Emblematic techniques as textual strategies in non-linear and linear scripts

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Abstract. Linearity presupposes one-dimensional order in the layout of signs, while emblematic composition refers to a non-linear encoding of information (also linguistic content). Early stages of writing show emblematic arrangement of figurative signs, such the Aztec writing as focused in this paper; while linear order of characters typically emerges with non-figurative units. Yet, since non-linear or emblematic representation of content is primary in textualization practices of any script, the story of writing repeatedly testifies the emergence of multi-linear textual structures, not only in Medieval western manuscripts but also in modern practices of textualization.

1. Introduction. Non-Linear Written Texts Between Typologies and Continua

In empirical research on written communication practices, we are often faced with distinctive features of scripts and (more important) of single graphic artifacts which are problematic to fit in standard writing typologies. The latter are, almost systematically, grounded on the structural (i.e., analytic and, ultimately, glottic) principle according to which writing represents abstract language units such as morphemes, syllables or phonemes using *sequential* and (*uni*)*linear* sets of graphic characters as visual signifiers—even though this overall typological pattern can be adequately refined.

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Indeed, it is astonishing that—contrary to what happened for vocaloral language typology, basically left unchanged for a couple of centuries—as far as writing is concerned dozens of classifications have been suggested by scholars in the last seventy years or so from Diringer and Gelb works—in an endless effort to draw specific (and supposedly discrete, i.e., mutually exclusive) classes, emerging from a small set of unquestionable features.

In order to see why no "arborescent typology" can evade simplification of categories based on unique principles (Klinkenberg and Polis, 2018, p. 93), and before devising an alternative model to deal with internal structure of specific *written texts*—rather than abstract systems or scripts—suffice here to comment on a recent "arborescent" scheme as revised by Fedorova (2021, p. 811).



FIGURE 1

In the scheme, another dichotomic feature is added to the usual glottic criterion, this time *not* intrinsically glottic: non-linear *vs* linear arrangement of characters/units and paths of visual ordering. Graphic linearity, in other words, is to be seen as logically independent from *verbal* and *vocal* linearity of reading practices: as Louis Hjelmslev stated over seventy years ago (1973 [1947]), any chain of a linguistic text-as-a-

process is best represented, inasmuch is seen as abstract form, by a horizontal line; however, the latter can be elicited from substantial graphic structures which are differently manifested in visual *medium*. In short, a non-linear arrangement of written units can (and should) always been somehow *linearized* through reading.

By adding this specific feature, therefore, it is possible to include also in the tree (see e.g., the highlighted items, among other scripts, in the scheme above): 1. writing systems traditionally labelled as semasiography, ideography or pictography—aptly and synthetically re-labelled by Fedorova as *emblematic scripts*, and often excluded from the domain of full writing; 2. a couple of phonetic glottic scripts (indeed two alphabetic systems, one recently invented, the other historical) which are unique cases of non-linear patterning in this class (Pahawh Hmong, and Hangul), while we find similar violations also among syllabic abugidas (Fedorova, 2012, 2021).

According to our view, however, when written texts as products and processes of textualization-the planar and stable articulation of units in the visual surface of a written artefact—are concerned, we are dealing with specific procedures of framing which are *unaccountable* through standard typologies of systems-as-codes. This argument, indeed, would not sound so strange, thinking that any theory of translation-and of course, written artifacts are just the endpoint of a special kind of intersubstantial translation process-will not concern anything but texts (in their respective roles of source and target). Then, in order to assess the semiotic nature of written text we should dismiss discrete typological models and resort to a couple of interwoven continua arranged in a mapping pattern and *not* dependent as such to verbal language—we called them graphic-figurative and graphic-structural (cf. Fig. 2): both are essential features of written textualization procedures of all sorts-since, again, they do not concern writing systems as such, but written texts as a specific subset of visual text.

In the following sections we shall see that *topologically encoded graphic space* in any non-linear arrangement of lager units had a constant role in the story of writing, while the non-linear trend at the level of single characters-units (which has been named *entaxis* by Vaillant, 1999) is less widespread as far as non-iconic or, more generally, non-figurative scripts are concerned; furthermore, it almost disappears in different segmental developments of phonography.

It should be taken into account, from a semiotic point of view, that any iconic representation is (at least) bidimensional; and even that in some pictographic texts there could be a "coded" third dimension: namely, the "sequence" of visual layers or superposed *plateaus* obtained by relative dimensional contrasts on the inscribed surface.

