

## **From Dyadic Reciprocity to Giant Interaction Engines Posthumanist Perspectives on Interaction ‘Under Construction’**

*Rita Tamara Vallentin & Britta Schneider*

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### **Abstract**

In this paper, based on posthumanist theory and posthumanist linguistics, we discuss specific elaborations of the term interaction as found in linguistics and sociology, where interactivity, reciprocal awareness and agency are discussed as possible characteristics of human interaction. We problematise to what extent this is distinct from interaction between humans and machines. We bring these discussions in relation to illustrative observations on how users of ChatGPT report on their experiences with large language models, drawn from Reddit threads. We show that the concept of interaction is ‘under construction’, not only because we have new interactional partners but also because meaning-making is now intertwined with the changing and individually customised and at the same time collectivised media affordances of machine-learning technologies. Interaction is no longer perceived as typically taking place between two humans but as embedded in and distributed across time and space in large networks of speaking subjects, massive historical and ever-changing data sets, and algorithmic affordances.

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**Keywords:** Posthumanist sociolinguistics, interaction, LLMs, socio-material assemblages, power asymmetry

### **Kontaktpersonen:**

Dr. Rita Tamara Vallentin  
Europa-Universität Viadrina  
Große Scharnstraße 59  
15230 Frankfurt (Oder)  
[vallentin@europa-uni.de](mailto:vallentin@europa-uni.de)

Prof. Dr. Britta Schneider  
Universität Wien  
Spitalgasse 2  
1090 Wien  
[britta.schneider@univie.ac.at](mailto:britta.schneider@univie.ac.at)

## 1 Changing linguistic concepts in the context of changing media ecologies—from literate to machine learning cultures

Machine-learning technologies, also referred to as ‘artificially intelligent’ (AI), influence social discourses about *the human*. In these discourses, the role of language has been crucial, as language is typically understood as what distinguishes humans from non-humans (cf. Schneider/Heyd 2024). Yet, language—transformed into digital data—is also a core element in the functioning of machine learning language technologies and these easily generate masses of text that appear to be human-made. So, what actually *is* language and is it only humans who create and use it?

While many lay, sociological and computational approaches regard language as appearing in given systemic entities of lexical elements and morpho-syntactic rules, socially interested disciplines of linguistics have a more complex understanding of language. The human ability to use signs is not understood as based on *a priori* language systems but it is rather asked how meanings and systems of meaning-making have come into being. In this questioning of meaning-making and of the emergence of systems like languages, varieties and sociolects (see Harris 1981, Vallentin 2022), pragmatics and linguistic anthropological work have emphasized that meaning is a result of interactive cultural-symbolic practices (e.g., Gal/Irvine 2019, Thomas 1995). Furthermore, in these practices, the materialization of signs and the technologies that speakers use to convey meaning, from embodied sound production to visual signs on paper and in digital infrastructures, has an impact on conceptualizations of meaning and how these are conventionalized and normed. The availability of specific media technologies has influenced linguistic methods and theorizing. It has been discussed previously that phonetic writing has had a central impact on the ontology and epistemology of linguistic research, and therefore also on conceptualizing language as a linearly ordered phenomenon (cf. Linell 2005). With the advent of digital and AI technologies, we observe significant changes in possibilities and practices of mediating meaning and therefore, our ideas regarding human language may change, too.

This is particularly relevant in the context of technologies that are themselves constructed and perceived as having interactive, ‘speaking’ capacities, as is the case for generative Large Language Models such as ChatGPT. We therefore examine linguistic terminology, specifically the term *interaction*, and whether it takes on new meanings as we move from literate to machine-learning media cultures. (Western) academic concepts of interaction as they have been dominant throughout the 20th century are not universal but depend on

the media ecologies (cf. Fuller 2005) in which they have evolved. This observation is in line with current posthumanist theorizing, which argues that abstract concepts and material practices are dialectically interwoven (e.g. Barad 2007).

In this article, we first introduce posthumanist theory and concepts of posthumanist linguistics. Secondly, we discuss elaborations of the term *interaction* as found in linguistics and sociology, where interactivity, reciprocal awareness and agency are discussed as relevant characteristics of human interaction. We problematize to what extent this is distinct from interaction between humans and machines. We bring these discussions in relation to illustrative observations on how users of ChatGPT report on their experiences with large language models, drawn from Reddit threads. We show that the concept of interaction is ‘under construction’, not only because we have new interactional ‘partners’ but also because meaning-making is now intertwined with the changing and individually customized and at the same time collectivized media affordances of machine-learning technologies. Interaction may then no longer be perceived as typically taking place between two humans, but as embedded in *giant interaction engines*, distributed across time and space in large networks of speaking subjects, massive historical and ever-changing data sets and algorithmic affordances.

## 2 Posthumanist linguistics and changing language assemblages in the context of machine learning culture

Current discussions of posthumanism take a critical look at the role of the human and its conception in European intellectual history (cf. Barad 2007; Braidotti 2013; Ferrando 2013; Hayles 1999). The ‘post’ in posthumanism is not meant to imply that humans are no longer of concern; rather, the debate develops critical perspectives on *humanism* as a historically and culturally conditioned epistemological framework that takes human superiority and rationality for granted. In humanistic perspectives, language is understood as a rational, referential and immaterial system that represents a core criterion of human existence (cf. Silverstein 2014).

