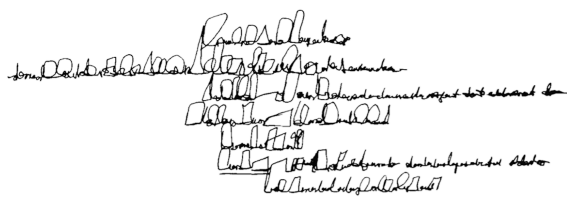


Jeff Dolven

The End of the Sentence

ABSTRACT. Have we come to the end of the sentence? This essay assesses the role of sentences in the default styles of the chatbots and takes occasion to consider its historical affordances as a form of exteriorization—one that coordinates linguistic elements and bounds revision. Tracing writing from its non-sentential origins through early modern grammatical theory makes clear that sentences are not the fundamental unit of writing but a culturally emergent compromise between temporal sequence and conceptual simultaneity. Attention to handwriting, word processing, and interactions with large language models shows how vertical layout, modularity, and symbolic substitution interact with sentence-centered prose. Speaking back on behalf of the sentence are Renee Gladman’s prose architectures, city-sentences that offer an image of sentence-thinking as a form of life.



—Renee Gladman, *Prose Architectures* 239

READING IS FASTER THAN SPEAKING IS FASTER THAN WRITING, AND SO, if efficiency is the driver of our means and modes of communication, writing will be the first to go. Not long ago, keeping reading and losing writing would have sounded nonsensical. But today, it is easy enough to imagine text being routinely produced by automated speech recognition and then optimized for others’ reading by an artificial intelligence (AI) editor. Those forms of optimization might well have advantages over any of the ways that people write to each other today, felicities of communication that we could not have discovered for ourselves but would readily adopt. Should we call them styles? Perhaps they would take the place of styles. We would read, but we would no longer read as writers, in particular as writers of sentences.

I want to follow out this thought experiment before my essay concludes and ask for the help that the major large language models (LLMs) are so ready to provide. But futurism will not be my main business. From this prospect, this speculative position at the end of the sentence, it is also possible to look back at a sometimes taken-for-granted form and consider what it has been good for over its long, but not that long, run in the alphabetic languages, and English in particular. The sentence is a particular form of exteriorization, of putting ourselves in front of ourselves for our inspection, use, and revision. What image of thinking does a sentence make? What does it do for thinking to make one? No one gets to decide how language responds to technological changes, and maybe it is a tease to gather the considerations that might best inform such an imaginary decision. But here we go.

HERE IS A DEFINITION OF THE SENTENCE, STRICT AND RECENT:

the minimal theoretical entity required to account for the formal syntactic relationships found to exist among the constituent syntactic units of a language. It is the entity which allows coherent statements about the lower-level constituents of the language, identifying a domain within which other units can be specified. (Levinson 1985, 123)

Ian Robinson adopts this definition from the linguist Joan Levinson and appends his own epitome: A sentence is “the syntactic domain of a finite verb” (Robinson 1998, 2). He writes as a historian of modern prose, arbitrating between generative and descriptive paradigms. He understands sentences to be well-formed structures defined by a finite grammar, but also to be historically emergent in their style and the criteria of correctness, and elegance, that they project. For now I want to mark two of the definition’s aspects: first, that a sentence is a structure of relation among its parts, and second, that it is a whole, or, to recombine two of Levinson’s terms, a coherent domain. Sentences so

understood, of course, will not account for much of spoken language, nor indeed for much writing, from text messages to street signs. So with the concept of exteriorization in mind, let me draw back to reflect on writing more generally—back both in cultural scope and species time.

I borrow “exteriorization” from the paleoanthropologist André Leroi-Gourhan. In his *Gesture and Speech*, he writes, “The whole of our evolution has been oriented toward placing outside ourselves what in the rest of the animal world is achieved inside by species adaptation.” Biological evolution gave us an upright posture and freed our hands for gesture and toolmaking, and evolution, from there, became a matter of the development of our powers by exteriorization—by technics (*les techniques*) that enhance and transform what we can do as individuals and as members of a culture. “The most striking material fact is certainly the ‘freeing’ of tools, but the fundamental fact is really the freeing of the word, and our unique ability to transfer our memory to a social organism outside ourselves” (Leroi-Gourhan [1964] 1993, 235). The hammer exteriorizes the skills of building, extending and remembering and teaching them in its material form. Writing is an exteriorization of memory. On clay, on papyrus, on paper, it can be inspected, reorganized, revised; it is available for reflection and manipulation. All this it can do even if separated from the writer by long time and long distances.

