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BRUSHSTROKES WITH EMOTION*

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A Western Philosophical Background

Pictorial art generates a rich fund of experience which involves a significant part of our mental life, from perception to cognition, from creation to reception. The emotional side of our relation with pictorial works of art is probably the least known and most problematic. This is most critical since emotions seem to be expressed by works of pictorial art and to be involved in pictorial art appreciation. As a matter of fact, one of the things that works of pictorial art do in relation to emotions, beyond representing or depicting emotions, is express emotions, such as sadness, happiness, fear, and joy as well as aesthetic emotions. This is a very general philosophical claim, sometimes referred to as the expression theory of art, which has been developed in many different ways by philosophers such as Croce and Collingwood and artists such as Tolstoy.

The philosopher of art, Derek Matravers, notes that “there are various means by which a work could be expressive (none invariably successful). It might represent a person being expressive. It might represent a situation that gives a reason for being in an emotional state.” And he adds that “the philosophical literature has tended to focus on ways by which a work can become expressive that do not involve the representation of states of affairs; paradigmatically, it has focused on instrumental music although there is also a small literature on expression in paintings.”²

Our aim in the AVE (Art Visuel et Émotion) project is to focus not on music but on painting and to investigate the expressivity of painting along the philosophical trend mentioned by Matravers, that is, by focusing on ways by which a work of pictorial art can express emotions in a non-representational manner.

How can a work of pictorial art express emotions in a non-representational way? Commenting on the emotions expressed by a self-portrait by Van Gogh, the philosopher of art Kendall Walton makes the following intriguing suggestion: “What produces the affect in a spectator, what makes her nervous, need not be the character’s fidgeting or any other properties he is represented as possessing. Features of the work itself, considered non-representationally, may do the job.”³ Two sentences later, Walton clarifies what he has in mind and refers to “features of the paint on the canvas: the busy brushwork in the background and on the jacket, the choppiness of the strokes on the face and beard.”⁴

Walton’s remarks on the emotional responses elicited by the brushwork in some paintings have been somewhat neglected by the philosophical community. A notable exception is Gregory Currie who, in an attempt to elucidate the meaning of the term “expressive,” uses as an example what he describes as “a van Gogh-like picture with (as we say) angry brushmarks” and proposes that “features are expressive in my sense if they are features visible in the work itself, and where they manifest or seem to manifest a mental state.”⁵

We surmise that Walton’s above-mentioned philosophical suggestions may constitute a fruitful challenge for the sciences of art. On that basis, a multidisciplinary project—AVE—has been developed in order to elaborate experimental protocols from psychophysics and affective neuroscience related to Walton’s suggestions. The general

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¹ The authors of the experimental results are Marine Taffou, Kenneth Knoblauch, Aure-Élise Duret-Lerebours, and Stéphanie Dubal; the co-authors of the philosophical part of the paper are Jérôme Pelletier and Yolaine Escande.

² Derek Matravers, “Expression,” in *A Companion to Aesthetics*, eds. Stephen Davies, Kathleen Marie Higgins, Robert Hopkins, Robert Stecker, and David E. Cooper (Chichester: Blackwell, 2009): 262.

³ Kendall Walton, “Projectivism, Empathy, and Musical Tension,” *Philosophical Topics* 26, nos. 1 and 2 (1999): 430.

⁴ Walton, “Projectivism,” 431.

⁵ Gregory Currie, “The Irony in Pictures,” *British Journal of Aesthetics* Vol. 51, Number no. 2 (April 2011): 154.

aim of this research project is to use modern scientific tools—but without necessarily endorsing a reductive methodology—to gain a better understanding of certain characteristics of our emotional engagement with non-representational aspects of pictorial art.

Western Intuitions Meet the Chinese Philosophy of Art

The AVE project stems in fact from the intuition that Walton’s philosophical remarks about our emotional responses to brushstrokes in certain Western paintings were in resonance with various claims one finds in ancient texts from the age-old tradition of Chinese calligraphy and painting.

