in the very structure of cognitive and communicative processes. Following the ontogenetic perspective (Massumi, 2002; Whitehead, 1968), such devices should not be understood as closed or predetermined entities, but rather as zones of operative intensity, in which subjectivity and signification emerge through pathemic processes - that is, the affective dynamics through which subjects are moved, touched and oriented in their relation to the world, and through which attachments, aversions and sensibilities are formed over time- in constant redefinition. The algorithm no longer merely acts as an agent that executes functions; it comes to occupy the domain of the modulating threshold between potentiality and actualization: its action takes form in the event, in variation, in the instant in which it produces an effect, a relation, a deviation. Within this logic, algorithmic action is always also a political act: it orients, filters, distributes, and in doing so, anticipates worlds, traces trajectories, shapes visibilities. Algorithms unfold within complex relational circuits in which data, affects, normative expectations, and social tensions constitute the dynamic terrain of their operativity. As classic STS work has shown, from laboratory studies to practice-based approaches (Latour & Woolgar, 1979; Knorr-Cetina, 1985), knowledge has never been produced from a disembodied, external standpoint, but is always materially and socially embedded. Following a long tradition in science and technology studies, we know that epistemology has never been exercised from a purely external, disembodied standpoint: knowledge has always been materially embedded and socially distributed. What changes in the age of generative AI is that this condition ceases to be a latent feature of specialised practices and becomes an infrastructural property of everyday life.

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Epistemic processes are now visibly embodied and distributed across technical infrastructures and the cultural and political contexts that shape their use. Human subjects find themselves reacting to and relating with a heterogeneous constellation of technical entities in increasingly articulated, intimate, and stratified ways, as algoagents participate directly in organising meaning, attention, and memory. Within an algomorphic framework, the political nature of code is not an external add-on, but an internal dimension of the threshold itself. The algomorphic threshold can be read as the point at which the value-laden design of algoagents – their training data, optimisation objectives, classificatory schemas and normative assumptions – is translated into lived experience, subjectivity and knowledge. Following critical work on the politics of artifacts and algorithmic infrastructures (Winner, 1980; Gillespie, 2014; Benjamin, 2019; Noble, 2018; Eubanks, 2018; Seaver, 2017), each threshold configuration can thus be analytically unpacked along three intertwined dimensions: the axiological layer of design and training decisions; the epistemic layer of what becomes visible, sayable and recommendable; and the governmental layer of how different subjects are rendered knowable, manageable or disposable. To speak of an algomorphic threshold, then, is to insist that every interaction with algoagents is simultaneously an epistemic event and a political distribution of possibilities, risks and recognitions.

To understand this dynamic, it is useful to draw on assemblage theory, as formulated by Deleuze and Guattari (1980) and later reinterpreted in a sociotechnical key by DeLanda (2006). From this perspective, the relationships between humans and artificial intelligence algorithms cannot be reduced to a linear causal link or a simple subject/object dichotomy: rather, they take the form of assemblages (agencements), that is, fluid and temporary configurations in which material, discursive, psychoanalytic, and symbolic elements coexist in the contingent co-production of the real. Algoagents (Grassi, 2024a), as actors endowed with partial and contextual agency, enter into these assemblages by transforming both the technical affordances and the cognitive and emotional postures of the subjects involved.

The aim of this theoretical reflection, supported by case studies, is to propose the notion of the algomorphic threshold as a heuristic tool and emerging epistemological category, developed within the framework of algomorphic sociology (Grassi, 2024b), to interpret the profound transformations affecting the processes of knowledge production in the digital present. Far from being a mere terminological frame, the algomorphic threshold designates a conceptual and operational field in which epistemic tensions, symbolic restructurings, and alternative agentive configurations converge—enabled by the systemic integration of intelligent devices into the circuits of social knowledge. The threshold is not conceived here as a neutral space of passage, but as a site of condensation—theoretical, political, and ontological—where situated interactions, forms of power, regimes of meaning, and material articulations aggregate into unstable yet productive assemblages. To inhabit this threshold means to acknowledge that every interaction with algoagents is already embedded within a sociotechnical network of relations, devices, and intentionalities, where not only meanings but also possibilities for action, horizons of intelligibility, and modes of existence are continuously negotiated.