The sentence may impress us as the basic unit of written communication. Historically, it is not. Writing, in the lineage that begins in the ancient Near East, circa 3500 BCE, was originally for administrative and economic accounting. Marks pressed or incised in the clay of cuneiform tablets recorded distributions of foodstuffs, crops, and livestock. (Writing, as Jac Mullen [2025a] puts it, “was bound to the birth of the state and the consolidation of its power—an asymmetric information technology designed for governance, not yet for the poet.”) Over the centuries of its currency, cuneiform added a repertoire of phonetic signs to its ideograms and came to record events, laws, even poems; the next two millennia of imperial rise and

fall promoted systems like the syllabic notation of Mycenaean Greek (known as Linear B) and the consonantal notation of the Semitic languages, before ancient Greek adapted the writing of the Phoenicians to produce the first fully vocalic alphabet (Martin [1988] 1994, 8–15). That new flexibility in transcribing sound meant that writing could, in principle, avail itself of the full lexical and syntactic capacities of spoken language. But the anthropologist Jack Goody emphasizes that early writing (and not just early writing) takes many forms that are non-sentential, “tables, lists, formulae and recipes . . . ‘figures of the written word’ rather than ‘figures of speech’” (1977, 17).

So when Goody and successors speak of the population-level cognitive transformations that result from reading and writing, they are not talking primarily about the sentence as an ideal of eloquence. Writing cannot be separated from its institutions and occasions, the uses by which its specific technics develop. What writing changes about thinking is not some root capacity for reasoning or inference, argues David Olson, but rather “the techniques, technologies, systems, schemes, forms and formats for managing these processes” (1994, 23).¹ Sentences are employed in some domains and not in others. Nor can the sentence claim special privileges as a mimesis of speech. Speech is grammatical, with criteria for correctness and error, fluency and disfluency—but from the standpoint of prose, it is fragmentary, redundant, elliptical, often difficult to understand without the contextual support of gesture, expression, and above all the cadences of the speaking voice. (Something you only notice, of course, if you transcribe it.) Wallace Chafe, in the 1970s, characterized speech as made up of “idea units” of seven or so words, with a single intonational contour (1985, 106). More recent work in linguistics has complicated the idea of an “idea” and emphasized the contextual variety in unit length (Degand and Simon 2009), but the claim that ordinary speech is not sentential can be confirmed by any act of attentive eavesdropping.

All of which is to say that the sentence as I first defined it is a specific form of exteriorization within the larger exteriorization of

writing. Its promise is its capacity to relate the elements of speech in a discrete whole. Behind that idea of a coherent domain there is a long history: the sentence as a single thought, a single act of mind, attributed (precariously) to Aristotle; ancient rhetorical theory's concept of a period, a complete arc of persuasion; the seventeenth-century grammarians' formal definitions of completeness and incompleteness (Robinson 1998, 13–19, 166–84). An equally long history has treated the sentence as an ideal orthopedics of speech, how we talk if we are educated, if we are civilized (Harris 2000, 1–16). Even the free-thinking Czech-Brazilian theorist Vilém Flusser allows himself to worry, in a book about the end of writing, whether speech, without a model, will become “along with a good deal of thinking . . . barbaric” ([1987] 2011, 64). I do not want to treat the well-formed sentence as though it were inevitably a marker of privilege. On the contrary, it is a potent unit of vernacular pedagogy and expression. But Leroi-Gourhan's fellow traveler Bernard Stiegler, who builds his philosophy from the concept of exteriorization, reminds us of the good and the bad in all technics, and the bad, in the case of the sentence, is the potential for its forms of eloquence to be re-interiorized as marks of class difference (2016, 30).² To understand its practical affordances, for any writer, a change of scale is necessary.

CONSIDER THIS SENTENCE THEN AS AN EXTERIORIZATION. I HAVE written it; you are reading it, but I have also read it, many times before it reached you and many more times than you will ever read it. I put it in front of myself first (longhand, as it happens, on lined paper, then on a computer screen). If you could inspect that sheet of paper, you would see “then” dropped in from above with a caret and “as it happens” in the top margin with a line swooping to its point of insertion. An animation of my typing and deleting would show countless shifts and substitutions (“top margin” for “margin above” and so on). But the experience of reading these sentences in this journal is one of strict linearity. Specifically, horizontality. Leroi-Gourhan says of prehistoric image-making that “the thinking of pre-alphabetic

antiquity was radial" ([1964] 1993, 211) rather than linear; Flusser maintains that "writing is about setting ideas in lines, for unwritten ideas, left to their own devices, run in circles" (2011, 6). I am not in a position to confirm these beautiful ideas. But in the most immediate and practical way, the fact of the lines means that the written sentence is serial—it moves in one direction, in English, left to right, unfolding in time, as speech does by an inflexible law of one word after another.