The theoretical tradition of Chinese calligraphy is based on an appreciation of the developments of everyday hand script, with the use of a brush and ink on a sheet of paper, and not of decorative or specific types of writing. In this tradition, expression of emotion is fundamental to appreciation. This tradition of writing has been handed down from its origins to today by initiation, from master to disciple, and one can still benefit from this living tradition. The standards of the Chinese calligraphic tradition were established under the Tang dynasty (618–907). Hence, it is usual to refer to authors and calligraphers from this period, who remain models for the technical and theoretical apprenticeship of calligraphy.

Concerning the expression of emotions, for instance, Tang dynasty (618–907) theoretician and calligrapher Zhang Huaiguan (active ca. 724–760) states in his *Shuyi* [Debate on calligraphers] (759):

The acme of refinement in calligraphic and literary arts is attained by expressing one’s deepest feelings (*yi*) and clearly rendering it at first glance.⁶

One of the greatest Tang dynasty writers, Han Yu (768–824) also claims, in his *Gaoxian shangren xu* [Farewell preface to Monk Gaoxian Song] (803), of Zhang Xu (ca. 675–ca. 759), whose cursive script is still today a model for the apprenticeship of this script:

In the past, Zhang Xu excelled in cursive script, and did not practice any other activity. All emotions, whether it be happiness or anger, torment or despair, grief or desolation, joy or leisure, resentment or regret, affection or envy, exhilaration or drunkenness, weariness or indignation, all were necessarily expressed in his cursive script.⁷

In the history of pictorial art, Chinese art seems unique in establishing very early the importance and centrality of the connection between the expression of emotions in art and the value of art. One could go as far as to claim that, for Chinese painting, whose theory and practice are closely linked to calligraphy, the mimetic imitation of reality was never really the point. Rather, its main intention has always been the expression of “sources of one’s heart” (that is, emotions), as Tang dynasty Zhang Zao (eighth century) puts it,⁸ also called “spiritual resemblance.”⁹

This may explain why the basis of Chinese literati painting is the brushstroke and not coloring since there seems to be a more immediate connection between the traces of the brushstroke and emotions than between coloring and emotions, notwithstanding that there might be a connection between coloring and emotions. In Chinese philosophy it is claimed that brushstrokes in calligraphy—as in painting—directly express one’s mind, feelings, and personality, whereas no such claims are made about coloring.

Even though painting has existed in China since the Paleolithic era at least, it was only much later that it was recognized as an art, and theorized and transmitted as such, which means not before the sixth to eighth centuries, and has always been compared to calligraphy. Chinese historians knew painting was historically prior to calligraphy (writing as an art), but they have always said, and continue to do so, that “calligraphy and painting share a common

⁶ Zhang Huaiguan, “Shuyi” [Debate on Calligraphers], in *Lidai shufa lunwen xuan* [An anthology of treatises on calligraphy of successive dynasties], ed. HUANG Jian (Shanghai: Shanghai shuhua chubanshe, 1987), 145; trans. Y. Escande.

⁷ Han Yu, “Song Gaoxian shangren xu” [Farewell preface to Monk Gaoxian], in *Lidai shufa* [Anthology of treatises], 292; trans. Y. Escande.

⁸ See Zhang Zao’s biography in Zhang Yanyuan, *Lidai Minghua Ji* [Annals of famous painters of successive dynasties (857)], chap. 10, in which Zhang Zao replies to another painter who asks him who is his master: “Outside, I follow creation (*zaohua*), and inside, I grasp the sources of my heart (*xin*)”; trans. Y. Escande.

⁹ Although “spiritual resemblance” (*shensi*) is, in theory, opposed to “formal resemblance” (*xingsi*), “formal resemblance” actually has nothing to do with the mimetic imitation of reality, but mainly means the transmission of formal norms through copying. Thus, in the Chinese tradition, creative painting is more likely to be related to “spiritual resemblance.”

origin” (*shuhua tongyuan*) when talking about painting, so as to give it more importance. In this expression, *shu* means both writing and the art of calligraphy; writing appeared around the sixteenth century BC, calligraphy in the first century AD.