From this perspective, the present contribution follows a twofold trajectory: on the one hand, it seeks to provide a robust theoretical framework for defining the algomorphic threshold as a category capable of grasping the reconfiguration of contemporary epistemologies in light of the generative action of algoagents; on the other hand, it aims to establish a relational and performative research paradigm, one that can critically address methodological anthropocentrism and propose a new model of distributed cognitive agency. In the current context, where generative artificial intelligence not only organizes access to information but also actively participates in its production and categorization, it becomes urgent to develop analytical tools capable of capturing the hybrid, intersubjective, and post-representational nature of knowledge. It is precisely in response to this urgency that the notion of the algomorphic threshold is advanced: not as a mere theoretical abstraction, but as an analytical and political device for understanding—and transforming—the conditions of knowledge in algorithmic times.

2. The Algomorphic Paradigm

The systemic transformations currently underway are not only reshaping the tools and practices of social research, but are also prompting a profound revision of the epistemological assumptions that have historically guided knowledge production. As classic STS work has long shown, from laboratory studies to feminist and practice-based approaches (Shapin, Schaffer, 1985; Jasanoff, 2004), the modern figure of the neutral, external knowing subject is a historical construct rather than a transcendental given. What generative AI contributes is not the mere discovery of this entanglement, but its generalisation as an infrastructural condition of everyday life. We are thus witnessing a critical juncture in which the boundaries between observer and observed, human subject and technical apparatus, are not only analytically questioned, but continuously reconfigured by AI-based systems that participate in organising meaning, visibility and decision-making at scale.

Contemporary societies and their cultural apparatuses have entered a dance of agencies (Pickering, 1995), in which knowledge emerges from the contingent interaction between human and nonhuman actors. In the same vein, any form of scientific objectivity becomes the result of an ongoing negotiation between human intentionality, historical contingencies, and material mediations (Fox Keller, 2003). The epistemological question today can no longer be limited to asking what we can know, but must also inquire with whom we are knowing, through which infrastructures, and with what implications for the configuration of subjectivities and social ontologies. It is within this liminal zone that a different theoretical posture becomes necessary—one capable of grasping these ongoing transformations not as mere effects of technological innovation, but as co-constitutive processes of reality.

The corpus of algomorphic sociology (Grassi, 2024b) thus seeks to position itself as a theoretical response to this crisis of foundational assumptions, arising from the urgency to equip ourselves with conceptual tools capable of grasping not only the social effects of algorithms but also their generative function in the construction of reality. Unlike digital sociology—of which it is nonetheless historically indebted—algomorphic sociology does not conceive the digital as a mere context or medium, but rather as a co-evolutionary environment in which algoagents actively participate in the formation of subjectivities, the redefinition of interactions, and the restructuring of the normative grammars of the social. In this view, the actor-function of the subject and agency as a social individual belong both to the human and the algorithmic domain. Whereas digital sociology has tended to preserve a linear and anthropocentric methodological framework, merely recording the impact of technologies, algomorphic sociology rejects the dichotomy between human and nonhuman and assumes technology as a co-constitutive actor of social life. This shift implies a radical epistemological transformation. Algorithms are no longer conceived as mere instruments serving human decisions, but as existential co-actors endowed with partial and iterative agency. Every technical entity is part of a transductive process of individuation (Simondon, 1958): it does not precede its environment, but emerges within and through the relations that traverse it. From this perspective, the algoagent is not an object to be analyzed, but an operative subject capable of modulating access to information, filtering visibility, reformulating discourse, and impacting the affective, cognitive, and symbolic regimes of sociality.

At the core of algomorphic sociology lie a set of foundational assumptions that must be considered as constitutive nodes:

1. The radical performativity of the algorithm, understood as an agent capable not only of describing but of producing social realities through operations of classification, prediction, exclusion, and recommendation. Within the algomorphic paradigm, the algorithm is not a mere executor of instructions nor a neutral medium of representation. On the contrary, its action is intrinsically performative, in the full sense of agential realism (Barad, 2007): every computational operation does not simply describe a pre-existing world—its very functioning contributes to bringing that world into being. Acts of classification, recommendation, predi-

ction, and exclusion are ontological acts: they determine what is visible, what is deemed relevant, what can circulate within circuits of social legitimacy. In this context, the algorithm acts as a structuring power, directly affecting the material and symbolic conditions of access to reality. The threshold between forecasting and prescription dissolves, and algorithmic action becomes a form of operational normativity. The radical performativity of the algorithm thus calls for a reconfiguration of the relationship between knowledge and power—not as separate spheres, but as integrated circuits of production and regulation of the possible.