To follow the tip of the pen, however, is already to temper this story of progress, even before the question of revision arises. (Most of us write with a word processor, but we all began to learn to write with a stylus of some sort in hand.) In the main, the hand moves to the right, but the pen is constantly detained in retrograde eddies, like the backward loop over the top of a lowercase *e*. Attention does not attach to the moving tip as its punctual focus. In reading, the eye advances by jerky saccades, fixing one word at a time. And even the left-to-right of reading is itself a good deal less linear than we might expect: As many as a quarter of our saccades are backward, right to left, to double check or course-correct when our initial syntactic predictions falter (Dehaene 2010, 18). As in reading, so in writing, only more so. More than half of our time spent writing, at a very conservative estimate, is a pause in the pen's action. Much of that time is rereading what has just been written. Sometimes, it is checking a reference; sometimes, it is just tangling the eye in the palimpsest of branches outside the window. Sometimes the pen moves when the eye is elsewhere, and sometimes the eye stares at the latest word and the pen rests on the desk (Alamargot 2007).

The screen of the word processor offers an alternate image of the temporality of composition. The blink of the cursor keeps just ahead of the last word, tickticking at the ready, marking the threshold between the already and the yet-to-be written. Each successive letter arrives all at once at the tap of a key. The cursor, however, is a complex tool, a superimposition of the caret, the blinking point of insertion, and the pointer, which can be moved independently by

the mouse or the trackpad across the field of the screen. The two do not quite separate out writing and reading. But they do suggest two orders of writing time, the linearity of a sentence waiting for what is next, and the freedom of reading and rereading across a synchronically accessible field of text. In Microsoft Word and most of its competition, the pointer takes the form of an I beam (so-called because it resembles the cross-section of a steel girder, which itself resembles a capital I; but one might also hear “eye-beam”). With a click somewhere back in the text, in the past that lies above and to the left, they can be synchronized again. But their regular estrangement concretizes the complex interactions of reading and inscription, and how writing must manage the relation between the punctual node of the next word and the acoustic and conceptual rhythms within which it is articulated.

Both of these specific technics, handwriting and word processing, instantiate the larger cultural exteriorization that is writing. They are practices of putting yourself in front of yourself. Not all writing, again, involves or asks for rereading, from the writer as they go or from the reader. Not all writing is an orthopedics of thinking. Writing in sentences, however, affords opportunities and complex criteria for revision (clarity, style, rhythm, and so on). Another definition of the sentence proposes itself: that a sentence is the basic unit of revision and, hence, the primary site at which writing’s diverse materials are brought into relation, by a process of which the stabilized line is only the formal result. The writing-reading-writing-reading oscillation that is writing is a kind of conversation with yourself as another. But reading what you have written on the page allows you latitudes for conversational repair that no real-time interlocutor would tolerate. The resulting sentence may not be in any cognitively specific sense “a single thought.” But the grammarians’ proposal, and the folk notion, that it defines a specific, bounded relation among its parts makes it a praxis of coordinating all the informational and argumentative and affective work the words do. The sentence is still laid out on a line, but it is the product of much eccentric travel, perhaps even in

some of the radial or circular patterns that Leroi-Gourhan and Flusser recover in prehistory. Consider what the page would look like if the lifted pen left behind contrails of ink or the pointer made a dotted line on the screen to trace its roving. Perhaps that would be a more accurate image of the sentence than this printed page.

CONSIDER ANOTHER IMAGE OF THE SENTENCE: THE EPIGRAPH TO THIS essay, Renee Gladman's *Prose Architectures* 239. The name she gives them (and the title of the first book in which they were collected) captures their mixed affinities with writing and with built space. There is a hint, too, of map, diagram, and city skyline, resemblances made more explicit by other examples. None of them is decodable by reading in the usual sense. The line is familiarly cursive, sometimes freely looping, sometimes dense and crabbed, but the script is asemantic, soliciting and confounding the recognition of more-or-less English letter forms and word shapes. Does this one have a sound—could it be read aloud? Again, not a decodable sound, though perhaps one can almost hear it as through a closed door or via broadcast from a faraway radio mast. It teases the reader-spectator with the question of what it says. Is it a sentence about buildings, about cities? Orders of semiosis and mimesis are tangled together in the thorny palimpsest. Some of the other architectures overwrite themselves until passages are black to the point of secrecy.

Still this one does look like a sentence. In her introduction Gladman speaks of the architectures' "inner syntax" (2017, xi), and Fred Moten's afterword asks, "Is there refuge in the sentence? Is there an underground railroad in the sentence?" (112).³ The line of inscription here appears continuous, a single thought, perhaps, though on inspection, the pen has been lifted several times. The sentence-effect has more to do with the way it is broken into unjustified, offset, cantilevered lines. Paragraphs don't look like that. Some poems do. But what it most resembles is a sentence under the aspect of its analysis, diagrammed according to conventions of indentation that capture degrees of subordination, the ways in which clauses and phrases relate to what Robinson calls the domain of the finite verb.

After beginning with a gerundive phrase,
the main clause of this sentence claims the left margin,
followed by further subordinate clauses and phrases,
followed by hierarchically indented dependencies,
which reinforce the sentence kernel
or which qualify its claims,
to which the sentence never returns.