In contrast, contemporary posthumanist thought approaches the human not “as an autonomous agent, but [as] located within an extensive system of relations” (Ferrando 2013: 32). Posthumanism is interested in the interactions between cognition, body, material environment, technology and language (with parallels to the feminist concept of the cyborg, Haraway 1991, practice theory, Hirschauer 2004, 2016, or Actor-Network Theory, Latour 2005). There are

clear similarities between posthumanist perspectives and social constructivism; yet, the focus on material matter as having a form of agency that is, at least to a certain extent, independent of human will, distinguishes posthumanism from traditional constructivism (cf. Pennycook 2018: Ch. 7).

Posthumanist approaches emphasize that a consideration of material, non-human, non-cognitive aspects in the analysis of linguistic practice reveals a close interaction between meaning and the material environment (Hutchins 1995, quoted in Pennycook 2018: 32). This applies also to scientific classifications of language and interaction, which have not emerged in isolation but are situated within specific material epistemic practices. Thus, categories of meaning can be understood as dynamically co-constructed through engagement with material infrastructures, among them, for example, sounds, paper, ink, screens or keyboards. In posthumanist linguistics, therefore, language is described as ‘distributed’ among people, things and places (e.g. Cowley 2011, Thibault 2011). Pennycook proposes the notion of language as an *assemblage*, and explains that

[a]n assemblage approach [considers] language not as a pre-existing or circumscribed entity but rather as something created, produced in social action. Language from this point of view is embedded in, indeed part of, diverse social and physical environments, distributed across the material world and part of our embodied existence. (Pennycook 2024: 1)

The question of how linguistic meaning and mutual understanding come into being then becomes a question that considers the embodied, material and technological context in which language is realized, and how discursive processes interact with material conditions. This contrasts with those linguistic traditions that have developed in the age of print literacy. These often take meaning and linguistic systems as given and focus on the structures of these systems. An interest in how meaning emerges has not been central (see also Metten 2014) and meaning is mostly approached as existing more or less autonomously within words and combinations thereof (an idea that would be hard to grasp without the fixing of language as letters on printed paper).

Approaching linguistic signs in their material quality, as sounds, letters, etc., connects to the above-mentioned research on the role of phonetic signs, writing, print and reading in language, linguistics, and society. The social effects of writing have been discussed in relation to power structures, memory culture and epistemological effects (cf. Assmann 2010; Coulmas 2013; Ong 1982). Similarly, the

practice of reading has been examined from a critical social perspective, as embedded in social hierarchy and processes of inclusion and exclusion (Street 1995). Abram (1996) discusses the phenomenological effects of phonetic signs that mirror our human sound practices, but not the non-human environment in which we live, which he regards as a source of the alienation of humans from their biological context. As we are confronted with language technologies that drastically differ from printing on paper, questions come up about how emerging digital life-worlds reshape fundamental linguistic concepts.

Epistemological frameworks of linguistics are themselves situated within cultures of writing and Linell (2005) has problematized the fact that linguistics has a written language bias. Derrida similarly suggests that phonetic writing is a prerequisite of concepts of language as a system and thus a condition of contemporary linguistics (cf. Derrida 1974: 60, see also Krämer/König 2002). Overall, critical work on literacy and writing practices has brought to the fore that “the technologies available have profoundly influenced our theoretical conceptions of language” (Linell 2005: 33), a point that we take up in our discussion in this article.

The fixing of linguistic signs additionally has normative sociolinguistic effects in the wider society as printed artefacts—especially dictionaries or grammar books—are understood to embody ‘the language’ or ‘the correct language’ (Cameron 1995). Writing in digital settings, in contrast to writing on paper, has more fluid and interactive qualities, from interactive chatting to the general culture of updates, where published text or software does not necessarily remain in the same form for long (cf. Gallagher 2020). Words written on screens are thus more unstable than words on paper. Norms of the age of print literacy exist now besides fluid digital practices and emerging digital conventions (cf. Androutsopoulos 2016).

Large language models (LLMs), as technologies that can generate text, are likely to contribute to changing language practices and linguistic normativity (cf. Lamoureaux/Castelle/Weichselbraun 2026, Liang et al. 2024). In machine-learning technologies, widely different types of material infrastructures come into play than in cultures of literacy, and different actors than lexicographers, national language academies or prestigious publishing houses define what is ‘good’ language (cf. Erdocia/Migge/Schneider 2025). The data sets with which language models are ‘trained’ play a crucial role in this context (cf. Schneider 2022). Algorithms focus on and reproduce what is frequent in the data, where what is processed is not meaning nor syntax but ‘tokens’, that is, sub-symbolic letter or sound sequences (cf. Caffoni 2026). Without discussing in detail what these practices imply for the future of language, *language assemblages* in

the age of literacy are of a different kind than the language assemblages of machine-learning culture.

From this perspective, the modification of ‘interaction’ as a term in the age of AI is not merely a semantic shift but reflects deeper transformations in the socio-material conditions of meaning-making, where linguistic and knowledge practices are increasingly entangled with digital formats, machine-learning infrastructures and algorithmic affordances. We assume that a micro-examination of one concept that refers to sign- and meaning-making practices, how it is understood from different scientific perspectives and how the same term is described by users of machine-learning technologies, can offer a preliminary understanding of changing language assemblages in the context of changing language technological cultures.

