

300,000 (at Least) Years for Homo Sapiens to Develop Writing: A Review of Silvia Ferrara's *The Greatest Invention*, Tr. Todd Portnowitz

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The author centers on writing seen both as a human ability and a transcription of oral language, and yet she very heavily refuses there to be any continuity from oral to written language, though once or twice what she says, like in her fifth step about “assigning sounds to signs”, is exactly the reverse of what Homo Sapiens did when he developed writing: he assigned signs to sounds. No matter what way it works for a decipherer, and for Homo Sapiens when he developed some writing system for his/her/their language, and his/her/their language alone in 6-8,000 BCE, the connection between an oral language and its written version is connected, but flexible so that it can be easily replaced by another written code for the very same oral utterances, like the Phoenicians developing the first real consonantal alphabet to replace, for Semitic languages, the Cuneiform writing of the Sumerians (Indo-Iranian) and Akkadians (Semitic), and later on the Greeks adding the vowels of Indo-European languages to the Phoenician alphabet that only had “alep” and only when it was the initial sound or letter of a word. She alludes to signs in painted caves, hence going back to 45,000 BCE, and all over the world, but she does not exploit it. She acknowledges there were six cradles in the world and does not give them in chronological order, hence does not link them to the general evolution of the concerned human groups, and she neglects the fact that Egyptian writing and Sumerian writing developed at the same time or so but with a strong link between them: the Akkadians were the scribes of the Sumerians and they were Semitic like the Egyptians, whereas the Sumerians were Indo-Iranian coming down from the Iranian Plateau and settling in Mesopotamia before moving on. She mistakenly declares them Turkic, or speaking Turkish, an agglutinative language. Mutations selected naturally transformed the foot, the larynx, the respiratory system, the articulatory system, the subglottal zone, and its innervation of the pre-Sapiens Hominins concerned to enable Homo Sapiens to become what they are, long-distance bipedal fast runners. The development of oral language is a collateral consequence of these mutations. As soon as Homo Sapiens started using durable medium for their representational and entoptic geometric or other diacritic elements we have to follow Genevieve von Petzinger and state that these are signs and they have a function, counting for the repetitive elements, and all of these rockface paintings were there to illustrate the story the painters or other special individuals (probably sha-women and a few shamans) who could speak to the spirits behind the rockface were telling the fascinated audience. The lack of phylogeny blocks the real vision necessary to understand these facts and the fact that the reference to “bureaucracy” in big cities was the cause of this development, according to Silvia Ferrara. The people who specialized in remembering data, could we call them a bureaucracy in 2023, with the highly pejorative paradigmatic meaning the term conveys? Of course not. Where

did the people who developed some writing system come from? What language or languages did they speak? Writing was not a discovery because it was not found on a tree or in a cave. Human writing was not an invention because there is no break from pure oral language to written language via representational drawings, and iconic first, totally abstract then signs used to transcribe the oral language into a durable (the media) and sustainable (to be learned by anyone and taught to anyone) script. We have to take the high road leading to discovering the phylogeny of language starting in 475,000 BCE and still developing.

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Introduction

The conversational tone is not the best to make a scientific presentation. But it is possible to overlook this familiarity though it tends to make things simple or direct that are not easy nor straightforward.

It is tempting to consider the various writing systems that archaeology has brought to us from the past and decide to say they were invented by people, or they were born from a certain environment and at the very same time consider that it has to be taken within itself. A writing system, in the author's approach, is not the result of a long phylogenetic process that led, starting from the development of articulated language around 300,000 BCE, to the development of writing sometime after the Peak of the Ice Age at 19,000 BCE. She alludes to the famous cave paintings all over the world that go back to 50,000-45,000 BCE and quotes Geneviève von Petzinger's *The First Signs: Unlocking the Mysteries of the World's Oldest Symbols* (2016), but she does not introduce the term entoptic which is essential there to explain the basic geometric forms used as simple signs or symbols or simply marks on the walls of the caves. Where does a perfect circle or a perfect triangle or a perfect square, or even at times not so perfect, come from when you know that these geometric forms are not served to Homo Sapiens from 300,000 BCE to, let's say, 19,000 BCE on a plate, ready-made to use, to borrow, to imitate.

In the same way as the hashtag pattern that is found on blocks of ochre in that period, and some wonder whether Neanderthals did the same, as for Denisovans we do not know, these blocks being associated with burials, are not mentioned at all. Of course, she should have wondered about the tools and weapons, and even more about the beads, perforated shells strung on some rope of some sort, the oldest ever found were in Morocco going back precisely to 300,000 BCE. Those are symbolic items that require some mental construction before producing them, and perforating these small shells from some oceanic shellfish is not an easy task and it requires a tool, and some skill, and practice.

Lunar or Menstrual Cycles: The Need to Record Data

She also should have wondered about the meaning of the various wooden, bone, or stone artifacts going back to cave-dwelling marked with all sorts of notches on them that Alexander Marshack studied a long time ago discovering they revealed some about 28-notch cycles he considered being lunar cycles and I consider being menstrual cycles. These marks made with different mark-making implements are divided by Marshack in smaller groups, often around six-seven-eight marks giving the four phases of the moon, though it is tentative to believe Homo Sapiens had already reached this abstract reconstruction of the lunar cycle, and was not still on the three-phase approach, a 12-day waxing phase, the four-day full moon, a 12-day waning phase, and the hardly one-day no-moon-at-all transition to a new moon cycle. But some of the artifacts cover four, five, or up to nine or so cycles, then the subgroups in a single cycle might reveal the important phases in the menstrual cycle for an about-

28-day-short cycle, a nine-day waxing phase to the four-five-day fertility period, and then a nine-day waning phase with the three-five-day menstrual period. Note that is essential to know precisely when the woman is fertile and can be impregnated with certainty, and for longer sequences of notches, it could indicate the important stages of the pregnancy beyond the menstrual cycle, up to four of these cycles (problem of “natural abortion or miscarriage”) or beyond till nine cycles to reach birth. All that is both the real recording of some observed phenomena, and it may be symbolic or indicative of a mental elaboration beyond this observation. Such artifacts are “writing” the results of observation in order to control and use these natural cycles that are essential for the survival and expansion of the community and the species. That’s where the book is frankly deficient: it does not give us any indexes, as if the author did not know that indexes are the easy way to navigate in a book, even, after reading it from cover to cover. Indexes are the easier way for a reader to survive reading a book, and work on his reading afterward

The need to record on some durable medium or media these lunar or menstrual-period-and-pregnancy observations is the obvious expression of the need to have a recording system, and that recording system will be writing because, apart from these recording artifacts, the community is discussing all these phenomena probably abundantly, and a “memory-person” is keeping it all in his or her memory which is not as durable as a stone, but what it has memorized can be transmitted to someone else who will keep it recorded in their own minds. This dimension requires a good and well-trained memory in the mind of the memory-person (called “Rsi” in Indo-European, or “griot” in many places in Black Africa, or “trained priests or priestesses” among Native Americans such as Pocahontas).

Phylogenic Continuity

The principle of some kind of total cut between the oral practice and development of language and languages on one hand, and the development of some recording system, any recording system at first, like the cuneiform marks on the 6,000-BCE-old tablets in Le Louvres, Paris, which were found in Romania, 3,000 years older than the writing system of Sumerian and the Sumerians. The clay tablet and the stylus were used at first to keep records of the commercial proceeds of the merchants that the Sumerians were, with simple marks for counting and some more elaborate glyphs to record the nature of the goods being counted. Silvia Ferrara does not consider such facts. She does not realize that when she discusses the difficulty of adapting cuneiform writing developed for Sumerian to Akkadian and other Semitic hence tri-consonantal languages, it is the proof that the writing system was developed for Sumerian, a synthetic-analytical Indo-Iranian language she wrongly assimilates to Turkish, hence to agglutinative languages.

Semitic languages are based on consonants for the semantic construction of the architecture of the sentence but reinforced and specified categorially and functionally by the use of vowels that are reduced to diacritic signs, or nothing at all in some cases. Therefore, the oral language is a semantic consonantal-root architecture supplemented with discursive vowels (producing syllables normally going in groups of three) which was introduced into the utterances the syntax of the communicational situation, which is necessarily discursive, exterior, and of course linguistically oral. The writing system of Sumerian was developed for Sumerian, but it could be used for Semitic languages—and by the way, it could be used a lot more easily for Turkic or Indo-European languages since Turkic, Indo-European, Indo-Iranian, and Indo-Aryan languages are from the same third-articulation development—provided it was somewhat modified. In the same way, any writing system can be transliterated into the Latin alphabet, provided some diacritic signs are added, and even some extra letters are invented, to cover special

sounds of this or that language. You can check this fact with word by opening their “special symbols” extension that provides a vast survey of various Latin alphabets modified to cover many languages.