My diagram-commentary, more X-ray than interpretation, assesses the architecture of 239 as that of a running sentence, rather than a periodic sentence: It carries on to the right, rather than returning to complete the syntax of its main clause and resetting to the left margin (Lanham 1983, 48–78). Its shape is that of a sentence from the standpoint of its structure. Also from the standpoint (standing and listening) of its sound, for such complexity is managed with intonational maneuvers that signal suspension and sort syntactic hierarchies by means of pitch.

So what is it that we are seeing, and hearing, in this “language with its skin pulled back” (Gladman 2017, xi)? The image-script is its own idiosyncratic technics. By stacking the lines, Gladman defines a set of vertical relations supplementary to the continuous linearity the sentence would have if we stretched it out for the convenience of the traveling eye. Those relations are ostensibly more disciplined than the eccentric career of the rereading-revising I beam of pen or cursor. But for just that reason 239 can indicate some structures that are stabilized by that exploratory motion. Reading along the vertical axis, we can see parts of the sentence that are meant to be taken in parallel. In my structural paraphrase, the two dependent clauses “which reinforce the sentence kernel” and “or which qualify its claims” are delivered in sequence, but ask to be held in equipoise, as simultaneous possibilities. To understand the sentence, you have to know both at once. In this joint availability they make for an instance of sentence thinking, of the way in which the sentence as a relation of parts articulates propositions about a world that is not itself bound to the one-word-after-another project of language.

239 is one of the *Prose Architectures* that most straightforwardly captures this idea of how a sentence works. The larger loops, many of them squared off like building stones, concentrate along the axis of vertical alignment, almost as though they were load-bearing. Other architectures in the volume carry these questions of syntax further toward the built landscape. Some of them look like script-cities in profile against the sky. (They make you wonder about writing—in a book on your lap, on a sign on a wall, are you seeing the words face-to-face or from above?) Some are interconnected by lines that look like vectors of conceptual analysis, calling out relations across larger blocks of sense, a paragraph or a short essay. Or perhaps they are rigged with sagging lines like telephone wires, or power cables spliced in an economy of improvisation and resourceful theft. If the written sentence is an image of civilization, these super- and infra-structural arabesques exceed any of their possible diagrams. Gladman is interested in cities as spaces that must be made human partly against their plans, and her line traces the humane accommodations that move back and across any implicit grid, just like reading does, especially rereading.

Still the relatively stable relation between horizontal continuity and vertical concept is active in the architectures everywhere. Gladman's writing-drawings respond to the basic sentence-question of how our running-on, running-away language can add up, how we can design structures that bring its elements into contact with one another in thought. The sentence affords her that architecture just as the city does. Both are places you can come back to, as a writer, to revise; as a reader, to reread; as a citizen, a city-dweller, to cross and recross, to collate the parts of an ongoing life and make sense of them together.

THE IDEA OF VERTICALITY I INVOKE HERE OWES A DEBT TO THE STRUCTURAL linguistics of Roman Jakobson. For Jakobson, it is literary language that most distinctively emphasizes such relations. When he explains what he calls the poetic function as the projection of "the principle

of equivalence from the axis of selection into the axis of combination” (1987, 71), he is talking about the way that vertical affinities, of sound or structure or concept, impose themselves on the horizontal unfolding of literary syntax. That tension in the sentence, between its vertical self-relation and its horizontal, temporal unfolding, is what the beautiful precarity of Gladman’s architectures illustrates. Perhaps that tension also makes them poems, and I will return to them before I end. But first I want to travel a way further in the direction that Jakobson identifies as literary—not left to right on a line, but up and down, toward a more radical verticality. It is time now to talk with the chatbots, whose scrolling answers to our questions make up an ever-larger percentage of the writing happening now.

And in talking with the chatbots, something has changed in my method, such as it is. I am no longer consulting the stabilized sentences of print sources, as I have been with Leroi-Gourhan and the other authorities represented in my parenthetical citations and endnotes. I chose to prompt three large language models, ChatGPT 5.2, Gemini 3 Pro, and Claude Sonnet 4.5, both to describe the default style of their responses to prompts in general and to speculate on efficiencies of communication that could yet be achieved. Their answers are the object of my analysis, quoted in excerpts below and archived so that the reader can consult them in their entirety.⁴ But the models are also collaborators. They are no better at introspecting their own generative processes than we are, but they do have their own output on which to base their descriptions of their style, and detecting patterns in large bodies of information is something they are especially good at. In the background lurks the question: What sort of technics are they, presenting not as stabilized text but as answers to questions in real time?

In the foreground, however, is the question of their sentences. What place do sentences have in the models’ default style—the way they respond to a prompt put to them with minimal context? My question, posed first thing on the morning of January 2, 2026, was: “What are the stylistic characteristics of your current, default response to

prompts, in terms of syntax, punctuation, graphic conventions, and spatial arrangement on the screen?” ChatGPT’s response began this way:

1. Syntax

a. Moderately long, hypotactic sentences

My default sentences tend to be:

- Longer than conventional speech
 - Shorter and more segmented than academic prose
- They often use **subordination** (“because,” “that,” “which,” “as”) to compress multiple relations into one sentence, but avoid very deep embedding.