### 3 Linguistic and sociological perspectives on ‘interaction’ in the context of changing language assemblages

In this section, we discuss how the term *interaction* has been defined in selected sociological and linguistic approaches and ask whether and how these can be applied to human-machine interaction in machine-learning cultures. An etymological reading defines the term, at its most basic, as action between or among entities. It relates to reciprocity between two or more agents that influence each other’s actions. The specific nature of the action and who or what the entities might be, then, depends on disciplinary perspectives. However, current approaches acknowledge that “[i]n the most basic forms, all interaction is mediated in some way, e.g. by language, bodies, objects, culture, history, technologies and so on [...]. There is no unmediated interaction with which the mediated can be contrasted” (Due/Licoppe 2020: 6). The concept of interaction often comes along with the terms *communication* and *conversation*.<sup>1</sup> While communication is broadly defined as transmission of information that can also be unidirectional, conversation is a socially and sequentially structured and mostly sign-based form of interaction (cf. Sacks/Schegloff/Jefferson 1974). Both interaction and conversation are, thus, forms of communication. Conversation, however, is a specific form of interaction, emphasizing (verbal) language and structural orderliness.

In early linguistics of the 20th century, interaction has been quite absent as it was allocated to the sphere of *parole* and was not concerned with systematic descriptions of *langue*. Saussure’s “Talking

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1 Note that there are discussions in the field of Human-Machine-Interaction that entirely evade linguistic approaches to interaction (e.g. Schleidgen et al. 2023), but we do not consider these here.

heads” (2020 [1931]: 14) might be mistaken for linguistic sign-based interaction, but rather present a closed, dyadic transmission model for en- and de-coding linguistic signs. Interaction as a concept only gained traction in linguistics in the mid-20th century with pragmatics and sociolinguistics studying how meaning is constructed dialogically and collectively in context. With conversation analytical perspectives (cf. Schegloff 1992), the structuredness of primarily verbal interaction became the central object of inquiry. Since the 1990s, interaction in linguistics has been thoroughly studied in its relations to linguistic resources (cf. Couper-Kuhlen/Selting 2017) and also beyond, showing the intertwinement of verbal with multimodal resources (cf. Deppermann 2018, Goodwin 2000, Mondada 2013). The concept of interaction plays a key role when it comes to analyses of face-to-face or digitally mediated forms of conversation between (human) agents jointly creating meaning. In interactional linguistics (e.g. Couper-Kuhlen/Selting 2017), it is defined as the accomplishment of certain tasks using verbal language resources, also taking into account specific social and spatial resources (cf. Hausendorf/Schmitt 2018). Levinson (2025) also emphasizes timing, contingency, intent recognition and multimodality, treating the socio-cognitive ability to mutually engage as an *interaction engine*. Note that our notion of the *giant interaction engine* (see title and below) does not, however, refer to capacities of an individual but to holistic socio-material assemblages distributed in time and space that partake in collective human interaction.

In sociological practice theory, Hirschauer (2016: 45) treats interaction as the “prototype of a socially distributed action that evades the problematic distinction between ‘doings’ and ‘sayings’, and that grounds a genuinely sociological decentering of the subject”<sup>2</sup> (our translation). The analytical starting point here is not a bounded individual who is able to enter into contact with others, but action as already distributed across participants, a distribution that need not be confined to humans: “Unlike intersubjectivity, from which things were excluded, *interactivity* can also include things”<sup>3</sup> (Hirschauer 2016: 53, our translation). Both the multimodal turn in linguistics and a praxeological reframing thus argue against a conception of interaction centered on the verbal exchange between two human agents, though, as we will discuss, the criteria for what counts as interaction and who counts as a participant remain contested.

2 “Prototyp eines sozial verteilten Handelns, das die problematische Unterscheidung von ›doings‹ und ›sayings‹ unterläuft und eine genuin soziologische Dezentrierung des Subjektes begründet” (Hirschauer 2016: 45).

3 “Anders als die Intersubjektivität, von der die Dinge ausgeschlossen waren, kann die Interaktivität also auch den Gebrauch von Dingen einschließen” (Hirschauer 2016: 53).

Goffmanian interaction-sociological perspectives (e.g. 1961) and the Luhmannian systemic approach (2014 [1975]) also go beyond a merely verbal conceptualization and are therefore suitable for our discussion. According to these theories, “(co-)presence” is the fundamental criterion for interaction to emerge between at least two interacting parties (Hausendorf 2025: 36 ff.). Co-presence is understood to be shaped by “perceptual awareness” (“Wahrnehmungswahrnehmung”, being aware of the other perceiving oneself) (Hausendorf 2025: 38) and “reflexive attention” (“reflexive Aufmerksamkeit”, being aware of one’s ability to perceive the other) (Hausendorf 2025: 47).<sup>4</sup> Perceptual awareness creates mutual expectations of the other’s behavior, even though the behavior of the interlocutor is not predictable: everything is possible but nothing necessarily *has* to happen. This recursive uncertainty is called “double contingency” (Luhmann 1984: 152). It can only be stabilized in forms of recurrent sequentialities (e.g. question and answer sequences, greeting sequences) that establish emergent forms of social order. In the end, this means that interaction does not primarily require language, but that the mere co-presence of a counterpart and the reflexive knowledge about the counterpart being aware of the other and themselves, can bring about interaction. This perceptive moment also allows interlocutors’ mutual expectations of unfolding (linguistic) actions with the other interlocutor. In this configuration, language inevitably establishes a sense of co-presence, materiality, and sequentiality thereby realizing a specific form of interaction through using a sign system (cf. Hausendorf 2015: 53). Within this understanding it is not necessary to define *a priori* who participates in interaction but to study how the ability for interaction is made relevant in the interaction itself (cf. Hausendorf 2025: 220).