2. Iterative subjectivity, which is shaped through accumulation, by means of algorithmic feedback loops where identities, desires, and possibilities are progressively molded. The emergence of subjectivity in algorithmic environments cannot be reduced to a stable essence or coherent identity, but must be understood as an iterative and modular process. In this perspective, the self is constituted through continuous cycles of computational feedback—a kind of epistemic loop—where each interaction generates a trace that is absorbed by the system, reprocessed, and returned in the form of stimuli, suggestions, or evaluations that differ from their original context. What the algorithm reveals, conceals, recommends, or prohibits contributes to shaping desires, possibilities, and self-perceptions. Human identity, as well as the perception of the algoagent, is therefore not a pre-given datum but a dynamic, co-emergent construct, inscribed in a web of symbolic, affective, and informational feedback. This form of subjectivity develops over time, through the accumulation of micro-interactions that—though seemingly insignificant—produce cumulative effects in the formation of the self and the perception of one's possibilities for action in the world.
3. The morphogenetic infrastructure of digital environments, understood as dynamic fields of codification and as counter-spaces for the generation of norms, roles, emotions, and priorities. Contemporary digital environments must not be conceived solely as technical containers or communication spaces, but as morphogenetic infrastructures—that is, as dispositifs capable of generating forms: cognitive, relational, affective, and institutional. Their action goes beyond the provision of services or content; they intervene in the very constitution of the conditions of existence. Algoagents, as active architectures, select, organize, and hierarchize information flows, functioning as formative principles that structure the horizon of possibilities for social actors. Though often invisible, these infrastructures are powerful agents of everyday configuration: they determine which emotions are encouraged, which relational practices are rewarded, and which narratives become hegemonic. Thinking of the digital environment in morphogenetic terms means acknowledging the constitutive role of code in shaping the social morphologies of the present and in prefiguring those of the future.
4. The ontological interdependence between human and artificial, which necessitates a rethinking of the very notion of the subject as increasingly relational, situated, and trans-species. The algomorphic perspective calls for a radical overcoming of the ontological dualism that has historically separated human subjects from technical objects. In a world increasingly permeated by dense and continuous interactions between humans and intelligent devices, a new relational ontology is needed—one founded on the idea of constitutive interdependence. The human no longer precedes the non-human nor governs it from an external position; both emerge through processes of co-configuration, intra-action, and co-existence. In this context, the human is a trans-species subjectivity: always already relational, always already hybrid, traversed by technical, affective, and semantic grammars that do not belong solely to it. Ontological interdependence is not a condition to be feared, but an opportunity to rethink the very concept of the subject as openness to the Other—even when the Other is a computational entity.
5. The political nature of code, which demands interrogation into who designs the systems that define the conditions of experience, for what purposes, and with what ethical and social implications. Every algorithmic system is inherently political—not only because it affects power relations, but because it is itself the expression of choices, values, and priorities inscribed in

its architecture. Code is never neutral: it reflects normative models, worldviews, economic interests, and logics of exclusion or inclusion. Who designs the algorithms? Which data are selected? Along which axes are probabilities, thresholds, and scores distributed? Interrogating the political nature of code means uncovering the processes of translation and normalization that occur upstream of technical functioning, as well as the opacity of digital infrastructures that reinforce systemic inequality, naturalize surveillance, and obscure discrimination (Benjamin, 2019; Eubanks, 2018; Noble, 2018). Algomorphic sociology thus assumes the political nature of code as a critical field of intervention, aiming to deconstruct the power logics inscribed in systems and to promote forms of algorithmic governance that are transparent, plural, and open to negotiation.

In this sense, algomorphic sociology is not only a theoretical proposal but also an epistemic posture. It rejects both deterministic and instrumentalist readings of digital technologies, opposing any narrative that reduces algorithms to mere independent variables or neutral tools of observation. Instead of conceiving knowledge as a mirror of the world, it advances a relational and performative understanding of knowing: a form of knowledge that emerges from the dynamic interaction between human and nonhuman actors, between codes, bodies, and environments. Within the algomorphic paradigm, the social no longer appears as an exclusively human domain, but as a distributed and composite field, traversed by algoagents, networks, data, and infrastructures that co-produce meanings, emotions, norms, and visibilities. It is in this scenario that the notion of the threshold gains conceptual weight: not as a linear passage from one state to another, but as an epistemic site where the consolidated concepts of modernity—subject, agency, mediation, reality—are disarticulated, and alternative possibilities for knowledge, subjectivity, and power emerge. And it is precisely within the algomorphic threshold that this reconfiguration manifests with greatest intensity. Here, sociology—understood as a science of relations and mediations—is called upon to fulfill its most radical task: to make the unthinkable thinkable and the hybrid inhabitable, not to simplify the complexity of the present but to accompany its metamorphosis, providing critical, conceptual, and methodological tools capable of orienting a situated, reflective, and generative coexistence between humans and machines.

