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Culture, Computationally: On Leif Weatherby's *Language Machines: Cultural AI and the End of Remainder Humanism*

William J. Stewart

Our desire to name events of historical rupture is surpassed perhaps only by our reluctance to accept moments of the lived present as being one of them. Despite Frederic Jameson's old imperative to "always historicize," commentary on the contemporary can feel instead like a companion to Milan Kundera's *Life is Elsewhere*: History is some other time. Works that insist on diagnosing the historical character of the now do so at their own risk, and the stakes are high, since the playing field of the present shifts mercilessly. Succeed, and you hand your own and every adjacent discipline the barometer for a paradigm shift that conditions all of their work; fail, and a whole book is rendered untenable because of an idiosyncratic take.

Language Machines: Cultural AI and the End of Remainder Humanism, a compelling and theoretically technical work by Leif Weatherby, is one such gambit. The book is grounded in a deceptively simple observation: Whatever it is that large language models (LLMs; ChatGPT as one specific example) do, they do it through, in, and with language. According to Weatherby, no matter how much the discourse around generative AI is obfuscated by hype, jargon, or technical specificity, the core significance of this technology hides in plain sight: the "language" that is literally carried in these models' name. While they may depend on multi-thousand-dimensional vector spaces and trillions of parameters black-boxed into a neural network, LLMs can never be properly understood without grasping that the training data that constitutes them, and the responses they so indefatigably produce, draw from and then dump back into a linguistic-cultural surround. Designating LLMs as "a computational-cultural interface of a new kind," Weatherby's analysis proposes that the capacity of LLMs to synthesize computational and linguistic forms has radically recast how we should understand the nature of discourse.[1]

The book spends a significant amount of time, and deservedly so, with both the material conditions of the computing on which this technology is built and the philosophy of

1 Leif Weatherby, *Language Machines: Cultural AI and the End of Remainder Humanism* (University of Minnesota Press, 2025), 54.

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language to which the people promoting this tech space are fundamentally oblivious. But it is the LLM's status as a *cultural machine* that bears the most weight in Weatherby's discussion and, he contends, that supplies the force to dislodge the status quo and catalyse historical change. Only the object of this change isn't science, technology, or philosophy. It is the humanities. *Language Machines* argues that, thanks to LLMs, we have left behind the impasse between the posthuman and critical theory that marked humanities discourse at the turn of the last century, as well as the three-way tug-of-war among inheritors of the Frankfurt School, deconstruction, and Kittlerian anti-hermeneutic media theory. If the trophy up for grabs in this contest was the true significance of language—whether ideological vector, kaleidoscopic play of signifiers, or medial epiphenomenon—Weatherby's account suggests that not only was no winner ever crowned, but the very prize was ultimately suspected of being hollow. The emergence of LLMs and everything they bring with them has fundamentally and irrevocably changed the score, Weatherby argues. Confronted with ChatGPT, the humanist cannot shrug off language as one intellectual target among other, equally interesting and revealing ones. Now, more than ever, the humanities must revisit and revise their understanding of language, the sources that produce it, the way it shapes culture, and the implications these insights have for our very disciplines.

This genealogy is laid out in the book's first chapter, "How the Humanities Lost Language." This title is clearly designed to raise eyebrows, but Weatherby's aim is ultimately to galvanise his fellow humanists. His account pegs poststructuralism, under the banner of Jacques Derrida, as having backed down from a head-on encounter with cognitive science and structural linguistics, contenting itself with a nebulous concept of language's play at the exact moment when figures like Noam Chomsky or Steven Pinker were bolstering their methods with data-centric "rigour." As a result, the latter two disciplines claimed an authoritative position on language, while the subject was effectively deposed in the very humanistic fields where poetic expression and literary production had so long held court. (Where the chapter comes up short is in the title's "how": The disciplinary mechanics, intellectual history, and discourse analysis of this shift are, in large part, absent.) But instead of offering a way to move beyond poststructuralism's inertia, Weatherby's own counter is a retrograde one: a return to Ferdinand de Saussure's structuralism and a Continental semiology that approaches meaning as a web of values within a differential system.