The etymology of painting, *hua* 畫, is a hand (手 or 巾) holding a brush (筆) over a cultivated field (田). At its origin, the term *hua* meant “to draw, to draw a map.” Later, the character meant to execute a painting, and the product of this activity. Thus *hua* indicates the act of painting, together with its result, the brushstroke. Hence, the definition of painting does not mean to paint with colors, as explained by the theoretician of painting Zhang Yanyuan (ninth century).¹⁰

On that basis, AVE program partners decided to focus on the art of Chinese calligraphy in which—even more than in Chinese painting—the brushstroke is considered as a central element of emotional expressiveness.

The AVE Project

The ongoing multidisciplinary AVE project was initiated and led by a philosopher and funded by the French National Research Agency (ANR). AVE brings together around a common goal researchers in the field of social sciences as well as specialists in cognitive science, working together to understand in what sense and to what extent the brushstroke may constitute a central element of the emotionality of a painting. The scientific partners in AVE are the Institut Jean Nicod (IJN) (UMR 8129, CNRS-ENS-EHESS), the Centre Émotion (USR 3246), the Stem Cell and Brain Research Institute (U846 Inserm-UCB Lyon 1), the Centre de Recherches sur les Arts et le Langage (CRAL: UMR 8566, CNRS - EHESS). The AVE project also leans on the creative collaboration of an artist, the Paris-based Chinese calligrapher, Dr. LIANG Yang.

AVE promotes cross-fertilization between the various disciplines involved such as philosophy (Institut Jean Nicod) and neuroscience (Centre Émotion), philosophy (Institut Jean Nicod) and Chinese Arts theory (CRAL). This collaboration between philosophy and neuroscience should allow progress in the ongoing emergence of the cognitive philosophy of art. With the creative diversity of pictorial art, the collaboration between Chinese and Western philosophies should demonstrate that it is possible for art to transcend the differences between countries and cultures. The multidisciplinary AVE project is the first step in the scientific assessment of a centuries-old Chinese art that has relevance for Chinese philosophy, the Western philosophy of art, and neuroscience.

How should one proceed in order to give a scientific account of the power of works of pictorial art to express emotions? By basing itself on the practical and theoretical tradition of Chinese calligraphy, AVE is elaborating protocols from psychophysics and affective neuroscience in order to understand certain causal processes at the root of the emotional expressiveness of brushstrokes. Our strategy is to focus on the emotional experience of viewers of calligraphic works and to investigate the nature of this experience at two levels: the personal and the subpersonal. At the personal level, we can evaluate how subjects rate the emotions perceived in a calligraphic work as well as the emotion they themselves felt. At the subpersonal level, we can investigate whether a specific network of areas in the brain was activated by emotionally-charged works of calligraphy.

The Experimental Stimuli

We first asked Dr. LIANG Yang to create calligraphies of single characters of various emotional intensity, and more precisely calligraphies of the lowest emotional intensity and others of the highest emotional intensity. Sixty Chinese calligraphies were created in pairs so as to render two versions of a same Chinese sign with different emotional expressive intensity. The Chinese signs were chosen by the calligrapher. Thus, for each of the thirty Chinese characters, the artist created pairs of calligraphies with, on the left, one with high emotional expressivity (HEE) and, on the right, a second with low emotional expressivity (LEE):

Below are two samples of Dr. LIANG Yang’s creations:

¹⁰ See the paragraph “On the Origins of Painting” in Zhang Yanyuan, *Lidai minghua ji* [Annals of famous painters], chap. 1: “The [dictionary called] *Shuowen* [Theory of primitive graphs] says: ‘*Hua* means to limit, to delineate; it shows the path that separates fields, it is the reason why it is a layout (*hua*)’”; trans. Y. Escande.



Examples of pairs of characters. Left: with low emotional intensity (LEE); right: with high emotional intensity (HEE)

Emotion and Style in Calligraphy

Since, as can be seen, all the HEE calligraphies are written in cursive script while all LEE ones are in regular script—this was the artistic choice made by the calligrapher who created the calligraphies for the experiment—a pertinent distinction, borrowed from the Western philosopher of art Jenefer Robinson, between the concepts of expression and of expressiveness may shed new light on the distinction between regular and cursive scripts in Chinese calligraphy.