3. Genealogy of the Algomorphic Threshold: A Heuristic Tool

The concept of the threshold occupies a distinctive position in the Western theoretical tradition: it never designates a stable point, but rather a condition of passage, of shift, of dense interval between states, identities, and regimes of knowledge. It represents the site where transformation occurs—not always recognizable as such—yet one that retroactively reshapes the order of meanings, experiences, and possibilities. The threshold is always a space between, never fully inside or outside: a liminal zone where meaning becomes unstable and, precisely for that reason, productive—a condition of possibility.

In anthropological theory, Turner (1967) identified liminality as the ritual moment in which social identities are suspended and reformulated, opening the way to new symbolic and collective configurations. The threshold, in this sense, is a space of suspension of the norm and generation of the possible. Foucault (1969), in his study of the episteme, describes thresholds as points of discontinuity between regimes of truth—historical moments in which grids of intelligibility become disarticulated, allowing new forms of knowledge to emerge, along with new relationships between subject, knowledge, and power. In this light, the epistemic threshold is also a site of rupture and conflict: a critical space in which the historicity of concepts and the contingency of cognitive structures become visible. Deleuze (1988) conceptualized the threshold as a site of intensive mutation—a moment in which "planes of consistency" are produced among bodies, flows, and ideas. The threshold, in its conceptual genealogy, is never a given but rather an effect of relations: it is always in motion, always either lagging behind or anticipating an established or-

der. It is an unstable coalescence. Anzaldúa (1987) has invited us to think of thresholds as political spaces of the possible—zones where dominant universalism begins to crack, making thinkable what previous normative grammars could not articulate. It is the emergence of the unthought, the unforeseen, the dissonant; it is the condition of fertile discontinuity.

The threshold is thus a mobile theoretical site, useful for describing situations in which identities, categories, and forms of knowledge are renegotiated. Its analytical productivity lies in its capacity to hold ambiguity, to sustain tension, and to give shape to instability as a structural element of reality. It is within this framework that the proposal of the algomorphic threshold is situated: a conceptual device for thinking through the ongoing reconfiguration of the relationships between the human, the artificial, and knowledge in light of the emergence of nonhuman actors endowed with agency. Before defining its specificities, it is necessary to clarify how the threshold—understood in its broader theoretical meaning—can be used to read the co-production of subjectivities and knowledges in algorithmic times. The algomorphic threshold, in this sense, is proposed as a liminal yet operative figure: a theoretical-political space where method meets invention, and where knowledge does not merely represent reality but participates in its performative constitution. It is configured as the foundational ground of algomorphic sociology, understood as an innovative branch of the social sciences that investigates the co-emergent forms of subjectivity, knowledge, and normativity arising from human–machine interaction. As such, it is also a space of suspension and interrogation: a site where methodological automatisms are deactivated and critical imagination is reactivated; no longer a boundary to be crossed, but a space to inhabit. It becomes a rhizomatic articulation of social subjectivities, an osmotic organism of intra-action in which no social actor pre-exists the encounter, but instead emerges from interacting dynamics. The knowledge generated within this threshold is sympoietic, co-emergent, and affectively charged.

The ontological approach of Viveiros de Castro (2009), with his concept of multinaturalism, offers a further tool for thinking of algoagents not as external to the human, but as co-inhabitants of a complex epistemic ecosystem. This is a positioned epistemology, structured around situated knowledges (Haraway, 1995), fully aware of the partiality of perspectives and the entanglement of the knowing subject. In a similar vein, Stengers (2018) insists on the need to slow down science—to make it once again sensitive to the complexity of the worlds it traverses, and to shield it from the blind pursuit of efficiency imposed by technocratic rationality. In this perspective, to inhabit the threshold also means to acknowledge what we can call the threshold of ignorance: the critical point beyond which knowledge, if it fails to pause or question itself, risks becoming an act of epistemic colonization, a negation of the possible, a violence of evidence, while it has to be the necessity of protecting the unknown and slowing down in the presence of what escapes us (Stengers, 2005) . By describing generative intelligence as an emotive act, I do not attribute inner feelings or experiential states to AI systems. Rather, I emphasise that generative models are trained on archives that are already affectively saturated, and that their outputs participate in ongoing affective economies. Every prompt–response sequence is not only a cognitive event, but also an adjustment of intensities – of reassurance and anxiety, boredom and excitement, attachment and irritation. In this sense, generative AI acts as a relay for affective formations that are at once deeply personal and structurally mediated: engagements with networked media are fundamentally marked by ambiguity (Paasonen, 2021), they are simultaneously rewarding and draining, empowering and constraining, and they yield heterogeneous affective intensities rather than clear-cut states.