From an evolutive and diachronic perspective, nevertheless, we can assume that the general trend of transition to phonetic writing-



together with a widespread generalization of linear paths—did not necessarily meant a total dismissal in the use of pictorial images. Figurative characters continued to be at the basis of developed writing systems for a long period of time (for example in Old Egyptian, or Chinese), and only over centuries in the practice of rapid writing was progressively replaced by what is commonly called a *linear sign* showing a linear (chrono-)syntax, i.e., a sequential-segmental arrangement of written units in the external space of each character—the visual space of written text. A written unit of notation, we could therefore say, becomes *topologically linear* when it acquires a *fixed orientation* in a given sequence, *mapping* the temporality of speech; however, even in Phoenician writing, letters can sometimes unfold in different directions.

A parallel can be seen in the development of writing practice and in the development of speech: as Vygotsky noted many years ago (Vygotsky, 1982 [1934]), there is a stage in the development of intelligence preceding speech, and there is a stage of vocal articulation in the development of speech preceding intelligence; both abilities (mental and vocal) are combined at later stages of ontogenesis in the formation of "visual thinking" (the general technique of visual representation of information), on the one hand, and the development of graphic-figurative forms, on the other, gave rise to linguistic writing. In their combination, the "grammar of pictography" gives way to a more flexible "grammar of language," which is more capable of expressing through tense, modalities and other categories the dynamics of thinking. Nevertheless, as far as marginal spheres (vocal abilities and thinking) both remain in the development of language, the sphere of visual two-dimensional representation of information (in diagrams, maps, tables) and the sphere of figurative representation similarly remain in the development of writing.

The purpose of this paper is to sketch in which ways the principle of non-linearity, or "emblematic principle" in two- (or three-)dimentional framing of written space emerge in texts of different eras and cultures; in disparate ways, indeed, those written artefacts violate linear glottic order, but reveal their own methods of organizing information while providing appropriate visual arrangement to coded characters-units.

Section 2 deals with some cases of "internal" non-linearity in the coding of written units of some systems still in use, and with effects such a violation of a classical typographic rule—that of linear typesetting—had for the overall digital project of the Unicode standard.

Sections 3 and 4 are consecrated to a deeper exploration of Aztec writing techniques, from arrangement of glyphs in emblems (§3) to the framed non-linear syntax corresponding to an entire text (§4).

Section 5 will suggest that even in European medieval and modern written tradition we can find brilliant cases of non-linearity in texts, at different layers of structure and complexity—but basically in the arrangements of external space between written units, often organized around figurative or diagrammatically complex principles.

Finally, section 6 will summarize our argument with some concluding remarks.

2. Non-Linearity in Writing Units, and *Entaxis*: Cases and Consequences for the Unicode Standard

When non-linear matching between *written units* and speech is consequence of character's *entaxis*—i.e., of the arrangement of graphic traits internal to a given unit in a writing system (cfr. Vaillant, 1999, pp. 260-61)—we are always dealing with "traditional" but *coded* rules for composing and/or connecting characters of specific scripts. A well-known case is Devanagari, showing special ligatures of signs-characters in cursive script (cf. Fedorova, 2021, p. 819). As Fedorova suggested, in those cases "the reading of components in well-defined order" it is always allowed, and "the enigmatic nature of emblem [i.e., non-linear arrangement] can be perceived only through distorted visual proportion of elements that make reading difficult to non-accustomed readers". However, those rules are often (but not always, nor completely as we shall see) processable in contemporary digital typographic standards. Then simple, isolated glyphs of Devanagari are coded in Unicode with a single code—as abstract *graphemes*, we would say, if the term could really be

defined cross-grapholinguistically (cf. Meletis, 2022), to which we can raise some doubts; but they change their shape in visualization when connected to others units, according to ligature or relative position in the space around the *akshara* as prescribed—i.e., according to the way letters-characters are joined tighter in script flow. While in Devanagari this "joining" does not always follow a strict glottic or segmental rule-appealing to a prejudicial postulate, indeed, someone would even call these script rules for cursive "(il-)logic"—as we have said before any "graphic" arrangement is uniquely coded in the system; it could, then, be managed by Unicode software, through a display engine. In Fig. 3 (from Cimarosti 2005, p. 92) we can see the "steps" followed by this display engine to give a correct final visualization of the Hindi written word *trimurti* 'trinity': the occurrence of the diacritical 094D allows the formation of consonantal nexuses such as and <rt>, and the last step *re-organizes* glyphs according to the graphic rules of cursive Devanagari writing (with glyph for [i] joined to the left side of syllable it ends as a nucleus: <i-tr> for /tri/, <i-(r)t> for /rti/.