If the book's intellectual program represents a retreat to theories developed over a century ago, its justification is the material reality of a world that now includes OpenAI and Anthropic. AI, so Weatherby posits, has "crossed into patently cultural territory."[2] To even the most casual user, LLMs are clearly *meaningful*—as in, they engage in an exchange of

2 Weatherby, *Language Machines*, 124.

linguistic content, both receiving and improvisationally producing it, in a way significant to other beings, what Weatherby calls the "Eliza effect." The question then becomes: How do you make meaning, which is conveyed in language, from computation? One can imagine all sorts of readers who might reflexively clutch their pearls at so many planks of this argument: Saussure! Meaningful language! Against poststructuralism! But Weatherby isn't aiming to merely shock. He wants to show humanists that the means with which to conceptualise and even integrate with generative AI might already be in their toolboxes.

In this regard, the humanists are not only no worse off than their STEM counterparts; they might even have the advantage. While LLMs have caught those in the humanities "flat-footed," as Weatherby writes, this is equally so in the "harder" sciences of cognitive linguistics and machine learning: Despite all of the buzz, optimism, and doomerism about AI, Weatherby is clear in his frustration that no one seems to have any theory of the *language* that these machines are producing. The book attempts to show that, at least in the context of generative AI, there is no meaningful way to be outside of language. That is, there is no meaning that is not ultimately captured by language. And therefore, a robust theory of language that can account not only for the computational machinery but also the pragmatic experience of these LLMs is of the highest order.

Here, technology is leading the theory; the machine shows us what to think. This is familiar territory for Weatherby, whose earlier work—together with Jeffrey W. Kirkwood—introduced English-speaking audiences to the nineteenth-century German media theorist Ernst Kapp and his concept of "organ projection."[3] Kapp argued that humans' interior reality is projected unconsciously onto the external forms of our tools, which are valuable to us only insofar as they engage with and supplement our inherent traits; conversely, by studying the nature of our tools, we come to understand ourselves. Kapp's theory puts the human being and its tools on the same ontological plane. In Weatherby's new book, this intellectual lineage tethers what is perhaps its most contentious claim to roots stretching 175 years into the past: that what the LLM is and does should be ordered in the same metaphysical category as what the human being is and does. *Language Machines* uses a catchy shorthand for this idea (the subtitle's "end of remainder humanism"), but the notion reaches from Kapp through postwar cybernetic theory to speculative materialisms and even environmental reframings such as N. Katherine Hayles's "cognitive nonconscious."

Weatherby's project reveals its cybernetic bona fides right from the start when it declares its aim to be "a theory of meaning in the absence of intelligence."[4] But the core of the book, to which it returns again and again, is the proper relationship between culture and

3 See Ernst Kapp, *Elements of a Philosophy of Technology: On the Evolutionary History of Culture*, ed. Leif Weatherby and Jeffrey West Kirkwood, trans. Lauren K. Wolfe (University of Minnesota Press, 2018).

4 Weatherby, *Language Machines*, 1.

cognition, whether that of the machine or of the human being. By invoking Saussure, Weatherby can unite these varieties of cognition under the umbrella category of semiotics, a study of signs and their functions. Constructing such an intellectual program is a task for which the author is well-positioned. An associate professor of German at New York University, where he is also the founding director of the university's Digital Theory Lab, Weatherby is a prominent media theorist whose formation nevertheless boasts expertise in German Romanticism and Idealism. That his first book dealt with Leibniz is telling, as both thinkers situate computational thought at the core of human and humanistic activity.

The Cultural Chokepoint of Language

Drawing from this wide pedigree, *Language Machines* is an ambitious book. It seeks to address the "full stack" of LLM technologies, from back-end mechanics to user-end interfaces, and because the text is not particularly long, many passages can be dense. Yet a number of key arguments crystallise across its pages and represent what Weatherby sees as the illustrative lessons to be drawn when machines have access to language.

First, language is something other than grammar and rules (what Weatherby names the syntax view) or distributional patterns (what he calls the statistics view). Instead, language is, at its core, a structural phenomenon grounded not in indexical reference but in its internal, differential dynamics.

Second, language is always already cultural; there is no language that is not ultimately rooted in the natural language humans use to communicate in the real, social, and historical world. LLMs, because they are trained on cultural language, necessarily belong to this cultural system.