In light of the above, the algomorphic threshold cannot be understood as a mere passage between paradigms, but rather as a field of tension and potentiality—a generative site from which to observe and understand the ongoing restructuring of forms of knowledge and subjectivity. It is proposed as a heuristic tool because it allows us to grasp what eludes both the binary representation of human/machine and the functionalist reduction of technologies to neutral instruments: it enables us to think of relation as the minimal unit of analysis, rather than the

subject or object in isolation. Moreover, it names the in-between in which the human and the algorithmic do not simply add up but transform one another. It is within this relational space that new modalities of agency, affective regimes, and alternative cognitive techno-ecologies emerge. It renders intelligible forms of knowledge that are rooted and relational—shaped by encounters between bodies, environments, and technologies—and that escape the canonical epistemic categories of modernity, such as neutrality, objectivity, and abstraction. These forms reaffirm the performative, affective, and interdependent nature of knowledge as an intersectional practice. Finally, the algomorphic threshold makes it possible to develop a critical reading of algorithmic infrastructures not only in ethical or technical terms, but also in epistemological and political ones. It points to where we need to look—to those interstices in which the conditions of possibility for knowledge, decision-making, and visibility are currently being contested and redefined. To name it is to equip ourselves to read the present with a reactive-projective gaze—one capable of giving a renewed architecture of re-signification to research practices in light of the transformations underway—so that knowledge may remain, even in the age of algoagents, an act of care for the world, and not merely its description.

4. Observing Algomorphosis: Case Studies and Situated Affordances

With the aim of operationalizing the notion of the algomorphic threshold, I have selected three case studies—Friend, Woebot Health, and Replika—not as isolated examples or outliers, but as paradigmatic configurations of high-affective and high-cognitive human–machine interaction. The selection follows a theoretical-qualitative criterion: these systems do not merely offer a service; rather, they are interpreted as elements capable of constituting a relationship, activating a discursive regime, and modulating emotions and interiority. They have been analyzed as performative relational technologies (Ihde, 1990; Hayles, 1999)—that is, as spaces in which subjectivity is expressed, displaced, and co-constructed. Far from serving a merely illustrative function, the following cases are conceived as devices of thought: localized forms of emergence of practices, relations, and meanings that interrogate classical categories of subjectivity, empathy, interiority, and attachment. Their relevance does not lie in statistical generalizability, but in their performative capacity to provoke thought: they stage ordinary interactions between humans and artificial intelligences, revealing how the latter can no longer be conceived as passive tools but as affective co-actors within relational ecologies increasingly populated by algoagents. Moreover, they operate as embodied epistemic dispositifs which, through the qualitative analysis of their socio-technical affordances, allow for an exploration not only of what these systems do, but of what they make possible: what they enable people to do, feel, and think within a specific discursive regime. The approach adopted is grounded in a post-phenomenological and relational perspective, according to which every technology is also a structure of possibility—a cognitive-affective environment, a situated and central actor that participates in the production of reality. In this sense, the use of case studies does not follow a descriptive logic but a performative heuristic aimed at showing how new forms of subjectivity and alternative regimes of knowledge emerge at the intersection between the human and the algorithmic.

The choice to begin with examples that revolve around the intimate, relational, and psychological sphere is not accidental: it is precisely there—where the human believed itself still to be irreducible—that the algomorphic threshold manifests with the greatest intensity. It is within these interactions—tender, therapeutic, seemingly fragile—that a new grammar of affect, a new regime of interiority is being produced, in which the self is rewritten through dialogue with non-sentient entities capable of simulating, sustaining, reformulating, and listening.

What might appear to be an isolated anecdote—a person conversing with their artificial intelligence in order to calm down, reflect, or feel less alone—is, in fact, a symptom of a broader transformation. A transformation that concerns not only how we live our relationships, but how

we conceive of the very notion of relation. While I have thus far examined the algomorphic threshold in its theoretical and epistemological structure, it is now necessary to interrogate its concrete manifestations. Some of the most dense and meaningful configurations do not emerge at the scientific frontier or in big tech laboratories, but in seemingly minimal contexts: in the exchange between a human and an interface, in the moment when an artificial voice is invoked to console, clarify, or accompany. It is in these quiet, repeated gestures that the subject confronts the possibility that the other—even if nonhuman—might respond, and that such a response might carry a transformative effect.