Cuneiform: From pictograph to Assyrian				
original pictograph	pictograph in position of later cuneiform	early Babylonian	Assyrian	original or derived meaning
				bird
				fish
				donkey
				ox
				sun, day
				grain
				orchard
				to plow, to till
				boomerang, to throw, to throw down
				to stand, to go

3000 BC	2800 BC	2500 BC	1800 BC	600 BC	
					an (sky, heaven)
					ki (place; ground, earth, land, country)
					lu (who(m), which, man, ruler, person)
					munus (woman)
					kur (underworld, land, country, mountain(s), east, east wind)
					geme (female worker)
					sag (head, person, capital)
					kag (mouth)
					ninda (bread, food)

Courtesy of the Oriental Institute, the University of Chicago.

Figure 1. Two approaches showing the evolution of phonetic symbols, and the emergence of cuneiform writing.

To conclude on this point, I was surprised, concerning Sumerian and cuneiform writing, that Silvia Ferrara did not try to continue what Ren éLabat and Florence Malbran-Labat started in their *Manuel d' épigraphie akkadienne: Signes-Syllabaire-Id éogrammes* (2002) who tried to find some architecture or logic in the use of the stylus to produce the composite signs corresponding to oral words from very simple to more complex with some sort of composition of the simple signs into some syllabary phonetic logic in Sumerian, though this book's covering simultaneously Sumerian and Akkadian made it difficult to capture the subtleties since the phonetic architecture of Akkadian is based on consonantal langue-roots in phylogenetic development and it is only vocalic in using discursive categorial and functional marks, and meaning-specifying both paradigmatic and syntagmatic references. This writing system seems to have no representational dimension since each sign is composed of various marks from the stylus organized in an original compound or composite glyph. But Silvia Ferrara should have discussed this long process to reach that point. We do have some data on the subject, such as in the first table above integrated into the article on the topic in Encyclopedia Britannica, “Cuneiform, writing system”, written

by Jaan Puhvel, Emeritus Professor of Classics and Indo-European Studies, University of California, Los Angeles, fact-checked by the Editors of Encyclopedia Britannica, 1 January 2023, <https://www.britannica.com/topic/cuneiform>. Or she could have used the second table above available at <http://pandora.cii.wvu.edu/vajda/ling201/writingsystems/sumeriancuneiform.htm>). In both cases, we have some examples of how glyphs changed over time from some kind of representational drawings or icons to produce the cuneiform signs we know today which do not look like what they were derived from looked like. Note the attempt to reveal a Cartesian architecture¹ in this writing system by René Labat and his daughter should be examined seriously. But one thing is sure here: this writing system can cover many words that are reduced to one vowel, and four vowels are thus used as autonomous words, which is in total contradiction with Semitic languages. These Sumerian vowels are thus part of *langue*² whereas in Semitic languages they are only discursive diacritic elements added to the consonants when a word or a text is uttered or written. They represent the communicational syntax that comes from the communicational situation that imposes itself at various levels of depth into the human language over time (remember from at least 300,000 BCE), and this integration is the very basis on which the three articulations of human language and languages can be identified.

René Labat and Cuneiform Sumerian

I have to provide a simple note on René Labat's book. His *Liste des Signes* (List of signs) starts with one single horizontal left-to-right impression of the stylus as an opening mark for a complex glyph, and he then complicates this initial (on the left) mark by increasing the number to two, three, four, though he runs into some fuzzy ordering which does not seem to be hierarchical all the time (from simple to more complex) with what follows these opening marks. This is René Labat's classification. We do not know if this Cartesian presentation was in any way what the Sumerians, and later the Akkadians intended, or what the phylogeny of this language was able to produce. That approach provides René Labat with 475 signs. Then he shifts to a single vertical stylus impression, head upward, and that provides, by complexification of this opening vertical impression, the signs from 480 to 598e. But it is then not that clear in the long section of the "Syllabaire et Idéogrammes" (Syllabary and Ideograms) section, each double page of this section being vertically subdivided in parallel approaches, on the left page the "Évolution des Signes" (Evolution of the Signs) and on the right page the "Valeurs phonétiques et idéographiques des signes" (Phonetic and Ideographic Values of the Signs). Here are some visuals of the left and right pages, first the matrix of the left page and then that of the right page with the specifications necessary to identify all columns in both pages.

The left page, here page 40, is divided into five columns: I: the oldest (known of course by René Labat) form of the sign; II: Evolution of the sign in Classical Sumerian; III: Evolution of the sign in Akkadian. A-III α - β - γ -Evolution of the sign in Assyrian: (α) Old Assyrian, (β) Middle Assyrian, (γ) Neo Assyrian. B-IIIa-b-c-Evolution of the sign in Babylonian: (a) Old Babylonian, (b) Middle Babylonian, (c) Neo Babylonian. Now the right page.

¹ "In Part II of Discourse on Method (1637), Descartes offers the first and only published exposé of his method. [...] [T]he method described in Discourse II consists of only four rules: [...] The third, to direct my thoughts in an **orderly manner**, by **beginning with the simplest and most easily known objects** in order to **ascend** little by little, step by step, to knowledge of **the most complex**, and **by supposing some order** even among objects that have no natural order of precedence. [...]" in Dika, Tarek R., "Descartes' Method", The Stanford Encyclopedia of Philosophy (Spring 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.), <https://plato.stanford.edu/archives/spr2023/entries/descartes-method/>.

² I use "langue" with Saussure's meaning as opposed to "parole", a pair of concept often reduced today to "langue-discours" and in English the pair becomes "langue-discourse".

— 40 —				
— <u>Évolution des signes</u> —				
(Schéma des pages suivantes)				
I	II	III α)	III β)	III γ)
		III a)	III b)	III c)
↓	↓	↓	↓	↓
— 41 —				
— <u>Valeurs phonétiques et idéographiques des signes</u> —				
(Schéma des pages suivantes)				
I	II	III	IV	
↓	↓	↓	↓	↓

Figure 2. Specification of the columns of the section “Évolution des signes, Syllabaire et Idéogrammes” (Pages 39-247) of “Manuel d’Épigraphie akkadienne” by René Labat and Florence Malibran-Labat.

The right page, here page 41, is divided into four columns: I: The Sign; II: Phonetic Values of the Sign; III: Dates and Geographical Areas of each of these values; IV: Ideographic Values of the Sign.

To show the complexity of Labat’s work (Note the book is entirely, apart from the sections added to it by René Labat’s daughter, hand-written) let me give you the entry concerned by the first sign we are going to exemplify in a minute, and which is the sign Number ONE in René Labat’s book. To appreciate the value of this work, we need to understand all the abbreviations and all the references René Labat uses in his entries. It is not easy to work on this book because it does not have an index of the French meanings, hence we cannot search the book from this side of the research, the language of the reader (French in the case of René Labat). It has a list of all signs (pages 29-32), plus a list of Babylonian signs (pages 33-37), but with only the number of the signs (given by René Labat himself) in the main section of the book. Florence Malbran-Labat apparently (it is typed) added an alphabetical list of all the Sumerian words concerned in their Latin transcription, and this index only gives the number of the sign that is found at the end of the fourth column section of the word concerned, in the bottom right corner. In the example given below, the number of the sign is one. There are numbers in the second column of the right page, but they are not used in the index of Sumerian words. The fact that in the entry below the number in the second column of the right page is one is purely circumstantial.

[illegible][illegible]

Figure 3. First entry of the Manual with a single horizontal stylus impression.

Exploratory Note on Cuneiform Sumerian

Now we can consider the architecture of the cuneiform script. On the first right page (page 43) of this section, the first sign considered is the single horizontal stylus impression meaning “on” or “alone”, and we have to jump to page 213 to start considering the signs starting with vertical stylus impressions, the single vertical impression being the “unity”, i.e., “one” (flexibly expanded semantically). Just to show how this complexification is based on the sole stylus impressions (whole length or only the head), here below are a few cuneiform words in Sumerian. The word numbers are those given by Ren éLabat but Thompson’s initiative of numbering the Maya glyphs with an initial T for Thompson has not been used by Labat in Sumerian.

— “word” number 1, Phonetic /aš/, meaning “one”, “alone”.

“word” number 480, Phonetic /diš/, meaning “one”, “Determinative preceding proper names”, “Mark opening a paragraph or sentence”.



“word” number 570, Phonetic /šina/, meaning “two”, “postposed dual determinative”, “repetition sign”. Given by some as a short form for “father”.



