

The highly semic processes of asemic writing

O processo altamente sêmico de escrita assêmica

Steven Skaggs*

Abstract: Using so-called “asemic writing” as a starting point, this article examines three questions regarding the semiotic action found in graphical handwriting and typography. First, it examines the phenomenology experienced at the moment when an illegible text suddenly is recognized and read as words. Then, turning to Peirce’s notion of a type/token distinction, the article argues that nonverbal or quasi-verbal writing shows that two kinds of type/token relations are happening simultaneously when we read a text, although Peirce conflates the two in his well-known passage. The term “archetype” is proposed as a way of distinguishing the graphical from the verbal type in type/token. The article concludes by pointing out that legibility comes at a cost, and that illegible graphic forms help us to become aware of what is lost — the hidden expression that is subconsciously functioning beneath the verbal even as we read a text that is seemingly transparent.

Keywords: Asemic writing. Calligraphy. Charles Sanders Peirce. Graphic design. Handwriting. Typography. Visual gamut.

Resumo: *Utilizando a chamada “escrita assêmica” como ponto de partida, este artigo examina três questões relativas à ação semiótica encontrada na caligrafia e tipografia gráficas. Primeiro, examina a fenomenologia experimentada no momento em que um texto ilegível de repente é reconhecido e lido em palavras. Em seguida, voltando-se à noção de Peirce de uma distinção tipo/token, o artigo argumenta que a escrita não-verbal ou quase-verbal mostra que os dois tipos de relações tipo/token acontecem simultaneamente quando lemos um texto, apesar de Peirce conflitar os dois em sua conhecida passagem. O termo “arquétipo” é proposto como uma forma de distinguir o tipo gráfico do tipo verbal em tipo/token. O artigo conclui apontando que a legibilidade tem um custo, e que formas gráficas ilegíveis nos ajudam a tomar consciência do que está perdido – a expressão oculta que funciona subconscientemente sob o verbal, mesmo quando lemos um texto que parece transparente.*

Palavras-chave: *Caligrafia. Charles Sanders Peirce. Design gráfico. Escrita assêmica. Manuscrita. Tipografia. Gamut visual.*

Data de recebimento: 05/10/2020

Data de aceite: 23/10/2020

DOI: 10.23925/2316-5278.2020v21i2p335-349

* University of Louisville – Louisville, KY, United States of America. Professor of Graphic Design at University of Louisville. E-mail: s.skaggs@louisville.edu.

I Background

This past summer I received a very nice note from Tim Gaze, Australian visual poet, who enclosed the current issue of his periodical *Asemic Writing* (GAZE, 2020). There ensued a pleasurable and interesting email exchange in which, while thanking him for the excellent journal, I confessed to resisting his term “asemic” which he defined as “visible material which meets the viewer’s mind’s criteria for looking similar to writing” (GAZE, 2020). A piece of asemic writing, then, is a visual display which is nonverbal for the viewer but reminds the viewer of other visual signs that do bear (and bare) linguistic content.¹

That certain nonverbal signs are able to suggest writing or writing systems, I have no doubt. The problem for me is the use of the term *asemic* to refer to them. Asemic writing purports to be writing that is devoid of semes, of signs, meaning-conveyors. Marks with no meaning. But such things simply do not exist; every visual entity, upon being perceived, produces some effect upon the receiving mind. That is the very definition of Peirce’s post-1907 notion of semiosis, of sign or semic action. Producing an effect—an interpretant—upon a receiving system is simply what every sign does (CP 8.315). Having no effect would entail there is no sign and therefore asemic, but then that is tantamount to remaining unperceived at all. If one admits the presence of a visual perception, one is already admitting the presence of semic action.

So I eschew the term asemic and prefer the term *nonverbal writing*: writing without wording. In any case, “the cow is out of the barn,” as we colloquially say, because the term asemic writing is quite popular already. Indeed, I applaud the exploratory art of Tim Gaze and am glad that his journal reveals the diorama of possibilities that exist within writing that is stripped of words.