According to Robinson’s conception of expressiveness, “[a]n artwork that expresses an emotion in an expressive way is one that reveals something of what it is like to be in such an emotional state.”¹¹ On that basis, we suggest that HEE forms are expressive because they render expressively the expression of emotion in the calligraphy while LEE are less expressive because they render less expressively the expression of emotion. Expressiveness is a matter of degree and is a property of the relation between an artwork and its audience: it “depends on how effectively the artwork reveals to a (suitable) audience what that emotion is like.”¹² Thus Robinson distinguishes between the two notions of expression and expressiveness:

I have suggested that expression should be thought of as a relation between an artwork (the expression) and an expresser, who is either the author or an imagined agent such as the implied author, a narrator or a character in the work. By contrast, I have treated expressiveness as a relation between the expression and the audience to whom it communicates. Whether something is or is not an expression depends on whether it is a product of a person or agent who is expressing his or her emotions. Expressiveness, on the other hand, depends on how effectively the artwork reveals to a (suitable) audience what that emotion is like.¹³

While Chinese calligraphy in both regular and cursive scripts may be considered as expressions of emotions—in Robinson’s sense of the notion of expression—it appears that our calligrapher has considered Chinese calligraphy in regular script as only minimally expressive and calligraphy in cursive script as maximally expressive—in Robinson’s sense of the notion of expressiveness.

The Experiments

¹¹ Jenefer Robinson, “Expression and Expressiveness in Art,” *Postgraduate Journal of Aesthetics* 4, no. 2 (2007): 33.

¹² Robinson, “Expression,” 36.

¹³ Robinson, “Expression,” 36.

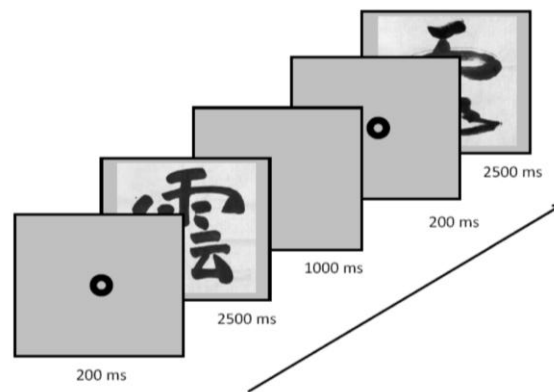
Since we decided to present the Chinese calligraphy to non-Chinese participants, its semantic content was not detected and the characters were viewed as abstract art.

The objective of the first experiment was to evaluate, using psychophysical methods, the sensitivity of subjects in detecting differences of emotional intensity in Chinese calligraphic characters. More specifically, the first objective of the experiment was to evaluate whether a non-Chinese population, without any knowledge of the Chinese language and without practice or knowledge of the art of calligraphy, would classify the emotional level in calligraphies in a non-random way. The second objective was to determine if, and to what extent, a classification of calligraphies by emotional level among the same population would match the artist's classification of emotional level in the calligraphies he himself had created for the experiment.

Participants were explicitly informed that they would be shown abstract artworks. Each participant in the study was seated in front of a screen and was presented with all the calligraphic signs created by Dr. LIANG Yang in random order.

In each trial, the participant was asked to respond on a scale of 1–5 as to the emotional intensity that he perceived in the stimulus, that is, a calligraphy, where 1 was used if he felt that the character expressed low intensity and 5 the strongest. The observer was directed to respond with category 3 if the stimulus was of intermediate emotional intensity and 2 or 4 if the stimuli appeared nearer to neutral or strong, respectively.

Each trial began with the presentation at the center of the screen of a fixation point for 200 ms, followed by a stimulus (calligraphy) for 2500 ms. The interval between trials was fixed at 1000 ms, as shown in the figure below.



PARTICIPANTS: 22 RH NAIVE SUBJECTS;

STIMULI: 60 CALL, LUMINANCE EQUALIZED, PRESENTED AS ABSTRACT ART;

TASK: DETECTION OF EMOTIONAL INTENSITY (1 TO 5).