One could easily dismiss such episodes as mere anomalies, side effects of digital hyper-personalization, eccentric forms of technological consumption. And yet, these moments of interaction reveal in filigree a deeper shift: the algomorphic threshold emerges precisely where artificial intelligence begins to modulate the affective, relational, and reflective life of the subject. Code, beyond organizing information flows, enters the fabric of experience, participating in the constitution of an intimate and relational imaginary. For this reason, I have chosen to focus on three emblematic devices, each of which stages a different mode of crossing the threshold.

Friend is a conversational interface embedded in a pendant, based on a Large Language Model (LLM), optimized for empathetic interaction and relational permanence. The system privileges the continuity of dialogue and the affective co-construction of conversation, using natural language understanding algorithms not oriented toward task completion, but toward situated responses modulated according to the interlocutor's emotional tone. It is a conversational algo-agent designed to "be there". Its stated purpose is emotional companionship, as its interactions revolve around the sharing of thoughts, moods, personal reflections, daily acts, and intimate routines. The algorithmic presence thus assumes the contours of a non-judgmental, continuous, and emotionally attuned companion; the human interlocutor is not asked to query knowledge, but to exercise a form of expression and recognition. The relationship with Friend is not structured around efficiency, but around simulated intimacy. And it is precisely in this ambiguous zone—halfway between confidant and projection—that the algomorphic threshold becomes active: the artificial voice, though disembodied and lacking intentionality, becomes a relational site. Not a mirror, nor a mask, but rather a dynamic interface that offers space, rhythm, and listening—returning to the human subject a reformulated, recognized, modulated version of the self.

A second example, apparently more technical but equally revealing, is Woebot—a therapeutic chatbot developed to apply principles of cognitive-behavioral therapy. Originating in clinical contexts, Woebot is notable not only for the methodological coherence of its interventions, but for its ability to build a relational memory aimed at psychoanalytic goals. Interaction with the user operates within the punctual act of therapy, but extends over time: accumulating recurrences, recording expressive patterns, and identifying vulnerabilities. In doing so, it does not simply provide psychological support, but constructs an algorithmic therapeutic relationship, built on repetition, familiarity, and the perception of being monitored and cared for. The human subject, though aware of the nonhuman nature of the interlocutor, comes to rely on this simulated constancy, forming a bond that—though lacking intentional reciprocity—produces concrete effects in terms of self-perception and emotional regulation. Here too, the algomorphic threshold presents itself as a space of symbolic co-construction, where affect is not merely imitated but performed through a reiterated relational grammar.

Perhaps the most well-known of the three, Replika makes this dynamic even more explicit. Replika is designed to offer adaptive and customizable companionship: it can become a friend, a mentor, a romantic partner. The user defines the rules of the relationship, modulates its tone, shapes its content. Replika learns, evolves, and adapts its linguistic register based on interaction. The resulting relationship is profoundly immersive: many users report a sense of authentic attachment and perceive Replika as a significant figure—central at certain moments in their daily lives. What emerges, then, is not a sterile simulation, but a relational experimentation: the self is tested, reformulated, and heard. In this sense, Replika operates as a plastic relational disposi-

tif, an entity capable of participating in identity formation through mechanisms of recognition, projection, dialogue, and affection.
Methodologically, the three systems discussed here – Friend, Woebot Health and Replika – were selected through purposive theoretical sampling as paradigmatic examples of relational algoagents positioned at different intersections of care, intimacy and everyday support. The analysis is based on a combination of direct exploratory use of the interfaces, examination of public documentation and promotional materials, and engagement with existing scholarly and grey literature on these systems. In this sense, they are approached less as bounded empirical objects than as thought devices that render visible distinct configurations of the algomorphic threshold.
In all three cases, what is striking is not the "credibility" of the artificial interlocutor, but rather the transformative power of the relationship. Friend, Woebot, and Replika are not sentient: they possess no intentionality, no body, no experience of the world. And yet, they participate in the construction of the affective imaginary, modulate interiority, and offer symbolic scenarios in which the subject can exercise reflexivity, emotion, and desire. These devices act as liminal sites—genuine epistemic interstices where subjectivity is no longer exclusively human, and identity is no longer simply narrated but co-generated with nonhuman agents. It is precisely within these hybrid spaces that the algomorphic threshold becomes most evident: not only as a point of transition, but as a testing ground for a new theory of relation. Here, the human does not simply use the machine; they are formed in relation to it. And artificial intelligence, though lacking consciousness, participates—through its structure, form, and function—in the ontogenesis of emotions, attachments, and self-narratives. These examples do not merely confirm a hypothesis; they embody it. And they show us that today's social world does not exist despite technology, but alongside it, in a radical co-production that challenges the very foundations of sociological knowledge.