“word” number 579, Phonetic /a:/, meaning “water”. Let’s consider this word that is central in Sumerian. The word is only transcribed as the vowel /a/ whose basic meaning is “water”. I would like to give this example of how the cuneiform writing system works. We must remember we are dealing with a civilization that developed in Mesopotamia, particularly in the very well-irrigated plains crossed by two rivers, the Tigris-Euphrates river system. Water is essential due to the climate. Water is also essential due to the fact we are well advanced in the thawing of the Ice Age’s ices and the water has already risen a lot, but the thawing is still going on and the water is still rising. In Mesopotamia managing water was essential and they invented and developed systems with dikes, dams, water canals, etc. A-water: “A” has the basic meaning “water”. As extensions of this meaning, it can also mean a watercourse or any kind of fluid. In particular, it can also mean “semen” or “seed”, and by extension of that, it can mean “offspring, child”, or even sometimes “father”. “A” is pronounced /a:/ (like



the first vowel in father), and it looks like this , the cuneiform sign for /a/ which is a Sumerogram, i.e., the use of a Sumerian cuneiform character or group of characters as an ideogram or logogram rather than a syllabogram in the graphic transcription of a language other than Sumerian, such as Akkadian (a Semitic language), Eblaite (another Semitic language from Northern Syria), or Hittite (an Indo-European language from Anatolia): the Sumerogram can cover any phonetic “word” in these languages meaning water or something connected with water, like for example in Akkadian the word “mu” for “water”. Let’s widen the categorial approach of the word A-water. Noun means water; watercourse, canal; seminal fluid; offspring; father; tears; flood. Interjection means alas! Preposition, locative suffix means where; in; when; and denotes movement towards or in favor of a person. Definite article, a nominalizing suffix for a noun or noun clause, denotes “the”. I am following the phrasing of my various sources. Linguistically I do not agree with this last remark. This suffix denotes that a noun or noun phrase is specified in definite extension, which would be rendered in English by the definite article “the”. As for this category, definite extension, Sumerian is more advanced than many other languages, including some Indo-European languages, that do not have definite or indefinite articles. However, the “definite article” has not yet been extracted from the noun itself and used in front of the noun. It is in the process of being extracted, which makes me think this language is a synthetic third-articulation language.



“word” listed at the very end of the entry of “word” number 579 by René Labat on page 239 but without any specification on the meaning. Check <https://glosbe.com/en/sux/father>, meaning: “father” with a phonetic value like /aiia/, the two phonetic sounds /a:/ are connected with a wet vowel /i/ therefore /j/ in the International Phonetic Alphabet, pronounced like the /y/ letter in “year”.

More About “Father” in Cuneiform Sumerian

A more generic word for “father” is possible.



“word” from <https://en.wiktionary.org/wiki/%F0%92%80%8A%F0%92%81%80>, means: “old person”, “witness”, “father”, “elder”, “official”, “an official”. I have noticed that Sumerian is rewritten “in

Handicapped by the Lack of Linguistic Phylogeny

A lot more could be said, but that is not Silvia Ferrara's approach. She does not give the fundamental linguistic elements that could help us to understand how writing was developed ALL OVER THE WORLD as a continuation of what Homo Sapiens had been doing in caves ALL OVER THE WORLD since at least 45,000 BCE, which reveals the conceptual and symbolic mind of Homo Sapiens, first of all developed in language (starting around at least 300,000 BCE), then in body decorations like beads (the oldest in Morocco are from 300,000 BCE)³, then, little by little expanding this symbolical, meaningful, and signifying practices into things that survived time, long before writing was developed from these symbolical activities. Neither discovered because it did not come along on some tree, or in some cave, nor really invented because without the language behind it, you cannot understand the transition between mental (for a long time) representations, then unsustainable representations on non-durable media (for a long time too) and finally the jump into the use of durable media to carry the representations Homo Sapiens finally entrusted to these media. These representations were the extensions of many and all different Homo Sapiens's mental, linguistic, probably vastly discussed and debated visual representations with some oral accompaniment like incantations, rites, rituals, songs of all sorts, and oration from those who had the skill and the authority to produce a formal oration on what was being represented. This is so obvious, and vastly studied by archaeologists and anthropologists, that I am surprised this is not studied, or explored by the author here.

I wanted to show in this case of Sumerian cuneiforms that the script itself may have its own architectural morphology and even phylogeny, but it all started from various "representations" of "referential objects" abstracted into a line, or form and then into a formal script that has little to do with the form of the referential items but has all to do with the oral word behind. There is a shift from representing the referential item to abstracting a script that is then only directly attached to the oral form corresponding to the referential item because the word existed even before writing it down came to the mind of the concerned people, which is why some civilizations never developed on their own a writing system, though they all had and have the proper and necessary oral words, and the concepts that reside in these words, to express themselves and the most abstract rules, poetry, literature, and technological or scientific reality they are living in. But that is going to be my next point. Yet it has to be clear that for me the book is essential because it contains many other themes that should create or inspire discussions and debates.

Writing: The Extension of Orality (Marshall McLuhan)

My general idea or even principle comes from Marshall McLuhan for whom any invention of any sort, all seen as material or mental media (and there probably is always a mental medium behind or under the material medium you can see or touch), is an extension of man himself. Language itself is an extension of some mutations in Homo Sapiens that were naturally selected to enable man to run bipedally fast and over long distances. The

³ "Waterlogged deposits at the archaeological site of Kalambo Falls, Zambia, dated by luminescence to at least 476 ± 23 kyr ago (ka), preserved two interlocking logs joined transversely by an intentionally cut notch. This construction has no known parallels in the African or Eurasian Palaeolithic. The earliest known wood artefact is a fragment of polished plank from the Acheulean site of Geshen Benot Ya'aqov, Israel, more than 780 ka (refs. 2, 3). Wooden tools for foraging and hunting appear 400 ka in Europe 4-8, China⁹ and possibly Africa¹⁰. At Kalambo we also recovered four wood tools from 390 ka to 324 ka, including a wedge, digging stick, cut log and notched branch." Barham, L., Duller, G. A. T., Candy, I., et al. Evidence for the earliest structural use of wood at least 476,000 years ago. *Nature* (2023). <https://doi.org/10.1038/s41586-023-06557-9>. Should we push the beginning of Homo Sapiens from 300,000 BCE to 475,000 BCE?

mutations have all to do with the larynx, the subglottal area, the articulatory apparatus, the sinuses, and the respiratory system (by the way the architecture of the foot was completely and irreversibly transformed, and this mutation has little to do with language). These mutations enabled Homo Sapiens to articulate four or more, eventually between six and ten, vowels without which language is not possible since consonants need vowels to be uttered, even the famous /schwa/ blank vowel as a default minimal vowel: an unstressed mid-central vowel (such as the usual sound of the first and last vowels of the English word *America*) represented by the symbol /ə/ (<https://www.merriam-webster.com/dictionary/schwa>). In the same way, these mutations enabled Homo Sapiens to articulate 20 or more consonants (without forgetting the clicks). And we have to add intonation that depends, for longer utterances, on a deep larynx and the breath that can fuel the production of such longer utterances. Like any child, or even infant, Homo Sapiens' newly developed physiological tools for his long distance bipedal fast running enabled Homo Sapiens to discover that he could diversify his vocal production and play with it, and these vocal collateral effects became tools, when not running, enabling him to play with his vocal production. Articulated language became a reality as soon as some individuals, in fact, most of them or all of them because a game, like all games, is catching, started playing with their new tools and discovered that the consonants can only be uttered with the help of vowels because they could only utter vowels alone or syllables and that they could rotate the vowels and the consonants to produce all sorts of syllables, words, compositions. For a linguist, consonants and vowels are basic elements, but for Homo Sapiens 300,000 years ago, playing with them vocally, what was most important was the syllable. Homo Sapiens had that in common with the various apes who have calls produced by associating consonantal and vocalic elements on the patterns CV, CVC, VCV, or VC, but a lot less than Homo Sapiens because they had fewer vowels and fewer consonants, and they did not and still do not dominate the rotation of them. In fact, we could say Homo Sapiens is the only language-developing mammal, and he is the only articulated-language-developing Hominin. And that would not have been possible if Homo Sapiens had not developed his mind which is the virtual part of the mental competence of Homo Sapiens, and this mind could not develop without language which could not develop without a few characteristics of the brain that, when implemented in coordination with language, produced the mind, a virtual reality dimension of Homo Sapiens and the very engine of his phylogeny as a species, after he had developed his bipedal, long-distance, fast running. That was the first stage on the road to abstraction and symbolicity, a long time before the envy to record anything on any durable medium could be born in this Human mind in full development.

Mind-Language: The Phylogenic Virtual Reality Engine of Homo Sapiens

We have to understand that writing is the extension of the hand that holds the stylus, pen, or keyboard; the extension of the eye that negotiates the movements of the hand to produce the glyphs; the extension of the ear since it transcribes some oral sounds, some oral language into some visual material glyphs. But that is only the end of the process that produces a writing system. I want to insist here on what comes before, what will eventually deliver writing, a writing system, and the glyphs of this writing system.