Third, language is the sole interface between culture and cognition. What we think must go through the "chokepoint" of language, just as what any non-human "brain" does, must *also* be parsed (or parse itself) in language in order to be understood. Lower-level syntax and grammar only work once they have been explained in higher-level language.

Fourth, the language of LLMs is ultimately, to borrow a concept from Roman Jakobson, poetic, that is, generative. Observing how the artificial intelligence of LLMs operates, Weatherby concludes that, because these machines produce language of the same order as what you or I do, we have to reject a model of language as arising from a dynamic between syntax and semantics, and instead adopt one arranged around the related functions of "capture" and "generate." "Language supervises classification, and *language is the matrix of generation;* these are the facts of the media situation of the present," he writes, "The

internal world of LLMs is semiological: Language comes first and last, supervises and generates."[5]

In addition to Saussure, whose notion of semiotic "value" (a negative differential that imparts meaning) is relied on heavily by Weatherby, the heroes of this book include Jakobson, Claude Shannon, and Charles S. Peirce. The bad guys are Pinker and, most of all, Chomsky. Derrida's status is a bit more unresolved, as Weatherby agrees with his rejection of any "general equivalence" in structuralism but faults him for not taking sign systems beyond language, such as mathematics, seriously enough. The result is that deconstruction is, in Weatherby's telling, more or less at wit's end in front of a computer.

But it is the vanquishing of Chomsky that Weatherby clearly relishes most. This conflict seems inevitable, as Chomsky is a noted sceptic of LLMs as anything more than "lumbering statistical engines" and "language parrots." Weatherby, however, attempts to show that LLMs themselves pose fatal problems for a Chomskian view of language as being, in the last instance, syntax. Considering Chomsky's famous example of a grammatically perfect yet semantically empty sentence— "Colourless green ideas sleep furiously."—Weatherby argues that this sentence, while senseless, is *meaningful* precisely in its illustration of a senseless language despite grammatical perfection. The meaning of the sentence, while disconnected from any referential operation, is nevertheless that language contains the ability for such senseless sentences. LLMs, Weatherby extends his argument, approach language with just this kind of recursive logic, embedding meaning not in any referential capacity, but in the generative, poetic function of language itself: that it can make statements about anything at all, including itself. LLMs can only work because they grasp that language is about "aboutness"; every message conveys meaning *and* structural tendencies. This "poetic heat map" of language, as Weatherby names it, is precisely what a neural net produces.

The overturning of Chomsky turns out to be an argument already embedded in what is one of the key premises of the book, though it takes five chapters to get there, and requires mobilising not only Jakobson's theory of communicative function but also Kurt Gödel's incompleteness theorem: There is no outside of language that is not linguistic. The centrality of poetic generation to the function of LLMs even encourages Weatherby to propose a renaming to "large literary machines," though the quality of the literature they produce should give us pause for thought. But the intellectual-political stakes of this move are clear: In a moment when seemingly every university dean of arts and letters is organizing endless panels in the hopes of crowd-sourcing a sustainable defensive position for the humanities in the face of an AI onslaught, Weatherby's book flips the script, arguing that what AI is and what AI makes find their real interpretive home not in

5 Weatherby, *Language Machines*, 104. Italics in the original.

STEM, but in the humble literary studies department. For anyone unsure about the proper approach to LLMs and AI-generated text as a humanist, this book is required reading.

Reawakening Dormant Debates

Language Machines is a genuinely impressive and impressing work of theory. It is evident that Weatherby had fun writing this book, and as a result, it is fun to read. The effervescence of his thought is contagious, and the reader encounters the book as something to think along with, rather than to strictly judge. Admittedly, Weatherby's arguments are complex, making them both forceful in their depth and also subtle to the point of delicacy. The various arms of a claim can sometimes hinge on what feels like a precariously thin idea. Conversely, there are parts of *Language Machines* that operate more evocatively than illustratively. Chapter titles often promise a tantalising insight—how the Eliza effect of this particular form of AI has been able to become so pernicious, or what constitutes the material assemblages conditioning our semiological surround—without ever decisively landing on them. The chapter on "Large Literary Machines," for instance, draws heavily on extant scholarship but does not advance much of Weatherby's own notion of what this "literary" quality of the LLM might mean. In fact, once Jakobson's poetic function is introduced, it is difficult to determine what the difference between "literary" and "poetic" is for Weatherby's analysis.