त	र	f	मू	र	त	f
0924 094	D 0930	093F	092E 0942	0930 0940	0924	093F
त	1	f	मू	C	त	f
t	+r	+i	m +ū	r+	t	+i
	त्र	f	म्	ſ	त	f
	tr	+i	m +ū	r+	t	+i
f	ेत्र		म	f	त	C
+i	i tr		m +ū	+i	t	r+
त्रिम्	ार्ति			15 Ja		

FIGURE 3

However, when rules for composing syllabic blocks are not intuitively grasped by a writer/user nor formalizable through specific algorithms—as it happens for Korean Hangul—the Unicode consortium solves the puzzling situation in a paradoxical way (cf. Perri, 2007). In the Unicode Standard 14.0 (Unicode Consortium, 2021, p. 141):

The Unicode Standard contains both a large set of precomposed modern Hangul syllables and a set of conjoining Hangul jamo, which can be used to encode archaic Korean syllable blocks as well as modern Korean syllable blocks. This section describes how to – Determine the canonical decomposition of precomposed Hangul syllables. – Compose jamo characters into precomposed Hangul syllables. – Algorithmically determine the names of precomposed Hangul syllables.

The paradox we alluded to is the "double coding" of each syllabic block of Hangul, e.g., the simple syllable /a/ displayed in Fig. 4—both as a precomposed basic unit, or as competent intentional composition, by an expert user, of two individual jamo characters. However, the *quantitative effect* in terms of number of glyphs-units coded is astonishing, since we are dealing with a "special" alphabet. Modern Korean allows the occurrence of 19 consonants as syllable onset, 21 vocals and 27 consonants as a coda, thus combining in 399 blocks of two characters and 10.773 of three characters each: thus, the total amount of 11.172 syllables (a figure confirmed by modern grammars) has its specific code in the Unicode standard.



FIGURE 4

3. Aztec Linguistic Emblems: Arrangement of Glyphs

First, we will briefly introduce Aztec writing, together with the logic to write place-names and proper names of historical individuals—the only parts of this script so far acknowledged as writing in the traditional or glottic sense (cf. also Fedorova, 2009).

The readable composition of pictorial glyphs in the function of such nominations is called *linguistic emblem* (term introduced in Fedorova 2009). The linguistic emblem usually combines two or three signs, the order of reading is not determined, and the image can vary a little due to ingenuity of the writer, so that some glyphs have no phonetic correspondence in the nomination, while some phonetic fragments (mostly suffixes) have no visual representation. The "text" of a pictorial codex can be interpreted or reconstructed according to certain rules of arrangement of components, symbolic or linguistic emblems, in the "written" space, for different genres (e.g., in case of a narrative, the emblem of main(s) event(s) placed in the centre of textual space, while marks of years at the margin). Such frame disposition, corresponding to the content of an oral text, can be treated as a *textogram*—to use Dyakonov's term (1976).

A *textogram* combines then the iconicity of images and their positional function in a pluri-dimensional but meaningful space differently structured by a *toposyntax*, in the sense of Klinkenberg and Polis (2018, pp. 65–66), according to whom it «makes use of spatial dimensions» so that «values of order and succession make way for values of simultaneity».

Therefore the pictorial textogram includes symbolic and linguistic emblems: the former having only pictorial value, the latter understandable as readable glyphic compositions. Symbolic emblems can have nevertheless correspondence to the language units specific for the Aztec culture: to so called "binoms" (Spanish nahuatl scholars named them *difrasismos*), e.g., an emblem of WAR—arm and arrows—corresponds to the nahuatl binom *in mitl in chimalli* 'the arrows, the shield'. Another example is a symbolic emblem of conquered city—falling and burning temple corresponds in nahuatl to a more elaborated formula: *in teocalli popoca, tlatla iicampa, in montemayaui, tepebualiztli*, 'the temple emits many smoke, his back is on fire, it is the conquest, the defeat' (cfr. Perri 1994, pp. 166-67).

Yet, for a native reader, there could be no sensible difference in comprehension regarding both types of emblems.