Man is a dominant visual being. Silvia Ferrara is right on this point. But she is wrong too because the fetus had been able to hear since the 24th week of the pregnancy, 16 weeks before delivery. Hearing enabled the fetus, the child-to-be, to record clusters of sounds in the language of the mother and the language of the people around her. We must keep in mind all Hominins before Homo Sapiens were more developed than the apes they inherited a lot from and among others their communication that was based on calls. Pre-Sapiens Hominins had developed their communication but certainly not to a Sapiens level. The mutations in Homo Sapiens we have already

mentioned were not there yet, maybe some slow and partial evolution, maybe a slightly deeper larynx, maybe changes in the articulatory and respiratory systems, but yet not as much as Homo Sapiens. None of these pre-Sapiens Hominins were long distance, fast, bipedal runners, none of them had Homo Sapiens' foot that mutated to be fit for this type of running. But they had a communication procedure and system partly based on calls, probably numerous calls with maybe a beginning of referential attachment to some items in the surrounding environment. If we jump a few thousand years and reach 295,000 BCE (and do not forget the recent discovery of worked-upon "beams" in Zambia that were dated around 475,000 BCE, which might justify the pushing-back of the big mutations to that a lot more distant date), Homo Sapiens was Homo Sapiens and the mutations we are speaking of had taken place, were taking place. He was able to produce a fair number of vowels (four to six, maybe eight with some variants on one or two vowels, opening and closing just like for the French sound /e/, /é, and /è), and a good number of consonants, probably more than a dozen and getting close to 20. Around the mother in those distant eras, a lot was being orally produced the fetus in his mother's womb could hear.

The fetus in the womb of his/her mother captured repetitive clusters of sounds and it was proved in Roubaix Maternity in the 1980s by doctors who recorded the intra-uterine reception of outside sounds and talking of pregnant mothers, and then checked during the hours following birth that the child was able to react to the names of brothers and sisters (eye reaction mainly). Since the mothers who volunteered for this experiment were Maghreban and they had many children, at least three or four, and their names had been recorded by the fetus. The fetus can also discriminate the direction from where the sounds come, from inside the mother, from outside, left right, front, and back, for the fetus of course. That will be very useful after birth, and there again, it is easy to check the child, the newborn can place what someone tells him or her by turning his/her head or eyes to the spatial source of the sounds, of the words. So, even before birth, the human child can discriminate clusters of sounds. Note this is not unique to human children or fetuses. Many other species have the ability to register and recognize some clusters of sounds, the names they have been given by their masters for example, the names of cows, the names of cats, and the names of dogs. That's where the extension of man (and not only man) starts. The point here is to know when the fetuses of the animals I have just mentioned can hear.

We can now consider the six stages between the initial more or less sonorous data bank of the fetus before the 24th week of his or her mother's pregnancy to the moment when the child can write down his first words, probably between five and seven.

Discriminating

To discriminate a cluster of sounds (before birth even) and to memorize them in the brain in what I would call Brain-Machine-Code, many animals can do that, at times smells (like dogs), sounds (like cats), ground vibrations (like many ground-bonded animals like snakes or lizards), and a combination of smells, sounds, and ground vibrations (like elephants and most wild animals of the vast cat family). I have seen a whole family of boars (parents and kids) scampering away from a path in the jungle in Sigiriya, Sri Lanka, when I was about a good 50 meters away. I was walking on the path and watching them. So, they could feel the vibrations in the ground, they could eventually hear my various noisy productions, and they could smell my hormones (and they did not smell the hormone of fear, otherwise the adult boars would have attacked to protect the kids because someone who smells like fear is someone who is going to attack: attacking is the best protection against what you fear). We must not forget we are mammals and members of the animal world, even if we have lost many of these sensory capabilities. It is exactly the same thing in the visual field, after birth of course. The newborn can

discriminate light and darkness, moving or motionless shapes, differences in colors (in the West white is at once set on top: the nurses and nurse's aides in the maternity, the white tiling of the floors and walls, or the white painting of the walls and ceilings in the same maternity). That is where we have to speak of the entoptic shapes and maybe sounds or sound clusters. These audio and sonorous "Gestalten" are in phase with some of them that are already present in the brain or body like the beating heart. Research on this point is rather advanced for entoptics in the visual field, but there should be some research on entoptics, that would no longer be optics but entsonics (rhythm, intervals, notes, clusters of notes, particularly three or four, clusters of sounds), a concept I copied (the meaning is not exactly the same) but not borrowed from Earsonics (<https://www.earsonics.com/>). And keep in mind all that is recorded in the brain in Brain Machine Code, visual or audio, that can come out naturally, one way, or the other.

Naming

That's when, 12 to 16 months after birth, the child who has been deeply surrounded by language and who has developed his discrimination that could go down to syllables, produces the first syllables of his own, syllables on the patterns of CV, or simply V (for emotions). His very first linguistic action will be to produce some words based on consonants that are associated with sucking the mother's teat or ending that sucking. The first movement of the lips produces the bilabial consonant /m/ and the second either the plosive consonant /p-b/ or the dental consonant /t-d/, or both, maybe not at the same time (teeth are necessary for dental consonants, though you can ask older people if they can pronounce dentals before they set their dentures in their mouths). And this is something very human: the child will at once attribute a cluster of sounds to a particular item in the environment: /ma/ or /mama/ for the "nurturing" person who is most often the mother or women in creches, /pa/ or /papa/, /dad/ or /dada/ for people slightly more distant in the child's environment. The child is realizing, making real, materializing his naming ability that he probably had been developing mentally for 12 to 16 months before he could utter his first words. My own son, who was in a crèche as soon as three months old, was using /mama/ for the nurturing women in the creche as well as for his mother. He learned very fast and accepted /lulu/ (a shortening of her name) for his mother. Thus, the Brain Machine Code is extended into articulated language and the names for each item encountered in the direct environment. That's one point on which the Bible has it nearly right:

Out of the ground the LORD God formed every beast of the field and every bird of the air and brought them to Adam to see what he would call them. And whatever Adam called each living creature, that was its name. So, Adam gave names to all cattle, to the birds of the air, and to every beast of the field. (Genesis 2:19-20 New King James Version)

We can note this Lord God did not provide Adam with language, though since he was created in God's own image, we can assume that God had language, but that's an assumption. Adam had the ability to create words to name everything. It is interesting to see that some of the sacred texts of at least three religions, Judaism, Christianity, and Islam do not state language was a gift from God, but state that language is a developing capability of man and soon enough woman.

Conceptualizing

That's the third stage on the road to writing. The oral language the infant and then the child develop from his/her environment and from the capabilities we have just described, will run into a simple problem. There is more than one item that can be called a dog. There is more than one item that can be called a rose, or even a red rose. It is not economical to give a name to every single separate individual item around. It is a lot easier to use

some deep learning and Homo Sapiens used such deep learning 300,000 years BCE to give one name to all things that look alike. The only approach I have read in this field is Vygotsky's *Thought and Language* which shows how a child, even before being able to speak, will systematically bring together objects that have one characteristic in common: to be just close at one time, or to have a particular color or shape, or being attached to a particular person or activity. At first, these complexes are just heaps of items, but very fast they get formal (shape color), personal (attached to the nurturer or the father), or functional (eating, drinking, "playing"). This leads to concepts. One word used for a whole set of items linked together because they look, or sound, alike is a way to conceptualize. A concept is a tag for various items that have one or several characteristics in common. All dogs will be dogs, even the species I have never seen yet, and I might take for something else if I met them. This function is fundamental because it expands the language and at the same time it expands the mind, not the brain which has the capacity to discriminate items in the environment, and then to discriminate what looks alike and bring them together, but no more. The mind goes beyond those piles of items and reaches the concept. The word "concept" is itself a concept and thus is autological or homological as opposed to words that would be heterological like "long" that is not long but short. I think we should have a whole spectrum between fully homological and fully heterological, all those words that are partly homological and partly heterological, with a varying proportion somewhere between 1% and 99%, one way or the other. You can check the Grelling-Nelson paradox to understand that thinking in "either-or" terms leads to unsolvable contradictions. "French" is not homological because it is not a French word but an English word. Someone who suddenly utters a whole mouthful of gross words (The most distressing symptom of Tourette syndrome is coprolalia, where foul or "dirty" words are used during normal speech. <https://www.empr.com/home/tools/patient-fact-sheets/tourette-syndrome-patient-information-fact-sheet/2/>) is going to excuse himself by saying "Sorry, please excuse my French." But all the swear words were perfectly English, and yet they are "French" for the swearing person. In this particular meaning of "French" as "vulgar", it is a perfectly homological word that designates vulgarity, and this "French" is vulgar. Think of President Bush wanting to rename French Fries Freedom Fries (keeping the FF initials though) to punish President Chirac for having vetoed the war in Iraq in the Security Council of the United Nations. "French" in English became homological as meaning "hostile from France" and hence having to be gotten rid of. To conclude this point, Silvia Ferrara does not understand or at least does not take into consideration this long process of mental activity that preceded by a very long margin the invention—sorry development—of writing.