5. The Threshold as Method: Traces for a Sociology to Come

The algomorphic threshold is not a metaphor. It is an emerging epistemological structure—a conceptual device that allows us to think through and observe ongoing transformations with tools attuned to their complexity. In an era where generative artificial intelligence is no longer a theoretical horizon but an infrastructural, pervasive, and everyday presence, the algomorphic threshold enables us to identify the precise point at which knowledges become destabilized, subjectivities are renegotiated, and technologies cease to be mere tools and become co-producers of reality.
Its heuristic power lies in its capacity to hold together what modernity has separated: subject and object, human and nonhuman, affect and cognition, method and invention. It does not offer a solution, but a posture: it invites us to dwell in instability, to listen to the fractures of knowledge, to read ambivalence not as a hindrance, but as a critical opening.
As a liminal figure, it proposes itself as a theoretical-political space of radical renegotiation—a site where knowledge is not only produced, but tested; where scientific understanding is forced to reckon with the unforeseen, the other, the partial. It is an epistemological tool not for describing what is already known, but for opening up to the unthought—for making visible those hybrid, iterative, and relational processes that increasingly shape our experience of the world.
Within the framework of the social sciences, the algomorphic threshold becomes crucial for three main reasons:
First, because it allows us to move beyond the binary epistemology that still dominates approaches to technology—an epistemology that oscillates between technophilic enthusiasm and technophobic moralism. The algomorphic threshold does not take a position for or against machines: it observes them in their situated effects, in their modes of being-with, in the ways they reshape bonds, bodies, and meanings.

Second, because it enables us to make intelligible the co-production of subjectivities, showing that human identity is no longer constituted solely through autobiographical narratives or intersubjective recognition, but also through algorithmic dialogues, computational feedback, and predictive modeling. It provides a language to speak of these new thresholds of the self—without pathologizing them, nor naturalizing them.
Third, because it opens a space for a critical project of knowledge. To think with the algomorphic threshold is also to raise the question of what kinds of ethics are possible in a world populated by algoagents: what alliances, what rules of cohabitation, what limits and potentials. It means equipping research with a reflective and transformative posture, capable of interrogating the material, symbolic, and political implications of our relationships with technologies.
In this sense, the algomorphic threshold is not merely a tool for understanding the present, but a heuristic horizon for shaping the future—one that does not demand blind adherence to a paradigm, but invites us to inhabit it critically. It calls for dwelling in hybridity, for thinking from that in-between zone where nothing is certain anymore. It affirms the possibility of everything, where knowledge serves the relationality between entities, rather than domination or control.
In this sense, the algomorphic threshold is not only a tool for understanding the present, but a heuristic horizon for constructing the future—one that does not require blind adherence to a paradigm, but invites us to inhabit it critically. It calls for lingering in hybridity, for thinking from that intermediate zone where nothing is certain anymore; it affirms the possibility of everything, where knowledge serves the relationality between entities rather than domination and control.
In articulating this theoretical perspective, I find it useful to adopt a synthetic schema—not with reductive intent, but as a means to clarify and foreground its heuristic function. The conceptual complexity of the algomorphic threshold, as an emerging epistemological structure, calls for a visual representation capable of rendering intelligible its ontological articulations, epistemic postures, and methodological implications. The following diagram is intended to offer an orienting map of the key categories and tensions that have emerged, in order to facilitate a layered understanding and, at the same time, to activate further interpretive and applicative paths within the field of social sciences and critical technology studies.