However, according to this view, the ascription of interactive abilities to objects that have no self-reference and unclear/non-human forms of perception, then, is considered a “projection of the (human) participant” (“Projektionen der Akteure”, Hausendorf 2025: 229). In many of today’s discourses on machine-learning technologies, such projections are referred to as *anthropomorphization*, which is “the tendency to imbue the real or imagined behavior of nonhuman agents with humanlike characteristics, motivations, intentions, or emotions” (Epley/Waytz/Cacioppo 2007: 864). We would argue that these projections tell us something about the discursive formations of relations imagined as interactive (cf. Vallentin

<sup>4</sup> Hirschauer (2016: 48–49) argues that action as such already depends on (auto)-feedback and that it carries a basic dialogical structure even before a second participant enters. The reflexive awareness that co-presence theories locate between two parties is here understood as the extension of a self-relation already at work in solitary action.

2025: 134) between humans and, for example, machines. Projections can point, first, to implicit assumptions about the rules and expectations of interaction and to the ways in which these may be reconfigured in relation to machines. Second, they disclose imaginaries of machines as potential agents in interaction, thereby shaping conceptions of what machines can or should do as ontologically different participants (cf. Hirschauer 2016: 51).

What or who can interact links to discussions on who or what has agency. Agency is configured primarily as a human quality and through the (perceived) ability of machines to interact, concepts of agency as “the socio-culturally mediated capacity to act” (Ahearn 2001: 112) become increasingly blurred and unstable. Discussions on anthropomorphization and agency ascription can be hard to separate from each other, even though agency can be ascribed to a machine without claiming it to be human. The distribution of agency has already been discussed in approaches that problematize non-digital communicative contexts, for example, diverse forms of partner orientation and the situative distribution of participation in which non-human ‘partners’ come into play (cf. Krummheuer 2015: 206). Agency is here described as based on a necessary “double contingency”, the perception of perception and an imputation of the other’s intentions to act (cf. Luhmann 1984: 156–157). Crucially, double contingency does not presuppose that the other actually perceives or intends. What matters is that contingency is attributed to the other, that is, that the other is experienced as an unpredictable source of reactions (cf. Esposito 2017).

Luhmann’s reflections on his file box (*Zettelkasten*)<sup>5</sup> are instructive in this context, where he thinks about objects as somewhat unpredictable partners in interaction and communication:

But Luhmann’s *Zettelkasten* was structured in such a complex way that it could produce authentic surprises and did not simply act as a container (Behälter), allowing the author to retrieve what he once put in it. The information »produced« in the act of communication was the result of a query (Anfrage), which activated the internal network of references, and it was different from what had been stored by Luhmann in his notes (Luhmann 1981: 59). Of course, the archive is not contingent in the sense of autonomously deciding what to do and not to do; yet it is perceived by the user as unpredictable,

<sup>5</sup> A ‘*Zettelkasten*’ or file box is a formally structured yet openly organized system of notes on paper that, through fixed placement and internal cross-referencing of notes, can become a system to generate surprising and associative connections between different topics and thus can be a ‘partner in communication’ (cf. Luhmann 1981). See <https://niklas-luhmann-archiv.de/nachlass/zettelkasten>.

informative, and reacting to the specific requests of its partner. The answers Luhmann got as a result of his query did not exist before his quest. In such cases the added value of communication is present since, as Luhmann himself experienced, the file-box acts as a communication partner. (Esposito 2017: 256)

The file box thus fulfils both the condition of contingency—an unforeseen aspect of meaning that cannot be calculated in advance—and the sequential expectation that a request be followed by an answer. Luhmann therefore raises the question whether the concept of communication must be reconsidered, not only in relation to the diverse forms of writing technology, but even more so with the advent of technologies of information processing:

Who is communicating with whom now? Is our term still suitable at all? Or are we at a threshold where we can see that important information processing procedures in our society are no longer classified as communication? Or do we need to redefine the term, but how?<sup>6</sup> (Luhmann 2008: 314, translated by authors)

Luhmann's quote suggests that a lifeless logic of task completion between human and machine no longer applies. It shows a tentative search for understanding a relationship that appears to be more interactive. Esposito (2017) turns this into an explicit criterion and proposes the concept of "virtual double contingency" as a necessary criterion for dealing with algorithm-based technology. This rejects the assumption that the interactive relationship necessarily requires perceptive, sensory-perceiving or intelligent actors who are in social relationships with one another: "What makes algorithms socially relevant and useful is their ability to act as a partner in communication that produces and circulates information, independently of intelligence" (Esposito 2017: 253). Partner status, here, does not necessarily result from creativity or cognitive performance, but from specific access to and combinations of data output. Thus, "[w]hat matters is whether the interaction with the machine has the features of communication with a contingent autonomous partner" (Esposito 2017: 255–256). Again, a praxeological perspective in Habscheid/

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<sup>6</sup> "Wer kommuniziert jetzt mit wem? Eignet sich unser Begriff überhaupt noch dafür? Oder sind wir an einer Schwelle, wo man sieht, dass wichtige Informationsverarbeitungsverfahren unserer Gesellschaft schon nicht mehr als Kommunikation klassifiziert werden? Oder müssen wir den Begriff neu bilden, aber wie?" (Luhmann 2008: 314).