Which brings me to the present meditation. There are three questions triggered by our exchange that I want to take up in this essay. First, what can be said of the phenomenological experience that happens at the threshold—the margin, cusp, or fault line—between the legible and the non-legible? Second, how does thinking about words as malleable graphic forms affect Peirce’s well-known type/token distinction? Third, what is lost when the pressure toward legibility suppresses the visual? With respect to the first question, I’d like to briefly explore what occurs at that instant when something that had been viewed as non-verbal is suddenly read into the world of words. With respect to the second question, the concept of archetype can be employed to clarify what turns out to be a double type/token distinction. With respect to the third question, I will try to rescue the central importance of facility and gesture, suggesting that nonverbal writing has the virtue of pulling our attention to the semiotics of movement and touch, a dimension that is hidden by the process of reading words.

These topics span both handwriting and typographic traditions. There is no better petri dish for examining these questions than by examining the work of contemporary calligraphic artists who push these boundaries.² Calligraphy is

1 This places so-called asemic writing in states II to IV of the five states of writing (SKAGGS, 2017, p. 166).

2 It seems necessary to mention that sometimes a calligrapher is thought of as someone who produces writing that is “pretty.” But in my use of the term, I refer to any serious

narrowly defined as “beautiful writing” but both words need to be considered very broadly. The salient visual qualities that make it beautiful are that it be visually captivating, with integrity and fullness of expression. The word “writing” should be taken in the widest sense: the world’s great calligraphic traditions all embrace writing that is “pre-verbal”—gestural marks, not yet formed as words, as well as illegible texts. All handwriting is constrained by form and materials, which in the hands of an artist with skill and a deep understanding of craft, allows mastery of the greatest span of expression from the nonverbal gesture to formal, fully legible, penmanship. By drawing from examples of this nonverbal work of master calligraphers, we can see in what respect it may be called writing, and exactly how it provides extra-linguistic modes of semiosis. That will allow us to see how typography differs from handwriting in its capacity for expression—but also clarity—placing these qualities in continued tension.

2 At the cusp or fault line of the verbal world

Western culture tends to separate the visual arts, such as painting and drawing, from the verbal arts of poetry and prose. They each exist within their own vast landscapes, like two massive tectonic plates, usually housed in our academic institutions in two separate buildings, often on opposite sides of campus, leading to different academic degrees and professions. At the fault line, where these two large traditions slide uncomfortably against each other, is the graphical word (SKAGGS, 1998, p. 12). Handwriting and typography are the only common practices that unite the visual and the verbal.³ Somewhere between the absence of verbal content that occurs in nonverbal writing and legible handwriting and typography, a door opens on the conceptual content of language.

Let us look at examples of this progression, and in doing so, I ask that you notice as closely as possible, all the effects the visual entities have on you.⁴

Tim Gaze’s forthcoming book, *Glyphs of uncertain meaning*, documents over 200 of his pieces, small pieces with a casual air, which sometimes look as if they are drawings of subject matter that is just outside of our ability to determine, and other times seems to be writing systems that stay outside our ability to read them. Here are two of them (figure 1): the first might be some language related to Korean, the second almost conforms into a recognizable tree-like image. Both remain ambiguous and without a verbal referent.

artist who charges handwriting with great power and integrity, regardless of any particular expression.

3 If one takes a large enough perspective, there are a few exceptions to this otherwise categorical statement, for instance games in which a picture is made to look like a word, and rebuses, where a picture is substituted for a letter or word.