Some of these issues are certainly due to the limits of writing a book about computers for a (primarily) humanities audience, something at which Weatherby is, it cannot be overstated, extraordinarily talented. The author also notes at various points the time constraints under which the book was written, time constraints that not only result in his observations being overtaken by technological updates before going to press, but also in certain passages feeling a bit underdeveloped. Presumably, this is also the explanation for the book's occasional tendency to repeat itself, both structurally and, in some instances, at the sentence level, too—regretful artefacts of a text hurried to publication by its own relevance.

Moreover, the book is not exhaustive, and there are a number of topics on which the reader is left wanting a little more. For one, *Language Machines* operates with an idea of culture that is often vague. At best, we might say that the book stays true to its Saussurian allegiances and defines "culture" differentially as "other than computation/cognition." In addition, for a text with "machine" in its title, the concept is largely taken for granted. The book leaves under-attended the degree to which Weatherby's argument depends on a particular and historical kind of machine, such as the electronic neural net. There is a lingering question about why LLMs specifically are so good at catalysing into material

reality a chain of speculative ideas that stretches from Saussure to Jakobson to Sylvia Wynter. Labour, too, which is so crucial to any "pretraining" of a Generative Pretrained Transformer—a pretraining that makes the LLM's language necessarily cultural—is not integral to Weatherby's analysis. To be sure, there are gestures to the topics throughout the book (or packaged into a section of the conclusion, in the case of labour), but their treatment is not as sustained or well developed as the interventions into semiotics and the philosophy of language. But perhaps this is ok: We already have Matteo Pasquinelli's *Eye of the Master* for AI and labour, or Lorraine Daston's *Rules* on the mechanisation of thought. While ChatGPT may maintain an answer to every question, no book, even one about generative AI, should be expected to do everything.

Admittedly, one would be more frustrated by these shortcomings if Weatherby weren't so thoroughly and indefatigably engaging in his insights, which appear as often in his patiently developed neo-structuralism as they do in his apparently off-the-cuff observations about, say, the poetic function operative in the epidemic of "26.2" stickers affixed to upper-middle-class Subarus by their marathon-running owners. Indeed, one often has the impression that the combination of these two registers is where he shines the brightest, that Weatherby, the theoretician, is in fact best in his breezier passages. His knack for illuminating analysis of the everyday is first-rate. (The well-circulated diagnosis of NFL star Aaron Rodgers as a "quarterback for an anxious, self-optimising age" that appeared recently in *The Point* is a prime example.)[6] But he is also gifted at making the esoteric and technical feel accessible and clearly motivated. Weatherby is, to use Internet parlance, an explainer.

Such a contemporary appellation is particularly fitting, as *Language Machines* is a book for this moment. At a time when there is as much noise about the promise as about the panic of LLMs, it pulls a cast of figures off the bench of the humanities' theoretical canon and assembles with them an unexpectedly agile team to guide us through this age of AI. No matter where one falls on Weatherby's argument, this represents a much-needed blow landed against those who would argue for the irrelevance of humanistic study in the face of these technological shifts. And his argument is sure to raise the hackles of some number of his fellow humanists, though this in itself is the second achievement that the book can claim. In a moment when there is so much pessimism about the humanities' future, a pessimism directed by literary scholars and cultural theorists toward our STEM counterparts, and when the life raft of humanistic purview seems to be ever-shrinking, *Language Machines* not only provides an entry point by which to animate humanists' discourse among themselves, using the new technological surround to reawaken dormant debates. More than this, in advocating for an end of remainder humanism, Weatherby's

6 See Leif Weatherby, "Permanent Decline," *The Point Magazine*, February 11, 2025, https://thepointmag.com/examined-life/permanent-decline/.

book also constructively renders our lifeboat redundant, handing everyone a lifejacket and a snorkel instead, and telling them to jump in and look around, the water is just fine.

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