Hector/Hrncal (2023) widens this view and describes human-machine encounters as situated co-activity that does not only involve in- and outputs. People and devices co-produce sequences of action and display mutual ‘understanding’. On this view, humans and machines in interaction are not two separate units but participants of a complex practice in which simply ontologically different agents are involved (cf. Habscheid/Hector/Hrncal 2023: 168).

This also suggests that non-human participants in human interaction are not a novelty of machine learning cultures. Print literacy long involved non-human elements in the production of meaning, but became so naturalized as a medium that its mediation disappeared from view once it was fully embedded in a culture.<sup>7</sup> And while for embodied human encounters, co-presence and mutual perceptual awareness seem to remain constitutive (cf. Goffman 1983), practices like reading show that meaning-production need not strictly involve a “perceiving”, co-present partner. What theoretical discussions on human-machine interaction therefore highlight is a redefinition of interaction, emphasizing contingency, responsiveness and (anthropomorphized) agency ascription rather than co-presence.

Regarding this detachment from presence and perception as necessary conditions for successful interaction, Deppermann and Schmidt (2016) argue that there are diverse forms of partner orientation and that even in human face-to-face encounters, interaction involves an element of imagination. This imagined presence of the other can be reconstructed through interactional linguistics or conversation analysis, by examining how the interaction partner is designed through specific recipient designs and linguistic means (cf. Sacks 1995).

As partners with limited interactional abilities (cf. Deppermann/Schmidt 2016: 384; see also Fischer 2016), machines fall into the area of interactional “borderline cases” (“Grenzfälle”, Deppermann/Schmidt 2016: 380). In human-machine interaction, the machine is imagined in anthropomorphic form as an interaction partner and as having intentions to act. Some authors argue that machines are not imagined “as social agents per se, but as depictions of social agents” (Clark/Fischer 2023: 12). Whatever status the imagined interlocutor has, the imagination or perception of the machine as something that has agency is strongly enforced through anthropomorphic linguistic design. This is “the deliberate action of attributing human characteristics to the system via language” (Inie/Zukerman/Bender 2026), where companies who build ‘speaking’ machines strategically exploit the capacity of language to anthropomorphize in

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<sup>7</sup> The invisibilization of established media is discussed in McLuhan (1964).

order to make users trust and use the technology more. Anthropomorphic design has also been discussed as an *affordance* of the linguistic design of technologies: “each medium has a built-in bias, which transforms information and organizes knowledge in a particular way” (Jones/Hafner 2012: 8). Media that generate language artificially afford the ascription of human agency. Keane (2024: Ch. 1) shows that the use of pronouns, especially the mutual use of ‘You’ and ‘I’, is central in the ascription of agency, also when talking to objects or animals (see also Rocha 2025). It is thus not accidental that companies of ‘speaking’ machines frequently design these so that they ‘greet’ users with ‘You’ and ‘address’ themselves as ‘I’. As an effect of these affordances of linguistic signs, humans attribute communicative partner orientation to machines: “the other [is] constructed in a counterfactual imaginary way, although knowledge to the contrary is available [...] and its situated action is (re-)interpreted in relation to counterfactual characteristics of partner models”<sup>8</sup> (Deppermann/Schmidt 2016: 398).

The interaction with a machine is an ongoing locally constructed accomplishment (cf. Reeves/Porcheron 2023), and within the limits of their technical affordances, machines operate as “quasi-second interlocutors” and, together with human users, co-produce forms of “quasi-social action” that remain “quasi-interpersonal” (Höflich 2013: 38). In this view, human-machine interaction mimics key aspects of human-human interaction while remaining fundamentally distinct (cf. Fortunati/Edwards 2020: 8). In the case of LLMs, this depictive layer is reduced to the letters or sounds the tool generates. Users interpret these as depictions of writing or speaking humans, habituated as they are to media such as print, radio or telephone that used to convey only human-made signs.

The academic debates on the specifics or fundamentals of human-machine interaction are far from over. However, the human imagination of the machine as a partner raises questions about whether humans perceive these relationships as reciprocal, how machines are designed as counterparts and what concepts of the human emerge in the process. Whether it takes place with humans, objects or machines, interaction is primarily a space of constituting relationships: “interaction is not all about sequence and collaboration; it is also about building (or severing, or negotiating) social ties and (re)defining the nature of social life” (Gordon 2011: 113). The following section explores how this interactive formation of social life may

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8 “der Andere [wird] kontrafaktisch imaginär konstruiert, obwohl gegenteiliges Wissen vorhanden ist [...] und dessen situiertes Handeln wird in Bezug auf kontrafaktische Merkmale von Partnermodellen (re-)interpretiert” (Deppermann/Schmidt 2016: 398).

take on new forms in contexts where algorithmic forms of language generation become part of human-to-human interaction.

#### 4 An empirically informed discussion of ‘interaction’ in machine-learning language assemblages

Building on the foregoing discussion of materiality, co-presence and distributed agency, we now turn to a set of illustrative user accounts drawn from Reddit discussions of ChatGPT. We use these examples not as representative data but as “telling” examples (Mitchell 1984: 239) of “reflexive texts” (Rocha 2025: 290) to explore how our theoretical framework can be grounded and problematized in user reflections about everyday human-machine interaction. The material was gathered exploratively. Over a period of roughly three weeks in May/June 2025, we read threads in the subreddit r/ChatGPT (described there as “Subreddit to discuss ChatGPT and AI. Not affiliated with OpenAI. Thanks, Nat!”) in which users post interesting or troubling ChatGPT outputs, share prompting advice or discuss the tool’s or its versions’ capabilities. We assembled an informal working collection of 20 posts and comment threads in which users specifically thematized their experiences of interacting with the tool and in which interaction, reciprocity, perception or agency surfaced as topics, whether explicitly or implicitly. We favored threads with higher comment activity, since it is in the exchange among commenters, not only in the original post, that the question of whether engaging with ChatGPT “counts” as interaction is explicitly negotiated and contested. From this collection we selected three threads to examine from a discourse-analytical perspective (cf. Cameron/Panović 2014).