4 The artworks are listed at the end of this article before the references section.

Figure 1 – *Untitled*



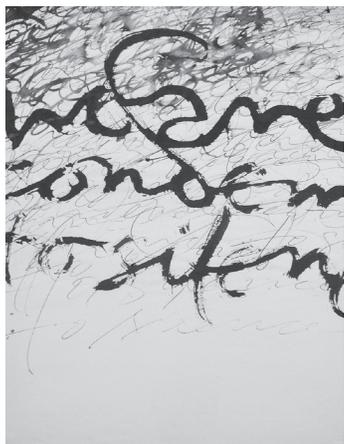
Source: Gaze (2021, p. 147)



Source: Gaze (2021, p. 219)

The pair of writings below (figure 2) clearly have the feel of human made gestures, quickly written. They could be saying words, perhaps the writer is thinking/saying/writing words, but the viewer struggles to become reader, and must guess what the words might be. As we study them, our effort to read is at first palpable, but then we acquiesce to the sheer experience of movement of line and texture, form and depth. The visual qualities are pushed to the surface of our consciousness, and we soon let go of the desire to peer beneath the dynamic visual surface to read the text.

Figure 2 – *Untitled*



Source: Skaggs (1998)



Source: Skaggs (2000)

The next pair of writings are more clearly word-like (figure 3). They begin to have recognizable letter forms and although strange, they can, with effort, be successfully transcribed (translations are provided in the list of artworks at the end of this article). However, several obstacles are still present that prevent fluid reading. The words are written in an archaic form, compressed “rotunda” (a blackletter of the 15th century), and the words do not obey the conventional rules of orthography, the standards for line spacing and word spacing. Also problematic for some readers is that the words are in Latin, which may not be understood by a large percentage of potential readers. Although the text can be translated, nevertheless, both of these roadblocks retard the way to a fluent, clear and immediate, reading of the text. Given the resistance to easy reading, the eye again notices the “visual grammar” of the text. D, S and the tail of the d, attract our eye, the swinging character of these strokes contrasts mightily with the rigid blackletter, or we notice the zig-zag movement in the composition on the right. Also we apprehend in the tail of the t something like a dagger, which lends an ominous or threatening character to the whole.

Figure 3a – *Capriccio #4*



Source: Skaggs (2006)

Legend: “... points of difference...” (translation from the Latin)

Figure 3b – *Capriccio #25*



Source: Skaggs (2006)

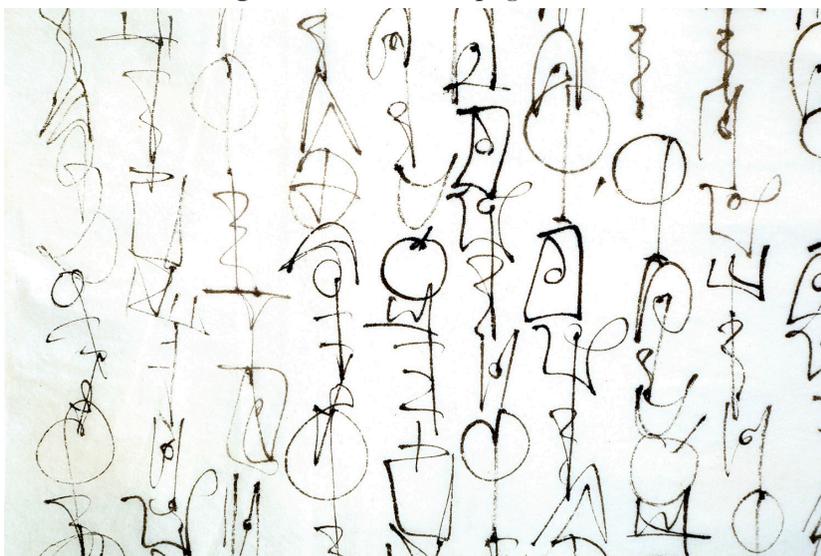
Legend: “...would come to be the chief thing, it seems this is good to prevent a certain...” (translation from the Latin)

The visual elements and movements, composed the way they are, make us feel a certain way (expression) although we find it difficult to put the flavors of these pieces into words. For someone versed in Latin, they do possess a denotative

linguistic interpretant. For everyone else, and even for the proficient Latin reader during that moment of uncertainty before realizing the verbal content, these works are certainly not lacking an interpretant. It is a strong and memorable emotional (affective) interpretant. The fact that the *affective* influences of these pieces are difficult to describe in words does not make them any less *effective*—and they are therefore no less “semic,” meaningful, or powerful as visual entities.