The task of reading those linguistic emblems in textograms involves the ability—something similar to "intuition" alluded to by Elkins, but well known to indigenous readers—to *switch* and *to transduce* from visual composition to a phonetic pattern, since there are no specific graphic markers guiding this switching and the units of both codes do not basically differ visually (as we are used to think every time we are confronted with the Western text-image contrast). However, there are wellknown graphic (and functional) positions in which genuinely phonetic signs can occur: this is the case for emblems occurring besides pictorial images of humans (they designate a proper name or ethnonym), or besides glyphs of settlements or conquered cities (in this case, they are place names). Still, due to its pictorial nature and to its multiple linguistic values (Whittaker 2021, pp. 54-55), not every emblem of name is purely phonetic; logo- and morpho- are also linguistic units, therefore they are readable as these words or roots.

Yet, according to many scholars, we can prove a strictly phonetic reading of an emblem only when it resorts to a rebus device in representing some components (homonym's images). Regardless of the linguistic level expressed by glyphs (words, morphemes, syllables), we can conclude that Aztec linguistic emblem is always a complex graphic nomination, phrase provided with *unambiguous reading*.

Usually, it is a composition of two or three components-units, corresponding to a compound name or sometimes representing its "interpretation" by the writer (Aztec names often show the linguistic structure [(root+root)+suffix]). However, suffixes often are not expressed with a specific graphic mark: it is assumed that the whole word is understood (and read) even without the ending marker. In some cases, however, the locative suffix is expressed by the very topologic arrangement of glyphic components. When the written linguistic emblem of a personal name or the name of a tribe is expressed, however, it is usually attached behind or above the character's head with a thread-line, forming a kind of *graphic ligature* (called by Galarza e Maldonado Rojas, 1986, pp. 145-146 *lazo gráfico*).



FIGURE 5

This is the case for *Tenoch* in Fig. 5a (from Codex Mendoza, f. 2r), where the emblem transcribes the personal name of the Mexica priestruler decomposed by a scribe: *te-tl* 'stone' + *noch-tli* 'cactus'); while in the next example (Fig. 5b), a place-name glossed by the Spanish interpreter *Coyocac*, the textogram is possibly to be understood as a tribe name (*coyo-tl* 'coyote' + *cac-tli* 'sandals', phonetically expressing the non ethimogizable name *Coyuca*), ethnic label of the female person in the toponym *Coyucac*, 'in the place of Coyuca (of the women from Coyucac)' (cfr. Peñafiel, 1885, pp. 84-85; 1895, p. 69, Codex Mendoza ff. 2r e 13r).

The ways of labeling with a place-name a settlement symbol can vary, writing sometimes a complex 'name of settlement'—as we have seen for the emblem in Fig. 5b.

Locative suffixes in the place-names can be represented:



1) with glyphs-homonyms (Figs. 6a and 6b):

FIGURE 6

ACAPAN (*aca-pan*, 'on the reeds') with a glyph FLAG (in nahuatl *pantli*) for *-pan* 'on' (Fig. 6a); ACATLAN (*aca-tlan*, 'among the reeds') with a glyph TEETH (in nahuatl *tlantli*) for *-tlan* 'among' (Fig. 6b);

2) with the mutual arrangement of glyphic images (Figs. 6a–d)

In the examples of Figs. 6a and 6b the locative meanings are also presupposed by the position of glyph expressing the root morpheme: in *Acapan* the reed (*acatl*) in a sort of pot is placed *on* a platform; in *Acatlan* the same reed (*acatl*), this time represented as a simple plant with its leaves, is placed in the middle of glyph HILL (*tepetl*, non-readable base for settlement), thus standing for 'among'.

The suffx -*titlan*, 'among', 'where there is a lot of ...' in (Fig. 6c) TENOCHTITLAN (*te-nocb-titlan*) is rendered with a glyph of EAGLE (non-readable symbol with mythological reference) "sitting down" *among* the cactus branches (*nochtli*) on a stone (*tetl*). Yet locative suffixes are mostly not represented at all, or can be only arbitrary supposed, as the place-name in Fig. 6d COATZINCO (*coa-tzin-co*): in the emblem, locative suffix -*co* is not represented phonetically, yet it is given by a hint since the glyphic image for -*tzin* (diminutive suffix, homonym to 'the man's lower half') is brought by a snake—like a burden *on* the snake.

The components-units of a linguistic emblem can also be tied together by using different graphic techniques of plastic combining (Galarza named the latter *lazos plasticos*, cf. Galarza, Maldonado Rojas, 1986, p. 146): we can call those techniques, respectively, as *juxtaposition*, *addition*, *incorporation*, *syncretism*.