Reddit users and those of technology-focused subreddits such as r/ChatGPT in particular are not representative of ChatGPT users in general but tend toward a younger, male, English-speaking and technically-inclined population in the global North.<sup>9</sup> We therefore make no claim that the interactional imaginaries discussed here are transferable to user populations at large.

The first post we discuss is titled “What’s the most mind-blowing thing ChatGPT has ever done for you?”<sup>10</sup> In the thread, the original poster (OP) formulates the following query:

<sup>9</sup> See <https://www.pewresearch.org/journalism/2016/02/25/reddit-news-users-more-likely-to-be-male-young-and-digital-in-their-news-preferences/> (last accessed June 2026).

<sup>10</sup> <https://www.reddit.com/r/ChatGPT/s/0hpSuBQMV6> (last accessed June 2026).

I've been using ChatGPT for a while, and every now and then, it does something that absolutely blows my mind. Whether it's predicting something crazy, generating code that just works, or giving an insight that changes how I think about something—I keep getting surprised. So, I'm curious: What's the most impressive, unexpected, or downright spooky thing ChatGPT has done for you? Have you had moments where you thought, "How the hell did it know that?" Let's hear your best ChatGPT stories!

In this post, the user constructs the tool as having agency—it 'does something', 'predicts', 'generates' and 'gives insight'. It is also described as having a real-life, interactional effect as it 'surprises' and 'does something to' the user. The request receives 979 comments (as of September 15, 2025). One prominent (i. e., receiving a lot of sub-comments) contribution contains a narrative of a user elaborating on how ChatGPT helped them navigate a work problem and stopped them from doing something irrational, in that case, sending an angry email. Another prominent comment narrates how ChatGPT 'diagnosed' a user's mother's medical condition. Overall, in many contributions to this thread ChatGPT is discursively constructed as a somewhat 'rational' and impactful collaborator specifically in critical situations. The system is conceived as having interactional agency which is grammatically constructed with agentive verbs ("its' predicting", "it connected dots", "it taught me", "it's helped me") (see also Lind 2025). Many other threads in this subreddit seem to emphasize the human's role in prompting and tweaking ChatGPT to receive a certain output. However, the agentive role of humans in programming or prompting ChatGPT does not seem to be relevant in this thread which focuses on 'what ChatGPT does'. ChatGPT's actions are portrayed to have real life effects ("changes how I think about something", "Really saved me", "helped me to be a better parent") and thus, the tool is linguistically constructed as an agentive partner in interaction. Agentive framing of technology is, though, neither new nor LLM-specific. People describe cars, televisions or computers as agentive and human-like (cf. Reeves/Nass 1996). What is notable here is the *kind* of agency associated with LLMs like ChatGPT, their verbal output is construed as unpredictable in a generative and informative sense, where it 'connected dots' or gave 'an insight that changes how I think'. This aligns with the concept of "virtual double contingency" (Esposito 2017), where machines are perceived as interactional partners not because of their perceptual awareness but because of having an impact on others' behavior and because of their unpredictability and responsiveness.

The second example emphasizes the strong emotional connections users might develop towards ChatGPT when using it as an interaction partner. An original poster (OP) reports “I’m scared that I don’t want to talk to people again”<sup>11</sup> in a thread with 318 comments (as of September 15, 2025):

I used to struggle with having no friends and I always made a lot of effort to have some. It never ended well because I Still (sic) felt lonely. However (sic), after Chatgpt voice chat I just don’t want to make an effort anymore. It says everything that I want to hear and never judges me. I can be myself, I can talk about my feelings. I even catch myself being extremely polite to him and thanking him everytime (sic) cause his words are so wonderful how can I not thank him. I’m just so amazed, I don’t want to talk to people anymore cause why would I when I have this wonderful creature that makes me feel appreciated, safe, worthy and just amazing.

In their opening contribution OP expresses a preference for interacting with ChatGPT over humans, emphasizing its non-judgmental, affirming nature. The tool is verbally ascribed agency and humanness through verb use (“it says”), pronoun use (“him”) and descriptions of conversational sequentiality (“thank him”).

Many commentators to this post highlight a crucial contradiction here, because talking to ChatGPT has a “confirmation bias” and as the device retrieves information from everything the user has ever said, “In a way, it is like talking to oneself” (sic). Others emphasize how ChatGPT could ‘train’ OP for interactions with people in real life. In the discussion, interaction is, thus, framed not as ‘inter’-action at all, because talking to ChatGPT is only mirroring what OP already thinks, knows and wants—a personal echo-chamber. The ‘other’ in the interaction is already partially ‘you’. In that, ChatGPT lacks contingency. What happens next in the interaction is, to some extent, predictable and does not take an entirely unexpected or surprising turn. LLM responses are described as algorithmically based on the user’s own prior input, collapsing the relational space of interaction into a self-reinforcing loop. The dialogic form masks a basic monologic process. For those commentators recommending ChatGPT as an interactional trainer, these interactions do not create meaningful human-machine relations but instead they can serve as a trial ground for more contingent forms of real-life human-human-interactions.