Diagram of the psychological experiment

The analysis of the data is based on Signal Detection Theory, which assumes that the perceiver's capacity of detecting a signal is constrained by internal responses to the stimuli and contamination by noise.¹⁴ The sixty calligraphies were divided into two categories, LEE and HEE, according to the artist's classification. In this context, the signal is the difference of emotional intensity evoked by the LEE and HEE calligraphies, LEE being treated as noise and HEE as noise plus signal. The ratings were used to construct Receiver Operating Characteristics (ROC) curves from which the signal detection measure of sensitivity, d' , was estimated with its standard error. Our goal was to determine whether or not naive subjects (i.e. subjects ignorant in the art of calligraphy and in Chinese) were able to detect the signal, i.e. the emotional classification proposed by the artist.

Sixteen of the 22 participants significantly discriminated the emotional categorization of the calligraphies. Among them, four perceived the difference between the two categories of stimuli but identified, in opposition to the

¹⁴ Cf. N. A. MacMillan and C. D. Creelman, *Detection Theory: A User's Guide*, 2nd ed. (Mahwah, NJ: Lawrence Erlbaum Associates, 2005).

artist's classification, the LEE as emotionally intense and the HEE as weakly emotional. Five other subjects did not significantly detect the artist's classification. This indicates a significant resemblance in the classification of calligraphies in emotional level between a non-Chinese speaking population and the artist.

In a second step, we recorded EEG (electroencephalography) responses while subjects viewed the calligraphies, in order to explore the temporal dynamics of emotional processing due to the calligraphies. Additionally, during the EEG recordings, participants had to judge the intensity of their feelings on a four-point scale from 0 to 3. Why did we carry out EEG? Based on the existing literature, we anticipated a perceptual amplification for high emotional expressivity calligraphies, a sensory gain mechanism activated by the perception of high emotional expressivity calligraphies. Previous fMRI studies showed a sensory gain mechanism in primary visual cortex as well as extrastriate areas,¹⁵ and EEG studies showed an enhanced cortical activation in occipital areas from 80 ms poststimulus.¹⁶ Ultimately, we found an absence of modulation in the EEG results. None of the event related potential (ERP) components usually modulated by the emotional intensity of a face or a scene was modulated by the emotional intensity of the calligraphies.

Towards the “Motor Hypothesis”

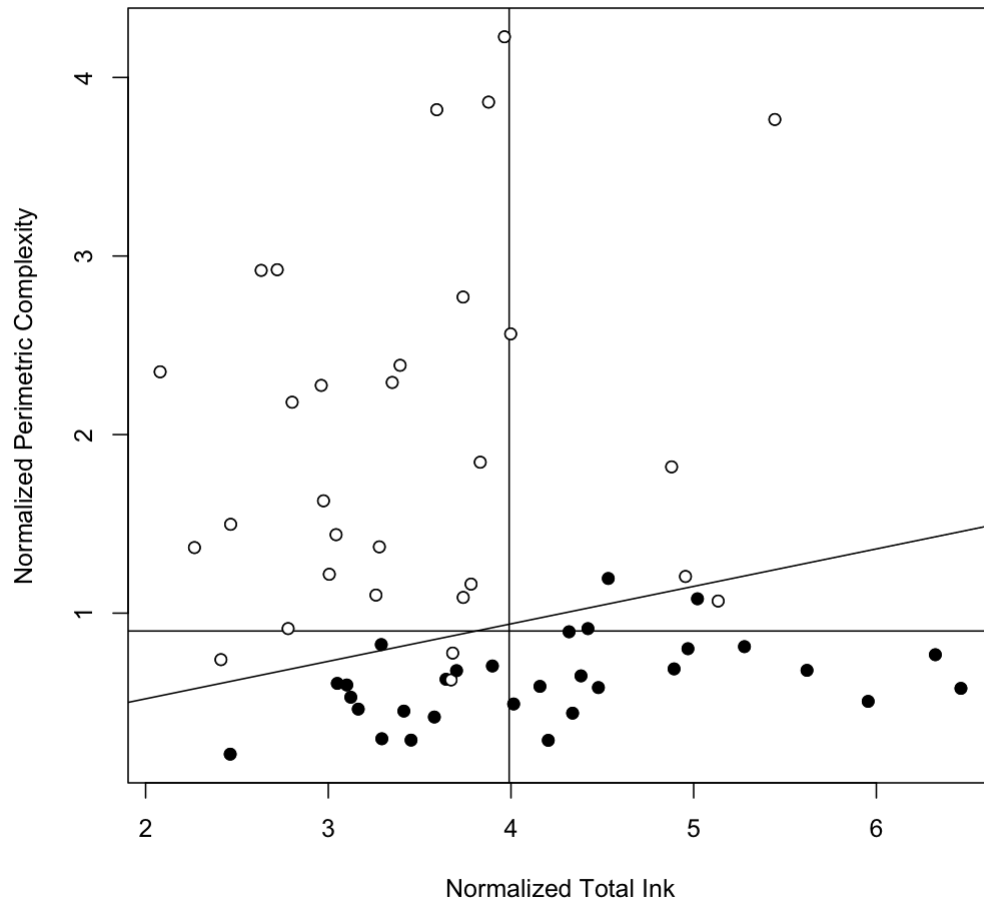
The absence of perceptual amplification related to emotional content may suggest that the emotions perceived or felt through art differ qualitatively from ordinary emotions. But this was too simple an explanation. We were confronted with the following problem: on the one hand, a majority of participants in the psychophysical experiment discriminated the emotional categorization of the calligraphies in accordance with the artist's classification. On the other hand, the EEG procedure did not show an amplification of the visual signal for high emotional expressivity calligraphies relative to low emotional expressivity calligraphies. In order to disentangle this problem, we investigated the possible bases of the participants' classifications of the calligraphies. How did the subjects proceed to classify the calligraphies the way they did? We investigated two categories of questions: did they detect some properties in the stimuli which prompted them to give certain answers? Did they follow a particular strategy in order to give an answer?