Then, what to make of a work like this (figure 4), by the American artist Laurie Doctor:

Figure 4 – *Sketchbook page (detail)*



Source: Doctor (2013)

Legend: “The bonfire you kindle can light the great sky.” Galway Kinnell, excerpt from poem *Another night in the ruins*. (Translation from Laurie Doctor’s ideoleptic “hieroglyphic alphabet.”)

Is it the writing of words or the writing of pictures? It sits precisely in some middle Peircean ground, seemingly containing symbolic word-stuff, iconic picture-stuff and indexical gestures all at once. Notice how we soon abandon the effort of decipherment and simply enjoy the movement, the texture, the linear play? If we study the work of Laurie Doctor, we learn that she has created a “hieroglyphic alphabet” and that she has learned to write fluently in this private ideoleptic visual language. This is a text that is every bit as translatable as the Latin above it, but in this case, the glyph-to-word code is an ideolect known only to Ms. Doctor. But the verbal ideolect, private in its communication of words, is nonetheless visually universal in its expressive gestural evocations, its whimsy and its curious powers of dance, freedom of movement, touch and pressure.

In another of Laurie Doctor's pieces (figure 5), a frenetic grouping resists all attempts we might make to convert it to linguistic mode. We feel as if we ought to be able to read it but we never can. What does the *striving to read* tell us about the struggle between reading and looking? Are we less mindful of looking, less visually attentive when we are trying to read the message?

Figure 5 –Untitled



Source: Doctor (2020)

Book typography, too, can be seen as a kind of writing, although it is writing that has been “frozen” into an idealized form, intended to disappear from consciousness, so that the author's words can rise immediately to the surface of the reader's thoughts. Typography, especially very legible book typography, aspires to be transparent (WARDE, 1955). In doing so, it makes the graphic sign's visuality recede. The verbal surmounts the visual, suppresses it, pushes the visual expression underground.

The conventional use of a letter is magnified by orthographic rules which



reinforce the clarity of the word. Spaces between letters, spaces between lines, indentions at the beginning of paragraphs; all of these strictures construct an unconscious template that makes the visual form so consistent that it begins to drop away from our awareness as we read. We can notice how these rules play a part in our perception. Breaking the orthographical rules enables a simple word, set in even a most legible face such as Times Roman, to suddenly become more visibly present and interesting *looking*, but less readable to our linguistic-minded prejudices:

This situation from a verbal standpoint is immediately remedied by re-composing the letters the way orthography tells us they are “supposed to be” —

the

3 Type/token and archetype/token

So we see that looking and reading are in uncomfortable tension at the place where writing occurs, and even typography can be made nonverbal when orthography is violated. When we encounter works that are nonverbal or difficult to read, we can feel our cognitive gears in motion as we straddle the fault line.

We will turn soon to the question of what is lost to us when we read words, but before we do that, we need to pause briefly so that we may clear up a possible misunderstanding around the notions of type and token as they pertain to typography.

As Peirce noted, all the *thes* that appear nestled within the lines of the text of this article are tokens of a type which is the English article “the” (CP 4.537). The large *the* above is an exemplar of the others, somehow already made different graphically just by being larger. Is it a type or a token? Notice that by being larger, and by being set apart from any sentence, the graphic illustration of the word is, in a sense, not just a token of a type in the manner of the others held within the text, but a kind of “illustration” of the type in the type/token pair. The token requires its contextual placement within language to be fully operational as token. In terms of type/token, the illustrated word exists in some kind of bifurcated world in which it is neither quite the type nor quite a mere token of the type. It is a token *visual entity* of what we call the word “the” but it is not a token *use* of the *verbal entity* we know as the word “the.”