Juxtaposition is a free combination of glyphic images co-located (maybe at some distance) usually without any semantic relation in the extralinguistic world: the arrangement, then, forms a whole composition that can be interpreted in "logical" or fantastic way (as a graphic game). We can speak of addition in any case of "logical"—from an iconic and extralinguistic point of view—combination of two (or more) images, while *incorporation* is to be intended as insertion of a relatively small image-unit in a "bigger" one. Finally, syncretism is a special case in which two pictographic units cannot be isolated in the whole—as a sort of blending (in terms of compounding in linguistics).

The Figs. 5a and 5b above (the same can be said for Fig. 6c) are examples of two of those abovementioned techniques: in Fig. 5a we have a case of *graphic addition*—since a cactus on a stone is a referentially meaningful and complex image linguistically readable; while in the ethnonym of Fig. 5b there is a mere *juxtaposition*, since the units of coyote and sandal do not form a coherent "image" in any way.

Figs. 6a and 6d also are examples of juxtaposition, while Fig. 6b presents a *double* incorporation of REED and TEETH in the glyphic form of an (unread) HILL.



Furthermore Fig. 7a (a place-name glossed *Matatlan*, 'in the net') from Codex Mendoza (f. 10v) is also considered as juxtaposition of two

unrelated components: *mata-tl* 'net' + *tlan-tli* 'teeth'—occurring in this case as phonetic transcription of the nahuatl suffix *-tlan*, 'among'. The glyph occurring to write down for the same place-name in the Historia Tolteca Chichimeca (33r), and reproduced in Fig. 7b—therefore an iconic-graphic variant of the former—shows on the contrary a "fantas-tic" agglutinative image: indeed, it is a sophisticated case of an emblem-nomination combining *incorporation* and *syncretism*: first, the glyph-unit for TEETH is inserted as special graphic variant into the contour of a cave at the foot of a HILL (*tepetl*), to be understood as general glyphic mark for any inhabited settlement (*altepetl*, a sign which can also bypass an explicit reading); second, the mountain or hill is somehow "enclosed" by a net—and this is indeed a syncretic, graphically unsegmented expression of the whole.

The place-name glossed Yaca-pich-tlan (or Yaca-pitz-tlan), shown in Fig. 7c and still from the Mendoza (ff. 8r and 24v) is a telling example of the techniques of incorporation, syncretism and addition: the name structure could be interpreted as 'place where there are many sharp objects' (maybe stones or thorns?; or, somehow more literally, sharp noses?). But to write it the Aztec painter resorts to a HILL—again as a generic visual marker-symbol of site, village—showing a NOSE to its side (syncretism, the two units are merged), together with a sort of BUG (the linguistic value of which, however is not undisputed); the latter is simply added at the right of the glyph, below the NOSE, and as if it may bite it. Then yaca-tl, 'nose', pitz- as a root of words pitzahuac 'thin', from the verb pitzahua 'get thin', or pitzcua 'to pinch', or pitztli 'fruit stone' (Wimmer 2006, Siméon 1885, cf. Penafiel (1885, p. 247; 1895, p. 321) together convey *yacapitz(-ahuac)*—'sharp' (perhaps the Aztec word for 'sharp' is somehow semantically related to the roots cited, but this is not obvious); 'sharp' (perhaps the Aztec word for 'sharp' is somehow semantically related to the roots cited, but this is not obvious).

Furthermore, the place-name emblem (Codex Mendoza, f. 39r, Fig. 7d) glossed *Abuacatla(n)*, 'where there are many avocado trees' is an instance of *incorporation* creating a "fantastic" image of a 'tree', with 'teeth' writing down the suffix *-tlan*. The specific kind of tree is not marked (maybe the suffix indication was enough). But Fig. 7e glossed *Abuatepec (Abua-tepe-c* 'on the oak hill') gives a hint to the name of TREE—*abuatl* 'oak' by incorporating glyphs of WATER *a-tl* in the crown of the TREE as phonetic complement *a-*. Fig. 7f shows another place-name from the Mendoza (f. 5v) glossed *Cuabuabcan*, 'the place of possessors of eagles' (in the sense 'the place of eagles'); it exemplifies the *addition* of a tree and an eagle's head to the glyph of HILL. The tree (*cuabu-itl*) this time is to be read as a (redundant) phonetic complement for homonym *cuāub-tli* 'eagle'; the both are in juxtaposition to each other; the possessive suffix *-buâ-* and locative *-can* are not directly represented.

So, as we tried to show, different graphic devices are used to create a fixed composition, with necessary and sufficient components to make the emblem recognizable and distinctive from other phonetically close place-names.