Syntactically, let us call this a mixed mode. The overall structure is that of a hierarchical outline, rather than a paragraph. The single word “syntax” identifies the first topic. The next level down is a phrase identifying a subtopic, “**Moderately long, hypotactic sentences.**” Then, a clause, “My default sentences tend to be,” followed by two bullet points—each of them a predicate complement. Taken together they want only a connective *and* and a period at the end to be a sentence, and a proper sentence follows them, beginning with a capital letter and ending with a period, broken arbitrarily at the right margin. This organization is typical of ChatGPT at the time of my writing: start at the top with isolated words or phrases; at the next level, sentence structures are broken out and extra punctuation inserted to reinforce specific relations (as the colon after “tend to be”); complete sentences are reserved for the lowest level of the hierarchy, where they explain the bullet points above, and where syntactic resources of subordination serve to qualify, complicate, and perhaps indemnify.

Gemini’s default was similar. Its response to the same prompt opened with the heading “**1. Syntax and Punctuation**” and then gave three bullet points, headed respectively, in bold, “**The ‘Hedged’ Declarative,**” “**Logical Connectives,**” and “**Standard Punctuation.**”

Each of these subheads was followed by one or two explanatory sentences, complete and fully punctuated. The first elaborated, “I tend toward grammatically complete, standard sentences. My syntax is ‘safe’—I avoid extreme ‘James Joyce-style’ stream of consciousness or overly technical jargon unless prompted.” All the models reported what Gemini called “a high frequency of transition words (*however, therefore, consequently*)” and a logical, rather than rhetorical, use of punctuation, in the service of what ChatGPT called “explicit logical articulation.” “Where human prose often relies on implication or shared context,” ChatGPT added, “I default to explicit connective tissue.” Safety and hedging were also recurring themes. (“I hedge frequently,” reported Claude.) They affect the syntax, generating subordinate clauses that can be read under the aspect of scholarly or scientific caution, or product liability. The sentences at the bottom of the hierarchy are the site of this ambivalence.

Claude, it should be said, was much more of a sentence-maker in response to the same prompt. I will return to its style shortly. Both ChatGPT and Gemini, having dispatched the topic of syntax, went on to address the outline-structures within which sentence parts, structures, and sentences themselves were embedded. (Syntax probably headed their responses in deference to the order of topics in my prompt.) Font size, bold text, bullet points, and degrees of indentation were resources both mentioned and used in common. The models identified two basic features of this presentational style. The first is modularity: As Gemini said, “My default mode is **modular**. I use bolded headers (like the one above) to allow your eyes to jump to the relevant section.” The second, equally obvious, is verticality, or, as ChatGPT put it, “**b. Vertical over horizontal density**.” It elaborated: “I favor stacking information vertically (lists, sections) rather than packing it into dense horizontal lines.” This sentence is followed by what we might call a semi-sentence in the mixed mode: “This aligns with:” above three unpunctuated phrases in bullet points, “Screen reading habits,” “Chat interfaces,” and “Scroll-based attention.” It is a basic function of the outline to release vertical knowledge from

horizontal presentation, to release information from rhetoric, and so it is with the LLMs. The typical scanning eye has long experience with the basics of this format, from early modernity, and from grade school, forward (Ong 1958; Blair 2010).

My next prompt to the LLMs asked where this genre might be going: “Can you imagine a style of presentation that, with practice, would be easier for human readers to process efficiently? How would that style depart from current norms and what would be its features?” Again ChatGPT and Gemini returned answers that were substantively, and stylistically, similar. “**From sentence-centered to unit-centered writing**” was ChatGPT’s first head, listing assertions, constraints, contrasts, instructions, and examples as units in bullet points, then explaining (in a complex sentence hinged by a semicolon), “These units would not always be grammatically complete sentences; they would be **functionally complete thought-acts**.” Gemini announced “**The Death of the Transitional Sentence**,” proposing that “We replace grammatical transitions with **Indentation and Spatial Anchoring**.” Both advocated greater use of white space on the screen to define relations, and Gemini described how the burden of tracking pronominal reference could be relieved by a “**Vertical Pipeline style**” where a plumb line down the screen aligned the units associated with one topic. ChatGPT provided something of a gloss on this device: The left margin would serve for “core claims,” indentation would indicate dependency, and alignment would establish “equivalence or contrast” between the elements. “**From rhetorical flow to navigable topology**” was another of its heads: “This abandons the assumption that a reader reads *from beginning to end*.” Gemini suggested the use of symbols as shorthand for relationships. “Instead of writing ‘This causes a decrease in,’ we use $A \downarrow B$.” A standard set of “**Logical Glyphs**” would allow the response to “bypass the verbal-processing center and tap directly into the brain’s symbolic-reasoning engine.”