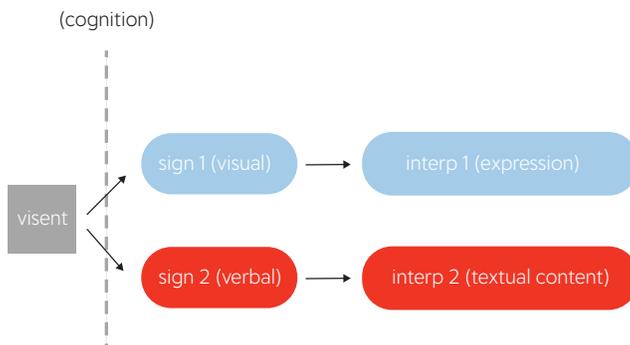
The dynamics of the ways in which such illustrations function would require more space than this article permits, but for now I would suggest that, just in terms of visual entities, we can locate at least a two-stage level of type/token distinction at play here in typography:⁵ first, there is the kind of “word-type” which Peirce mentions—a set of graphic forms that have the family resemblance of a visual word we know as “the” in the English language, conformity within which allows a word to be read; but there’s also a second level of “graphic type” that consists of the graphic distinctive features that characterize differences from font to font, differences that are attributed to style and what we refer to as *typeface*.

This font or typeface distinction also has a type/token component. Each appearance of the word “the” in Times Roman, is, in a very real and important sense, a token visual entity that is manifesting the master drawing of the font known as Times Roman designed by Stanley Morrison in 1927. Notice that this type/token difference brings with it a sense of intellectual property, a particular period in history,

5 Although the context of the current discussion has moved to typography, this two-stage distinction can be extended to verbal written forms too, at least when they permit legibility.

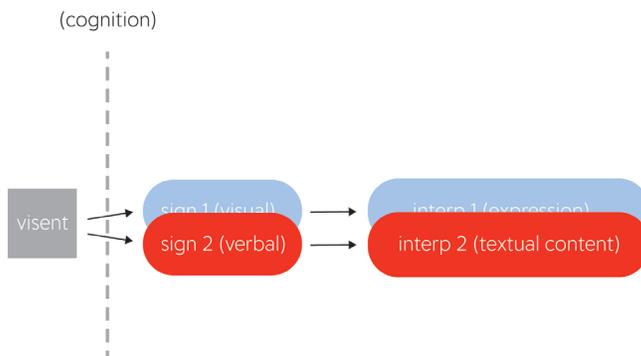
This necessary duality that we find in the visual word, the tension between its form as a visual entity and its text as a verbal entity, is shown in figure 6. The visual entity (visent), upon cognition, produces two signs. Sign 1 is the visual sign without the sense of the verbal. It results in an effect that is affective which we call expression. Sign 2 is the verbal sign, which requires knowledge of the language and also requires enough conformity to orthographic norms to be discernible. This production of the verbal sign is the process we know as reading.

Figure 6
Verbal channel with visual channel



Source: Skaggs (2020)

Figure 7
Verbal channel supresses visual channel



Source: Skaggs (2020)

Figure 7 shows how, upon reading—that is, during the process and to some extent comprising the process itself—verbal content “overwrites” or suppresses our awareness of the visual sign. Sign 1 is still operating, but it is now subliminal.

If, when we as young children were learning to read, we were taught to become blind to the visual form of the letters, and if, in our mature process of reading, we remain blind to the typography, have we lost anything by this blindness? I believe we have lost something important: we have, to a large extent, become numb, or inured, to the expression important of the visual forms. The graphic forms of language are extremely semic (not asemic) but we have largely lost the ability to be consciously aware of that semiotic action. The importance of what Tim Gaze, Laurie Doctor, and other artists are doing is that they invert the normal verbal suppression of the visual sign action. Instead, they suppress the verbal, making the visual primary, and that reveals to our conscious awareness the expressive power of graphic written forms.