4. From Entaxis of Emblems to Toposyntax of Textograms

While all Aztec emblems are non-linear and therefore bi-dimentional items, an "ideal" laying out of glyphic components in linear order (seen as an attempt of reading an emblem through the practices of an European reader who tries to decompose the unit in analyzing it) is sometimes possible: see the case of place-name from f. 20r of the Mendoza glossed *Tepetlacalco*, Fig. 8 [((*te-petla*)-*cal*)-*co*] 'house in a cage of stone woven net' = 'stone cage'. The glyph for *tetl*, STONE is given unfold above and beneath as double addition, including a house in woven net (syncretic image). In this visual arrangement one can see a resemblance to linguistic morphological technique of *circumfix*, an affix "surrounding" a root (in this case, a blending compound).

But of course, in the more sophisticated cases (such as the toponym glossed Xalatlaubco, Fig. 9: xal-atlaub-co 'in the sandy canyon', also occurring in Codex Mendoza f. 10r) only through bidimensional entaxis it is possible to express the occurrence, in reading, of a word such as at-laubtli 'canyon': it is, indeed, an invisible canyon—represented as "empty space" between two mountains and thus expressing a pictorial, in principle unreadable image. Yet, the painter-writer explicitly marked in the emblem also readable linguistic formants, using in the segmentation the glyphs WATER (a-tl) as phonetic complement of the nahuatl word a-tlaubtli, and then adding the derivative morphogram SAND (xal-li) as a prefix. This syncretic image is non-linearly written by the readable combination of two glyphs, as a "logic" tie of water on the sand.

In order to contrast such non-linear patterns or *entaxis* of emblems with the unilinear syntax of segmental scripts, we can call this kind of framed space, when external to single emblems—which in many ancient scripts, such as predynastic Egyptian, or Sumerian tablets from Uruk (cf. Fig. 10) is displayed mainly at the macrolevel of layout or *textogram—synsemia* (Perondi, 2012) or *toposyntax* (Klinkenberg and Polis, 2018).

Fig. 11 shows the patterning of an emblematic-*synsemic* space linguistically framed in (half a) page from the second part of Codex Mendoza (f. 20r), the so-called *matricula de tributos*. Actually, to account for the whole section of this tribute register we should also consider the verso of the folio, since the post-Conquest copying from ancient Mexican *tira* (long strips of inscribed text made by *amate* paper or deer skin, similar to classical Mediterranean *volumina*) to European paper sheets caused a rearrangement of pictographic layout which at times obscured the clearcut



pattern of the original (for a hypothetical reconstruction of the original frame, in the horizontal form of the *tira*, see Perri, 1994, pp. 176 ff and 2001, pp. 10-13). For the sake of simplicity, however, we will limit here our analysis to the recto.



FIGURE 10





Looking at the Fig. 11 (and comparing this page with other sections in the Codex Mendoza) there emerges a "graphic template" or "genre" in which a coded space articulates linguistic (in this case economic) content in ways fostering unambiguous and well-established readings (Perondi, Perri, 2018, pp. 42-44). We are confronted to a pattern where the external frame (the blue box in Fig. 11) is a written list of glyphic place-names—i.e., villages giving the annual tribute to Mexican rulers; while in the internal space we find different categories of pictorially represented items required by Aztecs, ordered according to a definite sequence: loads of cloaks, thongs and female dresses first, in ranks at the top of the written space (see the green boxes in Fig. 11); then precious warrior costumes (red boxes). All those tributes, when their pictorial form allows for orientation—as in the case of warrior costumes hats are oriented to the left, thus "closing" the section which is read from left to right starting from external place-names frame.

It is significant, moreover, that for some items the single tribute is repeated more times with the same quantity (in this case the numeral for '400', *centzontli*, a glyph representing a lock of hair): the loads of white cloaks to be paid as tribute (*cenztontli iztactilmatli in tlamalmalli*), indeed, are drawn six times. The only reason to account for this "multiplication" in two ranks of same glyphs—considering that it would surely be possible to write down the tribute in a unique account just linking a single pictorial glyph to the total quantity numerically expressed, as we can see in other sections of the same Mendoza (cfr. Fig. 12, taken from f. 26r and depicting a tribute of 4.000 bulrushes seats, *petlaicpalli*, and the same amount of mats, *metatl*)—is to assume that the notational strategy is aimed at transcribing a definite order in time lapses for payments of this kind of tribute during a single year (which is the period covered by the register, cfr. Perri, 1994, pp. 190-194).