A word about Claude. Its initial answers were prosy, consisting of short paragraphs with bold, one-word heads; there was no use of vertical alignments or bullet points. They were also full of affect, even

apology, with a more insistent first person. “I use em-dashes liberally—perhaps too liberally,” it confessed. And about graphic conventions, it returned:

Despite instructions to minimize formatting, my default pull is toward structure—headers, bullet points, numbered lists. This reflects both my training on web content (which is heavily formatted) and a desire to make information navigable. There’s something almost anxious about it, a compulsion to organize that can work against the natural flow of thought.

On the one hand, Claude expressed this embarrassing tendency in a stubborn paragraph. On the other, when prompted to imagine a more efficient idiom, it went furthest in the direction of symbolic substitution:

| CLAIM | The spine reads fast
|— branches wait (for those who need)
|— punctuation → replaces transition-phrases
|— whitespace = dependency-shift marker
Notation keys:
/ = alternative or pivot
→ = replaces, leads-to, causes
= = equivalence
() = optional elaboration, skip if clear
~~ ~~ = negation or departure-from

Its self-consciousness was not entirely lost, however: “Risk ≠ zero: — warmth ↓ — music ↓,” it reflected, melancholically. This use of affective language to manage claims is another choice the developers have made, an assessment of the share of the market that can be claimed by an interlocutor that sounds more like a friend, a friend who needs you as much as you need them.⁵ Mostly Claude can remind us of the

flexibility and contingency of these responses: The defaults are important, but regular users will quickly coach the models toward more particular idioms, whether they mean to or not.

Back, then, to ChatGPT and Gemini, to the mixed style of their defaults, and the strong move toward non-sentential units, vertical organization, and symbolic substitution they forecast and already partly embody. How do they explain these efficiencies? Both models referenced the saccadic movement of the eye and its ability to navigate among graphic anchors in a visual field. Still more important than the eye was the brain. Gemini prefaced its response to my second prompt with the following framing:

To move beyond “Optimized Standard English,” we have to move toward a style that acknowledges how the human brain actually processes information: not as a continuous stream, but as a series of **pattern-matches, hierarchical relationships, and spatial mappings**.

ChatGPT agreed: “The underlying wager,” it said, “is cognitive.” What slows down human readers are not complex ideas, it continued, but a list of long-cultivated, rhetorical powers of the sentence: in bullet points, “implicit structure” (as opposed to structure made explicit by spatial alignment), “delayed clarification,” “syntactic suspense,” and “rhetorical indirection.” What is gained when these are lost? **“Reduce working-memory load by externalizing structure.”** (Which is not a sentence, unless “reduce” is an imperative.)

The concept of working memory recurred for all three models. It is treated as a cognitive workspace within which materials encountered serially can be held in simultaneous relation, to think with. (Working memory is, in neuroscientific terms, not a specific place in the brain but a network effect; it “involves multiple mechanisms” and is “dynamic, evolving in a task-dependent manner” [Buschmann 2022, 17].) The default style and even more the speculative, new styles are described as exteriorizing, in their format, processing that

a conventional sentence would require of the reader. ChatGPT again: “By making structure visible, it lets readers allocate attention to *judgment* rather than *parsing*.” Whether neuroscientific research would corroborate that claim is, as I understand it, an open question (Adam et al. 2025). But it is consistent with the justifications that have long been given for replacing rhetorically complex sentences with verticalized structures. In the most schematic terms, you could say that the ambition is to translate language from the unfolding time of speech to the simultaneous availability of the working memory. Which is also to say that it strips language of social affordances, of the rhetorical strategies that manage human conversation and persuasion, in order to make it more affordant to thinking.

BEFORE I COME TO THE END, ONE MORE TIME BACK TO THE BEGINNING. Writing is exteriorization. It puts our words outside us. We are always changed when we adopt a new technic: Leroi-Gourhan gives another example, cooking, which exteriorizes some of the processes of digestion. We are able to derive nourishment from new foods when they are cooked, but as a species we have lost the capacity to digest some foods we once consumed raw ([1964] 1993, 149). The famous original complaint about the technic of writing is Socrates’s warning that it comes at a cost to living memory. Readers will not “practice using their memory because they will put their trust in writing, which is external and depends on signs that belong to others, instead of trying to remember from the inside, completely on their own” (Plato 1997, 551–52). The specific technics of writing—handwriting, typing, and word processing—have variously shaped our capacities and incapacities in communication, changed our memories, our speech, our social lives. But what the LLMs afford us is something else again, an exteriorization of the process of writing itself. The consequences of that exteriorization are so vast that I have confined myself here to a specific form of it, the sub-technic, if you like, of the sentence.