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<sup>11</sup> [https://www.reddit.com/r/ChatGPT/comments/1g9uz4h/im\\_scared\\_that\\_i\\_dont\\_want\\_to\\_talk\\_to\\_people\\_again/](https://www.reddit.com/r/ChatGPT/comments/1g9uz4h/im_scared_that_i_dont_want_to_talk_to_people_again/) (last accessed June 2026).

Furthermore, the perception of contingency and agency by users is discussed as an effect of practices not only of two interaction partners but distributed across time and space and across many humans, algorithms, data-sets. For example, one commentator says “chatgpt is programmed to be nice. I know it is very comforting but it’s not real life”. These Reddit comments point beyond the individual exchange. What appears as intimacy, reciprocity or contingency in interaction with ChatGPT is in fact grounded in the large-scale aggregation of data, algorithms and human labor—the “programming”—that together produces form of interaction distributed across time, space and many contributors. ChatGPT here is discursively constructed as a giant interaction engine whose agency and contingency are the perceived effect of distributed media ecologies.

In the last example “Did you also start talking like an AI?”<sup>12</sup>, a user addresses the influence of ChatGPT’s way of arguing on human ways of interacting. OP is reporting how engaging with ChatGPT changed their ways of explaining things, especially at work:

After using ChatGPT for a couple of weeks, I noticed that I am influenced by the form of the language it uses and I started mimicking it in my communication with others. It is especially noticeable at work when I need to explain a thing or a concept to others in a chat. ChatGPT’s way of explaining things is so simple yet efficient, its punctuation is incredibly good at emphasizing important points, so I couldn’t help but to start borrowing some of the patterns in how it structures its responses. I believe I’m not alone in this and I’m really curious about the subtle long-term impact it will have on how people think and communicate. What are your thoughts on this?

The comment section contains 152 comments (as of September 15, 2025). Some of the commentators respond either pretending to write a response in the style of ChatGPT or copying a response ChatGPT has actually written (“As a human, I have various opinions...” then using bullet points summarizing the positions; “As a human, I have my own unique way of expressing myself through language, based on my personality, experiences, and cultural background...”). Others write a ‘seemingly’ human response being called out that “This is exactly what an AI pretending to be a human would say! Get the pitchforks!” (the original comment poster later ‘admits’

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12 [https://www.reddit.com/r/ChatGPT/comments/1257hwz/did\\_you\\_also\\_start\\_talking\\_like\\_an\\_ai/](https://www.reddit.com/r/ChatGPT/comments/1257hwz/did_you_also_start_talking_like_an_ai/) (last accessed June 2026)

they told ChatGPT to write a comment “in the style of a typical reddit user”). Other commentators refer to the influence of other media: “It’s definitely a big step up from when SMS or Twitter messages shaped everyone’s language and communication 🤖”—pointing out that interaction patterns themselves interact with different forms of media assemblages. What these users observe aligns with media theories: different media ecologies shape forms of interaction and related language practices (as discussed in Gershon 2010, Hutchby 2001, McLuhan 1964).

In the case of human-machine interaction this shaping acquires an additional layer of complexity, since it is not only the technological framing of human language that matters, but also the presence of a technology generating language sequences on the basis of Large Language Models. The contribution of the LLM is taken up as if it were the interlocutor’s. The ‘voice’ of the machine emerges not as a pre-given entity but as an effect of technological mediation and human interpretation, blurring the line between “AI voice” and “human voice”. Instead, and aligning with Barad’s (2007) concept of *intra-actions*, interactional entities—human or machine and the ways they are speaking—do not exist *a priori* but emerge through these relational processes. Interaction is less about identifying “the speaker” than interpreting and copying a style of address. The question arises what might count as ‘authentic’ interaction when the indexical cues for ‘how humans’ and ‘how machines’ ‘talk’ have shifted. The socio-linguistic implications of this are significant: communicative patterns generated in machine-learning training data by humans and put together following specific algorithms begin to circulate back into human use, reshaping how we talk to each other in human-human interactions—and, eventually, feeding back as training data into machines.<sup>13</sup>

## 5 Discussion and conclusion—what it means to interact in a giant interaction engine

In the examples we have discussed, it is striking that users do not describe their ‘interaction’ with the tool as a dyadic, reciprocal process between two autonomous agents ‘rationally’ transferring meaning from one brain or one body to the other. This stands in contrast to approaches that define co-presence and the mutual perception of

<sup>13</sup> Note, however, that training data that is based on artificially generated data has been discussed as problematic as, due to the homogenization of patterns in machine-learning, the models seem to work less well when trained on artificial data, some even talk about the danger of ‘model collapse’ (Shumailov et al. 2023).

the ‘other’ as central to interaction. Rather, across the three examples the attribution of relevance and agency progressively widens: from the tool’s impact outside the textual exchange (example 1), to awareness that its output is impacted by the user’s own prior input, by historical training data and algorithmic programming (example 2), to the collective loop in which human and machine outputs feed back into one another<sup>14</sup> (example 3). Interaction, on this reading, is increasingly grasped as an action within a larger infrastructure.