Representing

We cannot know when Homo Sapiens started representing objects by drawing them realistically or reductively because, for a long period, they used non-durable media that got lost in time and decay. But representation on durable media started at least around 50,000 BCE and I will insist ALL OVER THE WORLD. Cave paintings, cave "scribbling", portable stones, bones, ivory tusks, etc., with representational drawings on them or non-representational markings, either geometric forms or simple series of notches to record we DO NOT KNOW WHAT (Think of the Inca ropes with knots: we know it was connected to some stories, records, memories, etc., but we cannot—yet—decipher these knots). It is not because we do not know what these markings represent that they do not represent anything. It is all the more pregnant when you consider the non-pictorially representational elements like dots, waves, lines of all types, geometric figures like circles, triangles, and squares, and even the handprints in all those caves and on all these rockfaces. They are there because an intention justified them in essence and justified them in this permanent recording that has come up to us in today's world. Every

item in these caves and on these rocks, portable or not, represents some “meaning” probably expressed orally at the time. The series of dots are—first hypothesis—counting something. This will survive this old period, and that’s why we can say these dots or other repetitive markings probably have to do with numbering, which proves, by the way, these very old Homo Sapiens knew how to count, though we do not know when they started counting, meaning giving names to numbers, or in linguistic terms, extracting numbered sets of items from the original compact plural, like quadrial, trial, dual, and finally unity: the discrimination of numbers has to be progressive. A series of dots at the top of one page in the *Codice Maya de Mexico* represents the number of days to count to reach the next page, meaning the next phase of Venus’ cycle. Here are pages 5 and 6.



Figure 5. *Codice Maya de Mexico*, pages 5 and 6.

At the top of page 5 (on the left), you have two horizontal bars in a bundle first, and then four dots. The dots are hierarchically higher in the Maya counting system and each one represents 20 at all levels beyond the first 20 basic elements, hence in this environment of this book, 20 days. Consequently, the four dots represent 80 days to which the two horizontal bars for five + five = ten more days in the bundle on the left. Note, by the way, the hierarchy goes up from left to right which is the reverse order when compared to our own writing of complex numbers: top hierarchical ranks come first on the left. From page five to page six you have to count 90 days, “the 90-day disappearance of Venus at superior conjunction.” (page 74). It took at least one century for Western scholars to be sure about the numerical system of the Mayas. And the Mayas are still alive and still speak their language(s). But their writing system was banned, and severely punished when used, by the Conquistadors: one of the worst cultural genocides ever performed by men of their own volition and decision.

In the same way, page 6 on the right has a length expressed by the same type of numeration at the top of the page: 12 dots, each for 20 days; hence 240 days to which we have to add the 10 days in the bundle on the left, hence a total of 250 days, the period during which Venus appears as the Evening Star after the superior conjunction. Of course, numbers have names in Maya, but the numbers are not Roman or Arabic numbers, they

are Maya numbers, horizontal bars, and dots with a hierarchy of vigesimal tiers from zero to eternity (or nearly for the Mayas). With this question of numeration, we reach the next stage leading to writing.

Symbolizing

The horizontal bars for every five days or simply five items being counted, and the use of dots for single days or any unit in any tiered hierarchical level for 20 of the lower units, is a numeration system and these elements properly used and understood are symbols of the numbers behind. One day is a “k’in”, T544 , in the lowest tier of the numeration. One is “jun” or “hun”, TI  or T329 .

And then there are numbers up to 20 which is “k’al”, T683a , not to be confused with zero, which is “mi” in Maya meaning empty, a very complex concept that has many different glyphic realizations. First Michael Coe and Mark Van Stone

(*Reading the Maya Glyphs*, 2001) give the following quartet: . The favorite glyph for zero in dating is the third one. But if we check John Montgomery’s *Dictionary of Maya Hieroglyphs*, we get three

glyphs: “mi”, T123 , T217v_a , T217v_b . The meaning is first of all within Maya conceptualization of “zero” as “empty”, which corresponds to what I said about 20, “k’al” that triggers the completion of a vigesimal group that is at once turned into one more unit in the immediately higher tier in the system, leaving the lowest tier empty. Visually the two stopping hands mean “completion” but both hands have double circular empty dots inside a circular cartridge on the right side of the hand as opposed to the thumb on the left side of the hand which is probably a right-hand’s back since one of these two glyphs shows the nails, but we could assume also one is the back of the hand and the other is the palm side of the hand. But these empty circles, or beads, or dots on the hands are a symbol of their having been cut off, hence amputated, hence in phase with the completion meaning because when you reach the 20th item in one level of numeration it triggers the upraising of one unit into the higher level leaving the lower level empty hence “mi”. The Mayas, instead of what some say, that they counted from zero to 19, actually counted from one to 20, and 20 triggered the emptying, hence the zeroing of the content of this particular lower level of the numeration. This triggering is very similar to our own Western decimal system but within a vigesimal system. Even today this role of 20, “k’al”, is not clear for scholars who have had at the very least 10 years of Western mathematics. This is the symbolizing level. Each one of these words becomes a symbol that can be used for many other things than just the referential items in front of our eyes. Then we may understand that the dot in Maya can be one day or “k’in”, or one “winal” (20 units, days, or whatever), or one “tun” (a solar year of 18 winals, 360 days), or one “k’atun” (20 tuns or 7,200 days). And then you go on with “bak’tun” (144,000 days), “piktun” (2,880,000 days), “kalabtun” (57,600,000 days), “kinchiltun” (1,152,000,000 days). That’s for time, but it is calculated on “tuns” that are only 18 “winals”. The pure mathematical calculation should work on tuns of 20 winals and subsequent vigesimal multiples. A symbol can be used for various different situations with various different meanings. And that is where we can shift from one word represented by this or that representational drawings, then simplified to become symbolical of the particular referential element behind them, hence the oral names of them, but these symbols being hieroglyphs or composite glyphs, or syllabary/alphabetical glyphs, what we in most languages call alphabetic writing, we have jumped from symbols to phonetic writing. There is no break in that continuous development.

No Phylogenic Break With Writing

Writing is the result of

DISCRIMINATE – NAME –
CONCEPTUALIZE – REPRESENT –
SYMBOLIZE – WRITE

Figure 6. The six mental stages of the emergence of writing in Homo Sapiens. The first three are the emergence of oral language. The second three are the emergence of writing, or the shift from oral to written language.

from left (anterior) to right (posterior), from top (hierarchically inferior) to bottom (hierarchically superior). This is true for a child learning his/her first language or languages (not so much for foreign languages) but this is only the psychogenetic vision of the acquisition of language by a child that reproduces the whole process of the development of language (the ability to produce oral articulated utterances) right through to writing (the ability to transcribe into some material representation on some medium of what could be uttered orally) as it happened in about 300,000 years. Writing is not a discovery because it was not found on a tree or in a cave, not even provided by God in Genesis. Writing is not an invention except if we take this “invention” to mean the development of a new extension of man from older extensions that phylogenetically preceded this “invention” of writing. It is easy to say invention, but it is false.

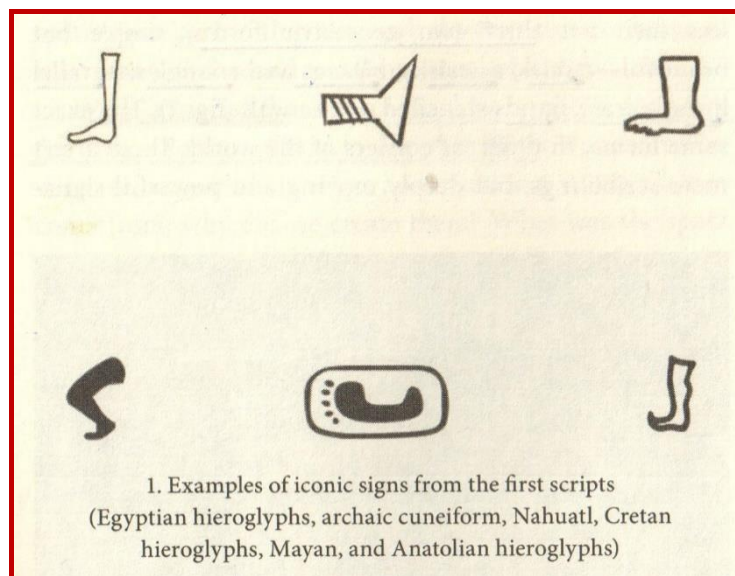


Figure 7. Six iconic signs representing a “leg” according to Silvia Ferrara with no specification of the oral “word,” nor of the meaning of these iconic signs. Note the feet of these legs except in archaic cuneiform – that does not look like a leg, or does it? – are oriented to the left, and this is not explained by Silvia Ferrara.

Silvia Ferrara gives on page 21 of her book, a diagram about the early stages of writing when what she calls icons were used to represent meaning. The six icons on this page are what she considers feet or legs. We could question the leg or foot seen in the archaic cuneiform icon. The others are legs or feet, in fact, four legs and one foot. However, she does not provide the words behind these icons in the six languages retained here, and she does not provide the meanings of these six icons. What’s more, her caption treats the first one separately under the noun “hieroglyphs” (by the way why the plural since there is only, one?), the next three together due to the

concatenation of the three under one noun “hieroglyphs”, and the last two together again under the noun “hieroglyphs”. It is surprising, since they are all “hieroglyphs”, that they are not all treated equally. It is surprising to bring together a Sumerian cuneiform hieroglyph, a Nahuatl hieroglyph, and a Cretan hieroglyph that cannot have anything in common, due to the spatial and temporal distances between them. It is just as much surprising to bring together the Mayan and Anatolian hieroglyphs for the very same reason as before. How can six writing systems that cannot have any relation among themselves come to the same icon, assuming that Silvia Ferrara implies they cover the same concept and the same meaning? Is that a case of entoptics? But the main question remains to know whether these six icons cover the same concept and the same meaning, no matter what the six oral words behind them might be. We have no way to check what she says because we do not know where to find these icons. It is impossible to find the “archaic cuneiform” icon she gives, in René Labat’s book. Without the Sumerian word, we cannot find the archaic form of it in cuneiform writing.