We investigated whether the physical characteristics of the stimuli could, if at all, be used to categorize the stimuli. Two properties were studied in this respect: i) the total amount of ink in each calligraphy, and ii) the perimetric complexity (perimeter squared over “ink” area), i.e. an index that quantifies how convoluted a character is, and which is calculated after having transformed the stimuli into binary images.¹⁷ In general, it appears that the low emotional expressivity stimuli (LEE) have more ink in them. As for the perimetric complexity, by this measure nearly all of the high emotional expressivity characters show more perimetric complexity. In the next figure, the two values of total amount of ink and perimetric complexity are plotted against each other; the two types of images are indicated as points: white for HEE, and black for LEE stimuli. We then asked whether there were various lines that could be drawn through the points that would best discriminate the two sets of points. We found that perimetric complexity would be a better discrimination cue as compared with total ink, if that was what subjects used.

¹⁵ Cf. Dean Sabatinelli *et al.*, “Parallel Amygdala and Inferotemporal Activation Reflect Emotional Intensity and Fear Relevance,” *NeuroImage* 24 (2005): 1265–70. See also Katrin R. Scharpf, Julia Wendt, Martin Lotze, and Alfons O. Hamm, “The Brain's Relevance Detection Network Operates Independently of Stimulus Modality,” *Behavioural Brain Research* 210, no. 1 (June 2010): 16–23.

¹⁶ See S. Dubal *et al.*, “Human Brain Spots Emotion in Non-humanoid Robots,” *Social Cognitive and Affective Neuroscience* 6, no. 1 (2011): 90–97. doi:10.1093/scan/nsq019.

¹⁷ Cf. D. G. Pelli *et al.*, “Feature Detection and Letter Identification,” *Vision Research* 46 (2006): 4646–74. See also F. Attneave and M. D. Arnoult, “The Quantitative Study of Shape and Pattern Perception,” *Psychological Bulletin* 53 (1956): 452–71.



Total amount of ink and perimetric complexity (HEE: white points, LEE: black points)

In order to investigate the strategies employed by the participants during the psychophysical experiment, the participants were debriefed with questionnaires that revealed heterogeneity among the strategies adopted to categorize the stimuli. Four groups emerged, whose strategies were based respectively on the figurative aspect found in the works (Group I), on the strength of the strokes (Group II), on no particular strategy (Group III) and on the perceived movement (Group IV). It appears that the subjects who used a strategy based on the perception of movement or those that did not use any definite strategy were the most successful in the classification task. Further, another experiment showed that the level of movement perceived was higher for high emotional expressivity calligraphies.