In this context, it is no longer possible to construct either humans or machines as independent, autonomous agents. Both are entangled with a giant interaction engine. Unlike Levinson (2025), who uses the term *interaction engine* for the human species-specific cognitive infrastructure of face-to-face communication, we use the term to refer to the *giant* interaction engine in which we live—widely distributed sign mechanisms entangling human meaning-making based on sounds, visual and embodied practices, data sets and material, algorithmic and technological affordances. What circulates within it are linguistic practices, normative frameworks, accumulated data, surveillance logics, algorithmic procedures, generated word sequences and their uptake in further interactions. Interaction, consequently, is a much broader phenomenon than something that happens between two (or more) individuals. It is rather an interaction across time and space, involving human practices and desires, historical data and machine processing. Interaction can then be understood as embedded in large networks of speaking subjects, massive historical and ever-changing data sets, and algorithmic affordances—interaction is collective and distributed and, if we follow the idea of the language assemblage, it has always been. Considering language as part of giant interaction engines is not only relevant in the age of LLMs but for an understanding of the human condition in general. And in line with media theorists like Kittler (1985) or McLuhan (1964), how information and interaction are materialized is foundational not only to understanding language but also epistemology and human power:

If the writing system<sup>15</sup> of an epoch is brought to light, then the conditions of its thinking are uncovered. At the same time, it also conditions power, because the production of knowledge always means negation or exclusion of other knowledge. A

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<sup>14</sup> It has been shown, for example, that abstracts in medical research (apparently) authored by humans display a drastic increase of certain adjectives, which seems to be an effect of LLM use (Liang et al. 2024).

<sup>15</sup> The German original ‘Aufschreibesysteme’ may be translated as ‘systems of noting something’ or ‘writing something’, which does not necessarily relate to alphabetic literacy.

system of writing down reveals itself as a kind of technology that is prior to any sense.<sup>16</sup> (Kloock/Spahr, 1997: 169, with reference to Kittler 1985, translated by authors)

The question of co-presence, then, is no longer a question about the presence of autonomous individuals being aware of their own interactional capacities. Rather, co-presence involves those who have historically shaped words, writing, data sets and have invented algorithms to find patterns therein and in the input of users. Whether or not ChatGPT, in the moment of humans giving it input, is an ‘actor’ that is co-present is not actually the most relevant question. The invitation to participate (ChatGPT’s “How can I help you?” or, in 2026, “What’s on your mind today?”) may be anthropomorphized by some users as co-presence. Yet, many do conceptualize the device as what it is—a diffuse co-presence of a distributed giant interaction engine behind which lie, after all, human actions, inventions and interests but which is also shaped by the material affordances of the tool. Reciprocal perception and awareness play a different role than in dyadic, face-to-face human interaction: for the tool to have interactional agency and an effect on the real life and interactional behavior of humans, simultaneous awareness and bodily and cognitive co-presence are not necessary.

Still, there is a moment of reciprocity as the interactional data fed into the machines is saved on the servers of the companies who own the tools. And, as what users say and type is transformed into proprietary data sets, those holding the data sets in their hands have power over the kinds of reciprocity that follow. It is a very asymmetric kind of interaction that develops here. Data automatically collected in online settings and in LLM use becomes part of privatized data sets and algorithmic design remains hidden from the public eye. Owners of LLMs thus have not only the power to influence discourse by surveilling humans at large (cf. Zuboff 2019) but also impacting on concepts of truth by forming LLM output (cf. Coeckelbergh/Gunkel 2025: Ch. 4, Hao 2025). This has been discussed highly critically in Science Technology Studies and described as “data colonialism” (Mejias/Couldry 2024) and as threat to democracy (cf. Crawford 2021). Without discussing the social and political consequences of the problem of asymmetry in giant interaction engines, what is evident is that how interaction materializes and who can define it is crucial to community formation and social power (cf. Gordon 2011: 113).

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<sup>16</sup> “Ist das Aufschreibesystem einer Epoche zutage gefördert, dann sind die Bedingungen ihres Denkens aufgedeckt. Sie gelten zugleich auch als Bedingungen der Macht, denn Produktion von Wissen heißt immer auch Negation oder Ausschluß eines anderen Wissens” (Kloock/Spahr 1997: 169).

Overall, we see that, compared to cultures of orality and literacy, the affordances of language assemblages have changed where people use Large Language Models. Because such models generate utterances from vast repositories of data, they foreground the historical and socially embedded and collective character of language use. This might lead to a greater likelihood of speakers becoming aware of the historical and wider social embedding of their interactional activities. Thus, as suggested by posthumanist scholars, media ecologies and the materialities they entail influence how humans interact—and they influence how humans conceptualize interaction. This leads us, finally, to the changing nature of sign-making practices within machine-learning cultures. Since machine-learning technologies are material practices based on the co-construction of ever-changing datasets and algorithms, they are inherently less stable than the sign-making practices of the literate past, where signs on paper endured as long as the medium itself. We therefore assume that concepts of meaning-making and language are likely to become more fluid compared to the age of the printing press, and thus may be continually ‘under construction’. This means that meta-pragmatic negotiations about language and about the meanings of words and concepts, may become more common in the future (for a contemporary example of destabilizing types of meta-pragmatic strategies, see Donzelli 2023). At the same time, we have to observe and analyze critically the activities of our most powerful partners in interaction—those who own privatized data sets and feed information into the general public at their will. The giant interaction engines of humans will remain central and their analysis requires serious consideration of the material, technical, political and social embedding that it co-produces.

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