From Mayan Glyphic Syllabary Writing to the Inquisition’s Genocidal Autodafé

On the other hand, since these icons can only be traced by highly specialized readers, I only qualify for the Maya icon, which is a glyph I know visually. The image really is the icon of a foot seen as a metaphorical symbol in Mesoamerica of the road on which that foot can walk. The word is “b’e” T301  and T301v .

The foot is thus metaphorical, and it indicates the place where that foot can walk. b’e/B’E (b’e) (T301/T301v) 1> phonetic sign 2>noun “road” <> (John Montgomery) represents a human footprint on the surface of the road. (Peter Mathews) b’i/B’IH (b’i/b’ih) (Christophe Helmke) 1> b’i (b’i) b’i ~ syllabogram 2> b’i (b’i[h]) b’ih ~ noun “road”, “path” <> represents a human footprint on the surface of the road, a Mesoamerican convention for

denoting roads. But we have to move to another very close glyph. The word is “b’i” T585  b’i/B’I (b’i) (T585) 1> phonetic sign 2>noun “road” <> (John Montgomery), the “quincunx” glyph. (Peter Mathews) b’i/B’IH (b’i/b’ih) (Christophe Helmke) 1> b’i (b’i) b’i ~ syllabogram 2> b’i (b’i[h]) b’ih ~ noun “road”, “path” <> represents a human footprint on the surface of the road, a Mesoamerican convention for denoting roads. <> (Jacques Coulardeau) Christophe Helmke’s remark is not correct. The quincunx represents the four cardinal points plus the fifth direction in the center that goes down to Xibalba (the realm of the Death Lords) and up to Chaan (the sky, the realm of those who come out of Xibalba victorious, meaning those who have not been destroyed by the Death Lord during their compulsory passage through Xibalba after their death). It becomes metaphorical for the road because it is a symbol of moving around, like the sun, a symbol of traveling, etc.

The word for “foot” is completely different and Montgomery does not have a word for “leg”. If we consider

“foot” we get the glyph OCH/OK T765 or T765v   **UCH/OK** (*och/ok*) (T765) 1> intransitive verb “to enter” 2> noun “foot” <> (John Montgomery) represents an animal, probably a dog. From here we can get to

a positive vision of this “enter” notion with TA OCH-le{1} T102.765:188  **TA OCH-le-{1}** (*ta ochlel*) (T102.765:188) 1> prepositional phrase “at the foot of” 2> prepositional phrase, “at the enter-treeship”, “in enter-treeship”; general reference to “heir designation”. But a negative derivation leads us to OCH B’I T207v.585a



UCH B’I (*och b’i*) (T207v.585a) > verbal phrase “entered the road”; general “death” verb. We can note

the “b’i” extension in the form of the quincunx which is a reference to the cardinal points plus the central tree, but this quincunx is also the normal pilgrimage of a man from birth in the east like the sun, growth in the south like the sun, death in the west like the sun, descent into Xibalba to confront the Death Lords, victory and exit in the north, and then the possible ascent of the tree to reach Chaan. This concept of death coming from the one of

“foot”, “road”, and “enter”, makes it possible to have OCH B’I-ja T361:585a.181  **OCH B’I-ja** (*och b’i-aj*) (T361:585a.181) > passive verbal phrase “was entered the road”; general “death” verb. <> (Jacques Coulardeau) T181 “ja” is the passive element in the composite glyph (it can be a simple passive suffix, or it could be an autonomous passive element, we will not enter this discussion here). Note to the central position of the quincunx for the road, hence travel, is turned into enter by the prefix OCH that reinforces the quincunx. But we are dealing now with death.

Yet, the story is not finished. If we consider the action “to walk”, we remain within these glyphic references.

XAN-na T202ms[585]:23  **XAN-na** (*xan*) (T202ms[585]:23) 1 > intransitive verb “to go” 2> intransitive verb “to walk” 3> intransitive verb “to travel”. We can note the quincunx T585 B’I is embedded in the XAN T202ms glyph, thus adding the road to the simple movement verb XAN T202ms, plus the extension T23 “na” to reinforce and reassert the final “n” of the main glyph. This first expression of the notion “go-walk-travel” can be extended with a prefix to phonetically reassert the initial consonant of the main element XAN. Hence xa-XAN-

na T114.202ms[585]:23  **xa-XAN-na** (*xan*) (T114.202ms[585]:23) 1 > intransitive verb “to go” 2>

intransitive verb “to walk” 3> intransitive verb “to travel”. This extension itself has a meaning: xa T114  **xa/XA** (*xa*) (T114) 1 > phonetic sign 2> adverbial prefix “already” 3> adverbial prefix “again”; characterizes a verb as “happening again”, “happening already”. Hence the reinforcement is metaphorical here since you cannot die a second time. Our trip through this notion and its writing in syllabary glyphs mostly is not finished. The next two cases embed, the way we have already seen the quincunx B’I in the XAN glyph, but it can be actually read

as a prefix to XAN with B’IXAN-na T95[585]:23  **B’IXAN-na** (*b’ixan*) (T95[585]:23) 1 > incomplete irregular verb “to go” 2> incomplete irregular verb “to walk” 3> incomplete irregular verb “travel” 4> complete verb “went”. (**Christophe Helmke**) > **B’IX-na** (*b’ix[a]n*) b’ix-an~noun-verb. “to go”, “to travel”.

And the next one is just as clear: B’IXAN-ni-ya T95[585]:116:126  **B’IXAN-ni-ya** (*b’ixaniy*) (T95[585]:116:126) > complete irregular verb “went”. (**Christophe Helmke**) > **B’IX-ni-ya** (*b’ix[a]niiy*) b’ix-an-iiy~noun-verb-deictic “went...ago”, “traveled...ago”.

From Autodafé Destruction to Jun-Nal-Ye-like Resurrection

It is time to conclude on this point. If we enter details about the writing system of the Mayan language, we find out the representational glyphs may have survived as representational elements, with even some abstract representational elements embedded inside another. The script may neglect or specify these embedded elements, then the transcription may also neglect or specify these embedded elements, but only because the words already exist that way in the oral practice of the language. The simple transcription of the quincunx as “b’i” overlooks

the visual effect the quincunx itself as a visual glyph carries in its semantic references, be they paradigmatic or syntagmatic. Without stating the existence of the oral language as a fully developed language in its own phylogeny at the time of the development of the writing system, the writing system itself becomes in many ways senseless, meaningless, unmotivated, and then in many ways absurd. True enough the cultural genocide of the Spaniards who forced the Mayas to shift to Spanish, and the fact that the Mayas refused to abandon their languages and came to the compromise that they transcribed their glyphic writing system (they could only remember it after the books had been burned, remember it orally in their minds) into a more or less phonetic writing system based on the oral language itself. The language lost a lot of the embedded elements that were visible, visual then, and became invisible, hence died, except as paradigmatic memory. The paradigmatic dimension of the language lost a tremendous amount in its Latinized writing.

This emphasizes the fact we cannot explain the various writing systems in the world, and even the simple writing procedure, its target within the human emergence in the distant past if we do not follow the whole process from the very development of articulated oral language from the simple set of calls of apes, and some limited level of linguistic communication with pre-Sapiens hominins who did not have the larynx, articulatory, and respiratory systems that Homo Sapiens developed naturally through mutations naturally selected for the fast bipedal long-distance running Homo Sapiens developed when he shifted from the forest to the savanna. The mutations of the foot and the various necessary mutations for his particular running contained in themselves the potential collateral development of language and, at least nearly 300,000 years after the beginning of the development of articulated human language, the development of writing for most human communities and languages. The migrations out of Black Africa are actually following the timeline of the phylogeny of human articulated language. As I said, writing is neither a discovery nor an invention. It is a development, and as such it is an extension of human articulated oral language to shift from oral to written, from *in praesentia* to *in absentia*, and from direct conversation to indirect communication. That definitely is a revolution in the history of the human species, but it is in no way a complete break from the oral past. It is its continuing development and its extension from orality to durable media which will become virtual, digital, and yet still just as real as recorded oral language and language written down in some scripts on some durable material media.