The sentence emerges as a special tension between the horizontal and the vertical, as a compromise formation between the

collation of its elements and their emplotment in unfolding time. The experience of reading one involves extrapolating its synchronic relations from its diachronic proceeding. Often, that means rereading, backward and across a text. The experience of writing such a sentence is one of emplotting those relations, narrative, argumentative, rhythmic, as a project of revision, reworking, rebalancing. The completeness of the sentence defines a boundary for this work and, for the writer, an end, for every sentence has an end, in the sense of a terminal punctuation mark—and also an end to the process of its making. A sentence is complete as it were in both space and time.

Amid all the models' hedging, ChatGPT most directly asserted that its default responses do not end this way, that they are provisional as a matter not only of prudence, but also of utility. They are "optimized for rapid comprehension, interruption, and reuse rather than aesthetic continuity or archival permanence." That provisionality is an affordance of the open outline structure. It is also fundamental to the ontology of the models: They do not archive; they are curiously poor in memory of the sort that books are so good at. You do not search them, you prompt them, and if you prompt them again later, they regenerate, as we mostly do, when you put a question to us a second time. There are for the LLMs no final answers and no final formulations of those answers. You can ask them to revise, but never to complete. Scholarship is still sorting out how to make use of exchanges with them. Where I have quoted the models here, juggling format to manage their mixed modes, I have also had to accommodate their temporality. I have used the past tense, as I might for an interview, rather than the continuous present I often use for a printed book, which (as Socrates lamented) just keeps saying what it is saying over and over again. ChatGPT *said*, not ChatGPT *says*, because if you ask it again it will say something different.

Now I am almost at the end. There are so many potential problems with my argument that I shudder in anticipation of the last sentence. What if my question to the LLMs had been about persuasion, rather than efficiency? What if I had encouraged them to speculate

about image and sound? Even in writing, their output is so variable, so contextual, that my attempt to assess the default style is bound to ignore a branching tree (or exploding radius?) of possibilities where the vast training set of human writing and the user's prompts meet. I haven't inquired far into prompts either, which would be much more difficult to study. I suggested at the beginning that voice instructions for the production of written text may become a norm. But Claude is making a different bet, and the user who appreciates Claude's sentences might be encouraged to write sentences back. This new dialogism seems to reproduce the conditions of responsive knowledge that writing sacrifices. Would Socrates be pleased? Then again, the dialogue is so asymmetrical: Prompts, by and large, are short, answers long. (Would Socrates be pleased?) There are ways in which these exchanges threaten to leave my primary analytic category of exteriorization behind. As ChatGPT said to me just now, "if another person cannot be an exteriorization, and a book cannot converse, then I occupy a new middle category."

A middle category: a suspiciously reassuring formulation. But my subject is sentences. Let us look again at Gladman's sentence-city-drawing. What is it saying to us? Perhaps what it really looks like is a ruin, a crumbling structure from a culture that wrote in a language we can no longer read. Or perhaps it looks like history, history in process, like a scene of revision, be it construction site or manuscript page. Or maybe most like *a* history, a record of something that cannot help but inscribe its making. With those passages that look crossed out, crossed over, it proposes itself as a span of revision for the maker and therefore a span of interpretation for the reader, who, if they read as a writer, is thinking, within that span, about the ways it might have been but isn't. There are so many sentences this one might have been but isn't, so many ways it might yet both emplot and rebalance its elements. It is not the last, but this one is.

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NOTES

1. See Jack Goody and Ian Watt’s influential essay “The Consequences of Literacy” (1963) and its development by David Olson (1994, 2016) and Roy Harris (2000), along with critiques from anthropology (notably Scribner and Cole 1981; Street 1984) that challenged the idea of any unitary “literacy effect.”
2. Stiegler warns against technics that usurp our capacities “without return, that is, without interiorization in return, without ‘counter-thrust’ [*choc en retour*] . . . the first to question and problematize the pharmakon in this sense was Socrates” (2016, 30). See also Kyle Booten’s forthcoming book *Noöhacking* and Jac Mullen’s (2025b) account of LLMs as an exteriorization of attention in his Substack, “After Literacy.”
3. *Prose Architectures* (2017) was followed in 2022 by her *Plans for Sentences*, which continues to develop these city-sentence-drawings, and the relation between inscription and inhabitation runs through much of her work across its many forms, essay, poem, novel. In the essay collection *Calamities*, she begins a lecture, “one can see the city,” then corrects herself, “I mean, the sentence!” (Gladman 2016, 3; emphasis in original).
4. The conversations are archived as pdf files at <https://perma.cc/S26Z-Q65F>. My conversations with Gemini and Claude used new accounts, with no history; in the case of ChatGPT, I asked it not to draw on information from our previous conversations, and it said it would comply.
5. Several mechanisms coach LLMs toward a particular style, including RLHF (reinforcement learning from human feedback), which allows