It is the same move we find in Islamic calligraphy where a line from the Qur'an may be made so ornate or geometrically intricate that it is no longer legible. The move toward illegibility is a kind of homage, as an easy reading of the holy phrase brings it too close to earthbound mundanities. Much like in a solar eclipse, it is only when the verbal is occluded that the "corona of form" magically makes its appearance. What has been there all along, but hidden or overpowered by the intensity of the word, is suddenly and dramatically revealed.

So we look now at the very semic operations that occur within that occluded corona of the non-verbal sign 1.

5 Historicity embedded within style

Letterforms are inherited signs. The ideal form of, say, a capital R is not completely fixed, the degree of freedom allowing for wide variation from one font to another. Over many years, these stylistic attributes within "R-ness" begin to carry subtle symbolic connotations that point back to the period in which those stylistic attributes first appeared or were most prominent. Also, technologies can leave their evidence in the style of typefaces and handwriting.

Figure 8



Source: the font Edwardian Script, designed by Ed Benguiat, 1994.

Let me provide a quick example of what I am referring to as this quality of historicity. The typeface Edwardian Script (figure 8) exemplifies an interlacing of a technology and an historical period. It is a typeface that imitates calligraphy that would have been written with a flexible pointed nib, responding to pressure by widening the stroke. That kind of writing, known as English Roundhand, became prominent in the mid-18th century. The writing style was itself an imitation. It mimicked the technology of copperplate engraving which was practiced by gouging a pointed steel burin into a copper plate—the harder one pressed the burin, the deeper the gouge and the wider the line. The troughs were then filled with ink and printed by pressing paper upon the plate. This kind of engraving permitted the printing of extremely fine "hairlines." Such thin lines meant illustrations made with this technology could capture much greater

levels of detail than had been possible under the previous practice of carving from wood blocks. As a result, copperplate engraving was the preferred technique for printing scientific illustrations. This association with precision, science and the enlightenment carries an expressive overtone into the handwriting which imitates it, and which can be seen in such documents as the Declaration of Independence of the American colonies. By the early 1900s, penmanship masters were using highly ornamented versions of this script to display their skill. Edwardian Script brings those sensibilities into the 20th century. But Edwardian Script connotes more than that. Indeed, a second connotation probably supersedes it: an association with upper class formality. This association is also due to the nature of hand engraving. It is difficult, time consuming, and permanent. Items that were engraved, or that were elaborately handwritten in a style such as this, were evidence of authority, importance, expense, and a certain dignity. These are connotations that do not flow from any inherent physical features of the shapes of the letters as they appear as printed characters; rather they flow from the difficulty in technically executing them in copper or writer's ink on paper.

This historicity is largely subconscious. It is buried into the foundational bed stones of a culture, rarely explicit in its presentation, but contributing to the texture of the culture all the same. Now this is not to say that the average person on the street would be able to look at Edwardian Script and know about burins, or the typeface Futura and think of Paul Renner in Germany in 1927. But it is because the typeface Futura has a certain history in western culture and was used profligately in the 1930s and again since the 1990s, that it begins to tinge those eras—and ours—with its stylistic historic-cultural brush. What makes the cityscapes of the 1920s or the 1950s feel of the period are those buildings, artifacts, and graphic forms which—along with people—inhabited them. Typography and handwriting styles both absorb and contribute to that sense of place and time.