Silvia Ferrara's Six Cradles

Those are for me the main questions challenging Silvia Ferrara. Just very fast, let me mention the “six cradles across the globe” (Silvia Ferrara, 2022, p. 85) of the writing ability, but by linking writing to the bureaucracy of a state she misses the phylogeny of writing: it becomes, including in the timeline, an “invention” with no antecedents. In fact, we have to wonder if the development of language from oral communication to written mnemonic and communicational forms justifying/requiring/generating vaster communities, sedentarism, hence a new social organization and new architecture for their more permanent living quarters, is not one essential cause of the emergence of empires, hence states, hence massive architectural structures, and whether the development of oral language into written language is not dialectically connected to the evolution of human society from migratory to sedentary practices. Maybe the “bureaucracy” [a term that is definitely out of context between the peak of the Ice Age and the Christian Era: it sounds like a transfer from today to that past directly drawn from the language of some left-leaning party supporter] of these new entities requires some kind of recording system (which can be purely oral, hence using memory, like with the Mali Empire's “constitution” in the 13th century, check the Kurukan Fuga Manden Charter, registered at UNESCO, 1235, <https://ich.unesco.org/en/RL/manden->

charter-proclaimed-in-kurukan-fuga-00290 that was reconstituted from memory at the end of the 20th century, hence seven centuries later).

Here are the six cradles of the “writing invention(s)”.

1. Mesoamerica in the Oaxaca Valley and at the site of Monte Alban 300-100 BCE.
2. Peru, Gallinazo Culture, early centuries of the first millennium CE.
3. Egypt, the Naqada period I and II, midpoint of the fourth millennium BCE.
4. Mesopotamia in Uruk or modern-day Iraq, midpoint of the fourth millennium BCE.
5. The Indus Valley, the Harappa Culture, 3200-2600 BCE.
6. Central China at Erlitou in the Henan Region along the Yellow River, 1800-1500 BCE.

The non-chronological order of the sites is mostly unjustified since the six cradles are supposed to have had no connections among themselves due to the distance between any two sites, and the general self-centered functioning of the various sites. Then the ordering is not neutral, it is in a way ideological but not clear as for the ideology concerned here. Why start with Mesoamerica and Peru (South America)? They sound late in the process but when did human communities arrive in these South- and Meso-Americas? Where were they coming from, from what culture? The emerging idea today is that they came from Southeast Asia and the South Pacific around 30,000 BCE. What heritage did they carry in their mental and mnemonic bags? On the other hand, I don't see how the Egyptians and the Sumerians are seen as separate cradles when we know the extremely active role of the Phoenicians in the Mediterranean Sea, with Egypt and the whole Middle East that was their background if not their back base even before writing developed in Egypt or Mesopotamia. The Phoenicians were to be the continuators of the writing practices of the Egyptians, and why not the Sumerians, or the cuneiform writing system vastly in the hands of the Semitic (like Egyptians and Phoenicians) Akkadians who were the scribes of the Sumerians? The Phoenicians were to invent the first real alphabet, except it was consonantal, hence Semitic, apart from the first “ālep” vowel only written at the initial of a word. “The Phoenician alphabet developed from the Proto-Canaanite alphabet, during the 15th century BCE. Before then the Phoenicians wrote with a cuneiform script. The earliest known inscriptions in the Phoenician alphabet come from Byblos and date back to 1000 BCE.”⁴ The Greeks will later add the other vowels, and it is interesting to remember that Sumerian had four vowels that were actually written since they all could be individual words. The last two, the Indus Valley and China's Yellow River are not really studied or presented in any detail, and what's more Asia (Siberia and Southeast Asia) is central for all the migrations in the South Pacific as far as South America (Southeast Asia), and the migrations from Asia to North America (Siberia). Once again what heritage did these populations carry in their backpacks? And the big mystery of the Denisovans who are pre-Sapiens (what and who are they exactly? What were their representational and symbolic activities, and first of all their communicational method, including language?) and other archaeologically recently discovered pre-Sapiens or Sapiens (?) hominin individuals in Asia? It's probably too early to answer these problematic questions, but reducing everything to six cradles sounds very restrictive.

Sketchy Use of the Johari Window

The use of the Johari window, on page 221 and subsequent pages, is interesting but extremely reductive. Everything is down to four quadrants. Let's start with these quadrant presentations.

⁴ <https://www.omniglot.com/writing/phoenician.htm#:~:text=The%20Phoenician%20alphabet%20developed%20from,date%20back%20to%201000%20BC.>

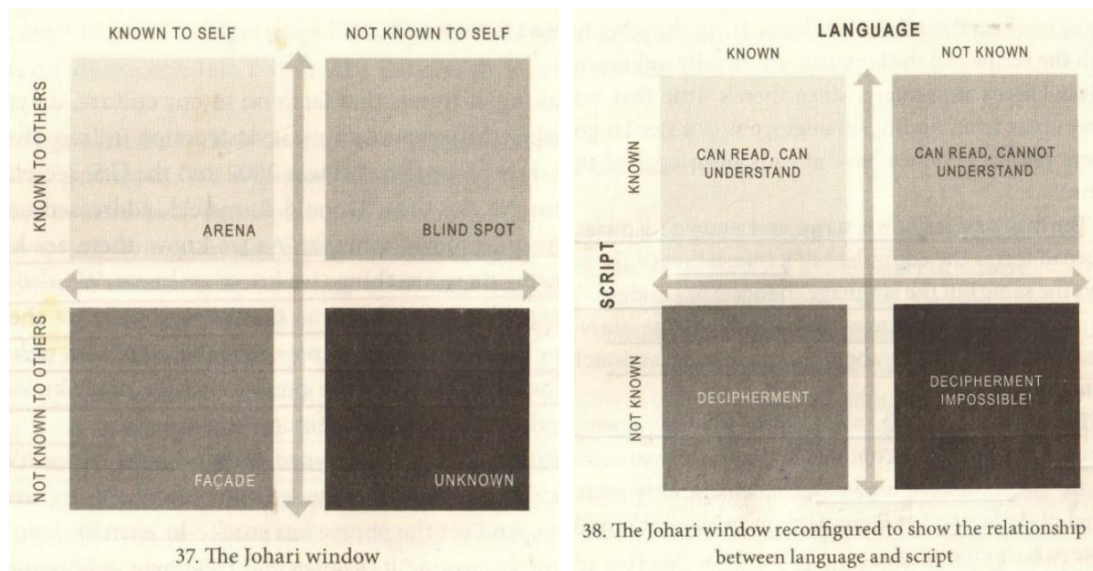


Figure 8. The Johari Window as used by Silvia Ferrara (Silvia Ferrara, 2022, page 221).

The first graph states that there are only two sides, “SELF” and “OTHERS” but also that these “OTHERS” are all identical, similar, and homogeneous, which is a fable. As soon as you consider a plural collective identity, at least in languages and communication, you have to assume that these “OTHERS” are multiple, and, as I am going to show, then, the Johari window opens on a kaleidoscopic reality. But, in the second graph, I understand that with ONE anthropologist (of any qualification) confronted with one undeciphered script of what we assume is an unknown language, we can reduce the Johari window to myself only confronted to a dual reality, SCRIPT versus LANGUAGE. But this reduction is dangerous because the confrontation of a person, any person this time, any tourist in a foreign country, or any French-speaking native in France versus the multifarious population of some areas like Department 93 or the neighborhoods or districts in Marseilles-North, or so many other places of the type, this French-speaking native will be confronted to scripts and languages he does not know how to read, write, or speak, and scripts or languages he does not understand, at times in the least. A Chinese or Vietnamese tourist in Sri Lanka will be confronted with two official languages on all signs, Sinhala and Tamil that have different scripts, and on some signs, he might have some English inscriptions in the Latin alphabet. He might also discover that the language known as Pāli used by Buddhists in their publications, sacred texts, and preaching or rituals, does not have a script of its own and you can find the Dhammapada in various scripts according to the country where you are, though it is always the same Pali text. The Latin alphabet is only used for international circulation or like in Vietnam, in countries where the Latin alphabet has been adopted. If we widen the approach to let’s say two people confronted with one script and one language, we have not four options but 16 options with ME as the person who is focused on, and X as the only counterpart or interlocutor, but with L for language that can be positive or negative, known or unknown, and S for Script that can be positive or negative, known or unknown.

Imagine an anthropologist and a linguist together looking at an undeciphered script of an unknown language brought up by archaeology with a precise area where it once flourished and a period in which it did exist. The linguist and the anthropologists are going to react differently to this set of data. Think of an opera aficionado watching a performance of a Russian opera in Moscow’s Bolshoi with Russian Cyrillic sub- or over-titles. If he does not know Russian and if he does not know the Cyrillic alphabet, he might be at a loss, but he won’t because

he is an aficionado who studied this opera before going to the performance, with a translation—along with the Russian original in Cyrillic and Latin (or any other) alphabet—in the language he generally speaks or uses in everyday life. He will then be able to follow absolutely all the words, understand the general meaning due to the translation he used before the show, and yet he does not speak or read Russian, and he is lost in the street just to get his way to let's say the Red Square (though Moscow may have some signs in some non-Cyrillic writing or non-Slav language). Of course, Silvia Ferrara is reducing her interest to an undeciphered script, of an old and dead language she cannot identify except with the geographical location where it was found and the time period when it was used. That's a very small share of the general problem. Here is the presentation of the general situation for two people, ME and X, for both Script (S) and Language (L) and know or unknown (+ or -).