developers to rate desired tendencies more highly, and training on particular datasets that reflect those tendencies (Raaijmakers 2025, 93–118). Claude also uses “system prompts”: a text invisible to the user that is incorporated into each prompt. When asked, Claude declined to share the default system prompt but said it was many thousands of words long and “quite readable.” Asked again, it volunteered “a small sample to give you the flavor”: “Claude avoids over-formatting responses with elements like bold emphasis, headers, lists, and bullet points. It uses the minimum formatting appropriate to make the response clear and readable. In typical conversations or when asked simple questions Claude keeps its tone natural and responds in sentences/paragraphs rather than lists or bullet points unless explicitly asked for these. In casual conversation, it’s fine for Claude’s responses to be relatively short, e.g. just a few sentences long. Claude should not use bullet points or numbered lists for reports, documents, or explanations, unless the person explicitly asks for a list or ranking.” True to form, it apologized for speaking of itself in the third person.

REFERENCES

- Adam, Kristen C. S., Laura-Isabelle Klatt, Jacob A. Miller, Marlene Rösner, Keisuke Fukuda, and Anastasia Kiyonaga. 2025. “Beyond Routine Maintenance: Current Trends in Working Memory Research.” *Journal of Cognitive Neuroscience* 37 (6): 1035–52.
- Alamargot, Denis. 2007. “Parallel Processing Before and After Pauses: A Combined Analysis of Graphomotor and Eye Movements During Procedural Text Production.” In *Writing and Cognition: Research and Applications*, ed. Mark Torrance, Luuk van Waes, and David Galbraith. Elsevier.
- Blair, Anne. 2010. *Too Much to Know: Managing Scholarly Information Before the Modern Age*. Yale University Press.
- Buschmann, Timothy J. 2022. “Working Memory Is Complex and Dynamic, Like Your Thoughts.” *Journal of Cognitive Neuroscience* 35 (1): 17–23.

- Chafe, Wallace L. 1985. "Linguistic Differences Produced by Differences Between Speaking and Writing." In *Literacy, Language, and Learning: The Nature and Consequences of Reading and Writing*, ed. David R. Olson, Nancy Torrance, and Angela Hildyard. Cambridge University Press.
- Degand, Liesbeth, and Anne Catherine Simon. 2009. "On Identifying Basic Discourse Units in Speech: Theoretical and Empirical Issues." *Discours* 4: 1–19.
- Dehaene, Stanislas. 2010. *Reading in the Brain*. Viking.
- Flusser, Vilém. (1987) 2011. *Does Writing Have a Future?* Trans. Nancy Ann Roth. University of Minnesota Press.
- Gladman, Renee. 2016. *Calamities*. Wave Books.
- Gladman, Renee. 2017. *Prose Architectures*. Wave Books.
- Goody, Jack, and Ian Watt. 1963. "The Consequences of Literacy." *Comparative Studies in Society and History* 5 (3): 304–45.
- Goody, Jack. 1977. *The Domestication of the Savage Mind*. Cambridge University Press.
- Harris, Roy. 2000. *Rethinking Writing*. Continuum.
- Jakobson, Roman. 1987. *Language in Literature*. Harvard University Press.
- Lanham, Richard. 1983. *Analyzing Prose*. Scribner.
- Leroi-Gourhan, André. (1964) 1993. *Gesture and Speech*. Trans. Anna Bostock Berger. MIT Press.
- Levinson, Joan Persily. 1985. "Punctuation and the Orthographic Sentence: A Linguistic Analysis." PhD diss., City University of New York.
- Martin, Henri-Jean. (1988) 1994. *The History and Power of Writing*. Trans. Lydia G. Cochrane. University of Chicago Press.
- Mullen, Jac. 2025a. "How to Do Soul-Craft with State Tools." *After Literacy*, Substack, May 14. <https://jacmullen.substack.com/p/before-and-after-literacy>.
- Mullen, Jac. 2025b. "The Loom and the Weavers." *After Literacy*, Substack, June 5. <https://jacmullen.substack.com/p/the-loom-and-the-weavers-part-one>.
- Olson, David R. 1994. *The World on Paper*. Cambridge University Press.
- Olson, David R. 2016. *The Mind on Paper*. Cambridge University Press.

- Ong, Walter J. 1958. *Ramus, Method, and the Decay of Dialogue: From the Art of Discourse to the Art of Reason*. Harvard University Press.
- Plato. 1997. *Complete Works*. Ed. John M. Cooper. Hackett.
- Raaijmakers, Stephan. 2025. *Large Language Models*. MIT Press.
- Robinson, Ian. 1998. *The Establishment of Modern English Prose in the Reformation and the Enlightenment*. Cambridge University Press.
- Scribner, Sylvia, and Michael Cole. 1981. *The Psychology of Literacy*. Harvard University Press.
- Stiegler, Bernard. 2016. *Automatic Society*. Vol. 1, *The Future of Work*. Polity.
- Street, Brian V. 1984. *Literacy in Theory and Practice*. Cambridge University Press.