6 Gesture, tactility and the haptic

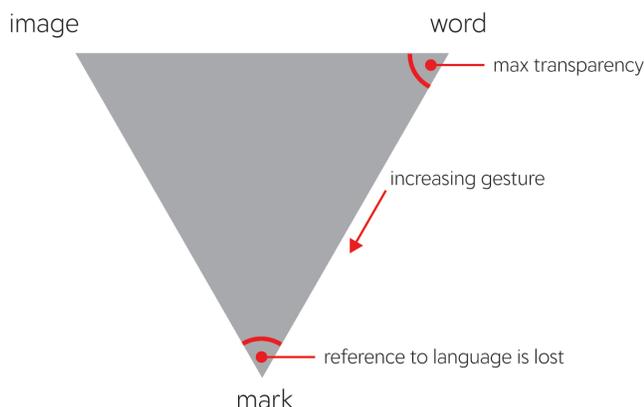
While the semiosis of sign 1 includes an element of historicity, the primary stream within handwriting is the haptic gesture. Laurie Doctor sees touch as a method of wayfinding, “The tactile introduces an improvisational listening through your hands” (DOCTOR, 2019). A work of calligraphy, whether urgently vociferous or gracefully lyrical, is comprised of the trace marks that remain after movement has left (JOHANNESSEN; VAN LEEUWEN, 2018, p. 175-192; SKAGGS, 1997). In the same way as a dancer's gesture, the flowing contact of pen or brush with paper indexically reveals the artist to the viewer.

Calligraphy and handwriting are the domains of graphic improvisation. Gesture desires to be free from the bounds of orthography that legible words demand. As a result, the compelling story in the finest legible calligraphy is not really the skill required to make it seem “almost printed.” Rather, what is compelling in the best work is the degree to which the calligrapher, accepting the requirements demanded by legibility, reaches a point of agreement between the competing verbal and visual tectonic plates through the use of the very personal and individualistic haptic gesture. How does the calligrapher allow herself freedom at the same time she accepts enough of the orthographical constraints to remain legible? How is the word revealed simultaneously with the personal expression of the artist?

In its foregrounding of the freely improvisational gesture, the haptic and tactile, all handwriting, calligraphic and otherwise, is diametrically opposed to typography, whose foundational impulse is to be legible, to be clear, to generally conform to orthography. Even while there are many differences in the styles of typefaces, even an increasing number of fonts that imitate personal handwriting, what is inevitably lost in typography is the spirit of touch, the tactility, the momentary impulse, play and spontaneity—just those ingredients that calligraphy supplies. Those most fundamental calligraphic qualities—the free gesture, the movement by “whim and wish,” the idiosyncratic—are precisely the eternal opponents of orthography and therefore of maximum legibility. The former is unique to the individual, a gestural trace captured in an instant of time; the latter an edited and permanent glyph, constrained by necessary stricture shared by the group. The former is the work of the musician, the latter the work of the mason.

This is not to claim that calligraphy is better than typography, or that legibility is better than an illegible character mark. Both music and stone walls have their respective powers; expressive handwriting and legible typography simply have different jobs to do. But we can be aware of the contradictory tension that is the essentially at play in any instance of calligraphy or typography. The visual word, whether handwritten on parchment or typeset and laser-printed on paper, always marks a choice of a position on a spectrum between two extreme poles, one representing absolute freedom of gestural movement, the other maximum constraint to the laws of legibility. We are mostly oblivious to the tension because most of what we see stays quite close to the legible word pole. The tension is most conspicuous when the graphic elements violate orthographic norms. They can do this by several means: not aligning the characters to a baseline, not being conventional letter forms, unusual letter spacing and line spacing, or through size, color, or arrangement.

Figure 9
Visual Gamut



Source: Skaggs (2017)

With respect to the extent by which legibility is compromised by a move toward the gestural mark, it is helpful to use a visual gamut (Figure 9) (SKAGGS, 2017). Developed from Peirce's division of sign/referent relational types (icon-index-symbol), and applied to images, marks and words, the gamut allows a diagrammatical map of a visual entity's positioning. A visent that departs from the "word apex" will begin to call attention to its visual materiality in proportion to the extent to which it departs. Saying this is almost a tautology because the word apex delineates the greatest possible emphasis on the inherent verbal nature of the visual entity. Yet, moving a short distance from the visual apex, we do not consciously notice the increasing materiality of the visent. The training to see "through" to read the words is strong. We do not notice the materiality of a word until the word becomes compromised, until we must struggle to do the reading.