FIGURE 12

The purple frame internal to the green one in Fig. 11, then, is supposed to highlight the fact that one-year-tribute in white cloaks loads was in fact delivered in six times, i.e., every three months in the civil traditional calendar of eighty months of twenty days traditionally in use before Conquest. The theoretical question which arises can be summarized as follows: are those non-linear visual features conveyed by topological distribution of information merely connotative superstructures of a written text which has to be basically read/decoded as a linearized and syntactically coherent flow of speech? In other words, should the fact that we are not told in a written chunk of pictorial text the effective period of delivery for each load of cloaks—this is what happens, as far as we know, in Sumerian tablet of Fig. 10—mean that this is *not* expressed *at all* nor linguistically retrievable? The answer, still, is "no": the written text as framed in the genre-specific pattern does not need to be somehow re-transposed in a precise linguistic sequence to be correctly understood (Perondi, Perri, 2018, p. 46).

5. Figurative Entaxis, and Emblematic Non-Linear Framing of Written Space in European Tradition



Since non-linear internal assemblage of units is typical of figurative or predominantly iconic scripts, it is of no surprise that we find traces of *entactic* non-linearity in some modern notational system never regarded as writing, such as European coat of arms. As Mounin stated fifty years ago (1970), the coding of this restricted notational system is not linguistic in the sense it should be regularly connected to a phonetic reading; however, at times there are congruent linguistic keys: in Fig. 13 we see the coat of an Italian nobiliary family, whose name is Bracci, and the 'arm' *emblem* is logographically transcribing this reading. In any case, since according to Mounin discrete

units in coats of arms are never linear, because they are connected to a global reading in a space *not imposing any preferential order*, they are indeed *emblems* but not *proper* writing—therefore not linguistic emblems as in the case of Aztec place-names; however, they are undoubtedly conventionally coded and perform a function similar to that of proper writing.

In order to find instances of synsemic written space in modern alphabetic European tradition, then, we have to approach special kinds of written text where specific expressive needs impose a *topologically encoded* graphic space to suggest multiple or alternative paths of reading.

As a telling example, we can look at the double page of the codex of Guilielmus Peraldus *Summa de virtutibus et vitiis* (half of XIII century, cf. Fig. 14). Peraldo's text is indeed a huge classification of vices, with a large array of examples (quoted from Bible and other texts). In other words, it is an inventory. In the double page, then, as Lina Bolzoni said every *locus* of the picture is inscribed, but in order to understand what we see, we must not only read the inscription but draw our attention to the *place* in which has been situated. We have to slowly retrace, step after step, the compositive plot [...]: the Christian life as a fighting knight, with his virtues as weapons (2002, pp. 62 ff). The title in Latin at the top of right page, *Man's life on the earth is soldiering*, is a sort of key to the correct interpretation. Bolzoni showed that the *loci* in the



FIGURE 14

picture reproduce the structure of a dialectical contrast between, in the left page, the seven capital sins (with minor vices deriving from each) and, confronting them on opposite orientation, the seven gifts of Holy Spirit represented by the icons of the doves and the seven beatitudes of the Sermon on the mountain, in the seven phylacteries held by the angel. Synsemic space topologically articulates a number of mental images, for meditation, knowledge, memory, introducing a flexible and "open" relation between writing and pictures.

In this case, of course, mnemonic function of images is quite clear: the writer used a coded space to frame argumentative sequences, but this time emblematic pictures must be thought as visual support for a literate preacher, often addressing illiterate listeners.

Another interesting case is the *Turris sapientiae*, reproduced in Fig. 15 from a printed woodcut, ca. 1475. The title, at the bottom of the page, *Turris sapiencie legatur ab inferiori asce*[n]de[ndo] p[er] seriem l[itte]raru[m] alphabeti gives to the reader specific instructions: he is supposed to proceed from bottom to top, ascending the iconic structure by following the order of letters at the left margins.



FIGURE 15

Elements of the figurative building analogically express, through their mutual locations and relations, the relationships in the field of knowledge of the *Wisdom* (i.e., the true knowledge inspired by God). We have a multiplication of *loci*, thus *synoptically seeing virtues and their components* via structured correspondences in a coded order. As wrote Antinucci, "the 'physical' form of the tower as it is represented *makes we see* what is the relation between concepts linguistically [i.e., alphabetically] expressed in the text [with a non-linear framed space]: it is radically different from linear order, where this relation should be mentally inferred and pieced together". The *Turris* is significantly named "*Speculum theologiae*, i.e., 'mirror', visual representation of theology" (2011, p. 122).