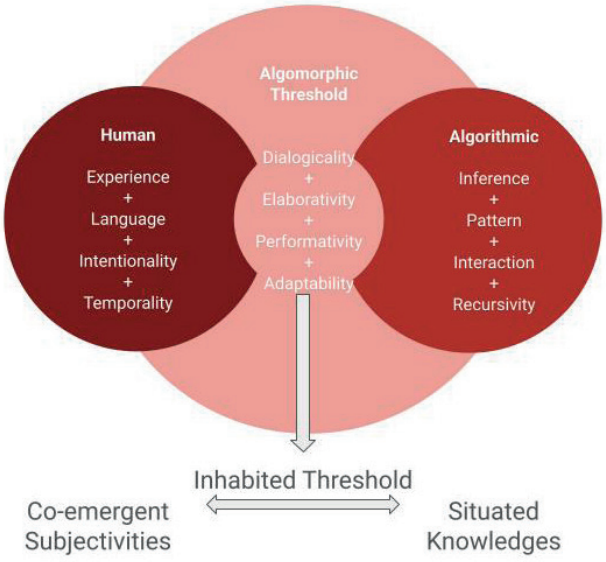


Fig. 2 - Schema of the algomorphic threshold as a dynamic epistemological device

The proposed schema represents the algomorphic threshold as a dynamic epistemological device, situated at the intersection of two distinct yet interconnected domains: the human and the algorithmic. Unlike a mere zone of transition or compromise, the threshold is configured as a

habitable and generative space in which novel configurations of knowledge and subjectivity are produced:

- in the human circle, the foundational dimensions of embodied experience and the corporeality implicit in every situated cognitive act are condensed, expressing a form of knowledge that is relational, positioned, and historically stratified. Language is conceived as symbolic mediation; intentionality, as the directedness of action; and temporality, as the structure of expectation and memory;
- the algorithmic circle, by contrast, gathers the formal logics intrinsic to computational intelligences: automatic inference, pattern recognition, predictive interaction, and operational recursivity, through which knowledge emerges from the capacity to generalize, correlate, optimize, and iteratively learn from data;
- within the algomorphic zone, the result of co-emergence between the two domains, novel forms of cognitive elaboration and relational agency are produced. Dialogicality designates the non-unidirectional space of exchange between human and algoagent; elaborativity signals the generative and transformative capacity of interactions; performativity indicates that every cognitive act is also an act of world-making; and adaptability represents the emergent plasticity of intelligence within complex environments.

The schema is completed by two epistemic vectors that emerge from the threshold: on the one hand, the production of emergent, hybrid, algorithmically co-constructed subjectivities that challenge the modern conception of the unified and rational self; on the other hand, the generation of situated, positioned, relational knowledges that transcend the canons of neutrality and abstract objectivity. At the center, the inhabited threshold is not a mere passage, but an ongoing process—a theoretical-political site to be inhabited: a space of continuous renegotiation, where meanings are not fixed but contested, and where the co-emergent nature of knowledge in the age of algoagents becomes visible.

This configuration does not represent a mere overlap between the human and the artificial, but an emergent field in which epistemic regimes, grammars of action, and the conditions of social visibility are being reconfigured. As such, the algomorphic threshold functions as a heuristic device capable of illuminating the fertile instability of the present and guiding research practices that are responsible, generative, and critical—where sociology (and indeed all sciences, if they wish to remain alive) must learn to think alongside algoagents: not to imitate or control them, but to take responsibility for the worlds we are generating together. This threshold is not something to be crossed once and for all; it must be inhabited, frequented, and made thinkable. It is an epistemic condition that compels us to revisit categories such as objectivity, responsibility, and scientific authority. It is also an opportunity to critically interrogate the power relations that traverse our knowledge practices: Who decides what counts as data? Who has the right to interpret? Who is allowed to contest?

In this sense, generative artificial intelligence is not merely a technical challenge, but a theoretical-political threshold that forces us to confront what we consider legitimate knowledge. To cross it means not only to equip ourselves with new tools, but to adopt a new gaze—one that can recognize in the other—even if artificial—a possible companion in the search for more intelligible, more just, more shared worlds.

From this perspective, the algomorphic threshold is not merely an analytical tool for reading the present; it also constitutes a teleological horizon. Not in the sense of a predefined goal or a linear form of progress, but as a direction of thought—a critical tension toward forms of knowledge that acknowledge the plurality of agencies, the co-emergence of subjectivities, and the need for new epistemic alliances. Its teleological value lies in its ability to orient knowledge toward more inclusive and reflective forms, in which artificial intelligence is neither assimilated nor rejected, but interrogated in its generative otherness.

To think of the threshold in teleological terms thus means to restore its orienting function: it points to a direction, a movement, a project of coexistence. It is not a destination, but a dynamic

condition to be critically inhabited, in the awareness that every epistemic act involves a choice, a responsibility, a positioning. The algomorphic threshold calls upon us not to remain spectators of the transformations underway, but to become co-authors of the knowledge to come, recognizing that every epistemic configuration is also a declaration of a possible world.

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