	ME	ME know Language ME know Script	ME NOT know Lang. ME know Script	ME know Language ME NOT know Script	ME NOT know Lang. ME NOT know Script
X					
X know Language		+ L + S	- L + S	+ L - S	- L - S
X know Script		+ L + S	+ L + S	+ L + S	+ L + S
X NOT know Lang.		+ L + S	- L + S	+ L - S	- L - S
X know Script		- L + S	- L + S	- L + S	- L + S
X know Language		+ L + S	- L + S	+ L - S	- L - S
X NOT know Script		+ L - S	+ L - S	+ L - S	+ L - S
X NOT know Lang.		+ L + S	- L + S	+ L - S	- L - S
X NOT know Script		- L - S	- L - S	- L - S	- L - S

Figure 9. All possible situations of two people, the minimum composition of a team in teamwork, confronted to a language and its script: sixteen possible cases.

But imagine you are in a situation where you are confronted by two (X and Y) or more people right in front of the script (S) of any language (L). From 16 possible options you just jump to an exponential curve getting to millions when you just reach five or six people, all different, for example in Silvia Ferrara's approach, an anthropologist, an archaeologist, a linguist (from which or what school or obedience?), a probabilities specialist, and Deep Learning Artificial Intelligence deciphering and translating devices. What about politicians from the country concerned who might make the deciphering of this ancestral language of their country a political or cultural objective? Just let me give you a schematic vision of what it becomes for three people, ME, X, and Y.

Two "people" ME & X 16 options	Three "people" ME & X & Y, etc. Exponential options
ME Language + or - MY Script + or -	ME Language + or - MY Script + or -
X Language + or - X Script + or -	X Language + or - X Script + or -
	Y Language + or - Y Script + or -
+/- L +/- S +/- L +/- S	+/- L +/- S +/- L +/- S +/- L +/- S

Figure 10. As soon as the team grows beyond two the situations are growing exponentially: Basic sketch for three people. The solutions should be sixty-four. This leads to chaotic situations and conformity phenomena.

Exponential is a euphemism. The visual approach of Silvia Ferrara in Figure 38 is at least reductive, if not unrealistic. The general public, and particularly the public educated in the field, deserves a more diversified approach. Imagine “Y” is a linguist, and at once a question arises: is he a structuralist, a psychomechanician, an applied psycholinguist, a transformational grammarian, or a transformational semantician? There are so many other possible approaches for me, in this field that you have to be, on top of your theoretical affiliation, a phylogenetic linguist. But what does this option mean and imply? The first principle of a phylogeneticist in linguistics is that any state of a language is the result of the development of previous states that cannot be reconstructed by some retrospective backward movement but has to be approached from the situations and time periods concerned, thus trying to deduce from what we know about general linguistic phylogeny from before articulated language to articulated language, and what is articulated language, and how do the three articulations articulate themselves onto one and after one another? We can get answers to these questions by observing how a child learns his/her first language or first languages, from before birth to let’s say age six or seven. We have to confront children from different linguistic backgrounds because there is no reason for a Chinese child to learn his first language exactly the same way as a Maya child, even if we consider (and this is essential) that the Maya kid’s people have been culturally genocided at the level of their languages. But language is first of all oral and there, the genocide has been a lot less ferocious than at the level of the writing of the language (banned) and the material written artifacts (burned).

What Does Jack Nicholson Step on This Medusa-Like Raft for?

The reference to Jack Nicholson in the film “Five Easy Pieces” is purely rhetorical because, first we are not dealing with music, but with undeciphered scripts that have no known oral dimension, and because Silvia Ferrara adds a sixth step, and is it a sixth easy piece? But let me quote the steps.

Step 1. Inventory of signs.

Step 2. Positional frequency of signs.

Step 3. Grammatical patterns.

Step 4. Typological concatenations (“network analysis”).

Step 5. Common factors with other related scripts.

[Step 6]. For our sixth piece [the cinematographic and musical metaphor again, this time freely extended beyond the meaning in the film], we attempt to apply phonetic values (Silvia Ferrara, 2022, pp. 239-246).

These steps, and particularly the sixth one, are, and is, in contradiction with what she has been repeating over and over again that a script has no reason to be connected with the language it transcribes. Yes, a script does have plenty of reasons because the various signs in the script have sooner or later to be “transcribed” into phonetic values, morphological and syntactic values, and semantic values, the three elements being directly dependent on the language they are materialized in. The script is the transcription of the language behind it. The script, as Marshall McLuhan might say, is the extension of the oral language it transcribes. At times, and this moment is one of them, I feel Silvia Ferrara is spitting in the fountain she has to drink from sooner or later. And her sixth step is one of these moments when she needs to drink from this phylogenetic fountain.

To conclude these remarks, I would like to quote the 10 commandments of the deciphering anthropologist (Silvia Ferrara, 2022, pp. 235-236). I may comment along the way in square brackets.

Ferrara’s Conforming Non-Phylogenetic Decalogue

“1. Don’t mistake language for script.” [But don’t forget the script is the phylogenetic extension of the language.]

“2. Don’t fall for false similarities.” [Being alike does not mean being related: the connection has to be phylogenetic and there must be a route from one to the other or vice versa.]

“3. Don’t jump to conclusions.” [Note here she makes the “confirm/conform” mistake again and uses “confirmation” (meaning: Professor X confirmed my hypothesis in spite of the desire of many not to.) instead of “conformation” (meaning: The young greenhorn Ph.D. graduate has tried to conform to what his department mainly thinks, though he could not accept the betrayal of his own ideas this conformation would mean.)]

“4. It is not enough to simply ‘read’ the signs. ‘Deciphering’ means reconstructing the underlying linguistic structure, the grammar hidden beneath the script.” [I couldn’t agree more and that means the script is the surface that extends the deeper reality of the language, its morphology, its grammar, its semantics, etc.]

“5. Follow nothing but the rigor of your methodology.” [Do NOT CONFORM but look for CONFIRMATION of your approach.]

“6. Don’t exaggerate the possibilities.”

“7. Don’t put forward arcane or out-of-contact theories.” [That is unluckily the specialty of Deep Learning and Generative Artificial Intelligence.]

“8. Don’t go looking to become a lone hero.” [But believe in yourself because many will try to make you THE LONE ZERO.]

“9. Don’t throw yourself into impossible missions.” [This is not brilliant. Jesus Christ did throw himself into an impossible mission and it cost him his life, but he became THE LONE HERO for his followers.]

“10. Don’t get me involved.” [Unluckily for her, she is involved from the very first moment she dreamed of writing and publishing this book. The book is her involvement and anyone who reads it has the right to get her involved, even if she locks herself up in her campus ivory tower. By the way, this 10th commandment is the perfect CONFORMATION to the university spirit of living in a protected world separate from the real world OUTSIDE. In June 1974, at the end of the university year, before leaving California to go back to France one week later, I was approached by a journalist from the local paper of Davis, California, where I had been teaching for 12 months or so at UCD, and he asked me: “So, what do you think of Davis?” I answered: “It is fine and even the best for research because we are living like in a ghetto protected from the outside world.” Some found the humor a little bit dark.

Utopian Dystopian Non-Phylogenic Perspective

Silvia Ferrara sees the future in the colors, in fact, a black-and-white vision, of Ray Kurzweil, the icon of transhumanistic America. “The brain-computer interface will be complete” in a hundred years, “if we are not completely extinct by then (which is highly probable).” (Silvia Ferrara, 2022, p. 275). At least, Ray Kurzweil predicts the Singularity for 2050 and certainly not—or at least, he does not commit himself to the point—the extinction of the human species (and certainly not the racist “race”). And let’s get some echoes of the delirium of this end.

synthetic telepathy... Words ... will nearly all be lost, given that languages—the seven thousand languages in the world today, and all their immense vocabularies—will die out: English, Spanish, and Mandarin, along with a few mash-ups between them (see Spanglish) will likely be the only languages spoken in the world. (Silvia Ferrara, 2022, p. 276)

This delirium is engulfed into a rhetorical movement that is absurd: “Emotions are as old as the Earth, the most essential part of our human existence.” I did not know the Earth had emotions, and these human emotions existed

with humanity as soon as the Earth appeared in the cosmos. The human species is definitely a very old species, 4.543 billion years old (American Museum of Natural History, <https://www.amnh.org/exhibitions/darwin/the-world-before-darwin/how-old-is-earth#:~:text=Today%2C%20we%20know%20from%20radiometric,about%204.5%20billion%20years%20old>).

We sure have done better than Methusalem and his miserable 969 years, a threesome of some anthropo-genetico-linguistic type, where utopia meets dystopia as if dystopia was where utopia goes to die in some apocalyptic singularity.

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