Perhaps the most astonishing example of multidimensional structuring of written space through emblems, however, is the famous *Liber figurarum* by the mystic from Southern Italy Gioacchino da Fiore (manuscript written and illuminated at the beginning of XIV century). In Fig. 16 we reproduce the subtlest and cultured page of Trinitary circles.



FIGURE 16

In this case the analogically framed space illustrates the relationships and correspondences between the Three Persons of Trinity, and between trinitarian Persons with other doctrine elements visually represented as theoretically articulated diagrams, such as the Alpha-Omega tetragram (to the left), human history (from left to right, following the intertwined rings at the centre), and some biblical *figurae* (Perondi, 2012, pp. 178-183). The interplay of multiple analogical relations, iconically transposed through diagrams in which written symbols and non-linear logical relations are inextricably connected, condenses a complex doctrinal argument verifying—more than five centuries early—the famous Peircean statement about diagrams: "Diagrammatic reasoning is the only really fertile reasoning" (CP 4.571).

It is useful to note that contemporary examples of emblematic nonlinear space in a typographic European domain occur often in visual poetry—cf. e.g., the Stephen Themerson's (1949) English translation of a Chinese poem by Li Bo, VIII century A.D. reproduced in Fig. 17. In this poem, the use of unusual typographic devices such as *internal vertical justification* increase the topological patterns of reading, and transpose in alphabetic relations the "visual rhymes" occurring in original Chinese text in logographic characters. Looking at this case, we cannot but refer to a suggestion by Anne-Marie Christin (2009², p. 17): according to the author, indeed, space is the only formal feature identical in picture and writing, but her statement is wrong if the visual space is conceived in the form of a screen, something abstract and "empty". On the contrary, it is always a *coded textual space* which informs any interpretation of a visual artifact, providing an integration with diverse and specific interpretive practices (seeing *vs* reading) often overlapping and mixing.

6. Concluding Remarks

We can finally revert to the quadrants of mapping pattern of Fig. 2, since an evaluation of specific *written texts* (and others not mentioned in this paper) allows to fill each of the quadrants in the articulated domain formed by the two visual continua *not* glottic-dependent (cf. Fig. 18).

In this paper, while recognising the importance of traditional glottic typologies, we focused also on their limits:

- first, if, as Gelb suggested many years ago ("there are no pure systems of writing just as there are no pure races in anthropology" [1963, p. 199]), neither there are pure and coherent and no pure and coherent labels to describe all divergencies and specificities: then, for example, Aztec writing could be seen at the same time as pictorial, logographic, morphophonemic and phonetic—depending on the specific "genre" of written text, the period, the kind of linguistic content and so on;
- second, perhaps more important, the glottic criterion is not enough, as such, to deal with a systematic analysis of textual products or artefacts;

	The	fermented							
		grape-							
		juice							
	among the	reproductive							
		parts							
		of							
		seed-plants							
OI I'm conscious									
O. I III conscious									
		my state							
of									
	being isolated								
	from								
	others!								
Ah! Body attendar on the Earth	nt revolving about	keeping & 238,840 miles (mean) aloof	c shining by reflecting the	light radiated by the sun					
into my nouth I take & swallow the liquid	while expre	ssing the hope	for thy success.						

FIGURE 17

- third, the ambivalent status of linearity in writing do not find an adequate treatment within the *visible speech* approach.

According to our view indeed linearity, in any writing system, is a semiotic prerequisite in order to assure an actual matching between visual-graphic expressions or units and (sequential, temporarily "linear" in Saussurean terms) bits of speech; however, while a sequential ordering of reading is always to be assumed, many systems of visual (and coded) graphic signs exploit the (at least) bidimensional visual space both (a) to form/construe written characters-units by joining minimal traits in non-linear paths (entaxis of the internal space); and (b) to articulate written texts combining those units in *non-linear visual layouts* or external toposyntactic space (significantly framing the written space in view of a correct and complete reading-understanding of linguistic content).

Moreover, while linear paths in writing emerge with non-figurative images and, more systematically, with (a more or less) complete phoneticism, the story of writing repeatedly testifies the use of multi-linear structuring patterns.

This fact, in the end, is clearly explained—adopting the integrational approach to writing fostered by Roy Harris (1986, 2000)—when we con-



FIGURE 18

sider the semiotic nature of any *objectual space* inscribed, since "in textualized artefacts the text always functions as a sign in ways which are not exhaustively described by giving a merely 'linguistic' account of what the text say, of the linguistic [written] forms used, and of their [glottic] meanings as contrasted with other forms available in the [spoken or written] language" (Harris 1990, p. 217).

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