As we move down the spectrum from word apex to mark apex, we become increasingly aware of the gestural qualities. First, we lose the ability to read, and then from this place of illegibility, if we continue to move toward the mark apex, we eventually lose completely any hint of a connection with the verbal. Here is a region inhabited by dance and motion, visual marks left as evidence of contact from a (now absent) living presence. So all writing, in its gestural embodiment, is in a sense capturing some past action that had truly indexical impact: a splash of ink, a drag of the bristles of brush, increasing speed, or lightness of pressure. What is indicated in a human gestural mark is a recording of a body in motion, and that motion not only documents, but expresses, as readily as dance, human feeling.

7 In summation

Writing is never truly asemantic, but the increasing popularity of artworks labeled as asemantic writing help us to become aware of the semiotic functions of the non-verbal aspects of scripts, typography, calligraphy and other graphical written forms. When we notice the phenomenology of struggling to read an illegible script or wonder if a nonverbal script is possibly verbal, we are aware of the fault line between verbal and visual. The tension that is constructed by writing, that is on this fault line, is an expressive dimension that only handwriting and typography can exploit. If the text be legible, two kinds of type/token relations are present in handwriting and typography. One is morphemic with the word as a verbal type and the appearance of the word a visual token of that notated word. The other is a graphemic type/token pairing in which the particular graphic style of the font is a type called the archetype and for which each appearance of the word in that typeface or font is its graphic token. The tension is further explained by the presence of two signs upon cognition of a written text. One sign is the visual graphical form of the text and the other is the text as verbal sign. The verbal sign always suppresses the visual sign, so that in so-called transparent writing or typography we are largely consciously unaware of the visual sign. By shutting off the verbal sign, nonverbal writing calls our attention to the materiality of the largely reclusive first sign—the visual graphical form.

References

- DOCTOR, Laurie. You find your way by touch. *The Silver Fraction*. Available at: <<https://www.lauriedoctor.com/musings/2019/12/1/w8p6ckc7wsdfs9yyngg8kz48sj0x7j>>. Accessed on: 15 Dec. 2019.
- GAZE, Tim (Ed.). *Asemic 15: for asemic writing & similar*. Adelaide: Asemic Magazine, 2015.
- GAZE, Tim. [Personal correspondence]. Addressee: Steven Skaggs. [S. l.], 2020.
- GAZE, Tim. *Glyphs of uncertain meaning*. Minneapolis: Post-Asemic Press, 2021. Forthcoming.
- INGOLD, Tim. Ways of mind-walking: reading, writing, painting. *Visual Studies*, [S. l.], v. 25, i. 1, p. 15-23, 2010. DOI: <https://doi.org/10.1080/14725861003606712>. Available at: <https://www.tandfonline.com/doi/abs/10.1080/14725861003606712>. Accessed on: October 29, 2020.
- JOHANNESSEN, Christian M; VAN LEEUWEN, Theo (Eds.), *The materiality of writing: a trace making perspective*. New York: Routledge, 2018.
- PEIRCE, Charles Sanders. *Collected Papers of Charles Sanders Peirce*. HARTSHORNE, Charles; WEISS, Paul; BURKS, Arthur W. Cambridge, Ma: Harvard University Press, 1931-35 e 1958. 8 v. [Quoted as CP, which the first number means the volume, and the second, the paragraph].
- SKAGGS, Steven. Calligraphy at the fault line. *Letter Arts Review*, [S. l.], v. 14, n. 2, p. 12-15, 1998. Also available at: <https://www.johnnealbooks.com/product/letter-arts-review-vol-14-no-2/102>. Accessed on: 1 Nov. 2020.
- SKAGGS, Steven. *Logos: the development of visual symbols*. Menlo Park: Crisp Learning, 1994.
- SKAGGS, Steven. *FireSigns: a semiotic theory for graphic design*. Cambridge: MIT Press, 2017.
- WARDE, Beatrice. The crystal goblet, or printing should be invisible. In: WARDE, Beatrice. *The crystal goblet: sixteen essays on typography*. London: Sylvan Press, 1955. p. 32-45.