It appears then that, at the stimuli level, perimetric complexity and, at the subjective level, perceived movement in calligraphies might contribute to an explanation of the basis of discrimination by subjects between low emotional expressivity and high emotional expressivity calligraphies. The fact that there is a strong positive linear correlation, among Group IV of participants, between the degree to which they perceive movement in the images and their success in the task of discrimination between emotions in the calligraphies constitutes an incentive to explore the relations between our motor competences and the perception of emotions in traces of brushstrokes. On this basis, we decided to move on and develop new protocols in order to test what we call the “motor hypothesis”, i.e. the hypothesis that brushstrokes convey emotions in calligraphies through a motor engagement in the viewer’s brain.

The above-mentioned motor hypothesis has recently been proposed (without any experimental data) by neuroscientists studying emotional responses to works of art.¹⁸ But, to the best of our knowledge, no neuroscientists mention the relations of this motor hypothesis to the Chinese theory of calligraphy. However, in fact, Chinese art theory in a way “anticipated” this motor hypothesis, some centuries ago. This is the point we would like to develop in the next section.

The Conception of the Brushstroke in Chinese Art Theory

We first present the way Chinese art theorists describe brushstrokes in Chinese calligraphy, i.e., the vocabulary used by Chinese art theorists in their descriptions. We will also show that, in a Chinese calligraphy, Chinese calligraphers neither see traces of the brush as separations or boundaries between the strokes themselves nor between the strokes and the surface, but as “strokes in motion” or at least as strokes related to one another in a bodily relationship.

In the Chinese calligraphic tradition, while the appreciation expressed apparently seems to concern brushstrokes, it actually involves the relationship between the viewer of the brushstroke and the calligrapher. It is believed, and this belief is grounded in a two-thousand-year-old practical and empirical tradition, that the viewer of a calligraphy, looking at the brushstrokes, can not only represent in his/her mind the gesture of the calligrapher who created the movement visible in the brushstroke, but can also perceive or feel this gesture in his/her body. Let us say that according to the tradition, the viewer of an emotional calligraphy is supposed to “recreate” in his/her mind and body the creative gesture of the calligrapher. A creative brushstroke, that is an emotionally expressive one, is said to bring the viewer to feel the emotion the calligrapher felt when writing via a recreation by the viewer of the calligrapher’s gesture. For this reason, in the calligrapher’s apprenticeship, to copy a brushstroke in writing a character according to a chosen model is not merely to make a formal copy, but involves the entire personality: to copy a gesture means to embody the brushstroke, and live and feel, through the same gesture as that the calligrapher of the model performed, the same emotions as the model then gave rise to. For instance, Han Yu, after praising Zhang Xu’s cursive script, criticizes the Buddhist monk Gaoxian’s (ninth century), because Gaoxian compares himself to Zhang, but without becoming himself a Zhang Xu:

The changes of all phenomena between heaven and earth, making us happy or frightening us, were all present in Zhang [Xu]’s script. That’s the reason why his script, which transforms itself as devils and spirits do, is elusive. Therefore, he worked his life long and left an illustrious name to posterity. Now, Gaoxian, you devote yourself to cursive script, but do you have the heart (*xin*) of [Zhang] Xu? If you don’t have it and follow his tracks [taking him only as a formal model], it will be impossible for you to become a [Zhang] Xu. There is a way of becoming a Zhang Xu: benefits and disadvantages must be distinguished, no detail must be neglected; with one’s feelings (*qing*) burning inside, one should struggle to defend his interests and ambitions; in success or failure, never should one depart from his position; then only can one begin calligraphy, and approach [Zhang] Xu.¹⁹

For the same reason, the appreciative vocabulary on the brushstroke found in the Chinese tradition of calligraphic theory and practice, while apparently descriptive, seems quite strange: the strokes constituting a calligraphy are described using, on the one hand, a “physiological” vocabulary (though not thus designated by the Chinese) in terms of “flesh, bone, sinews”, etc.; and, on the other hand, using a “characterological” vocabulary (though, again, not thus designated by the Chinese), in terms of “strength, power, grace, etc.”, that can be either positive or negative.²⁰ The first of these two categories will now be further developed. However, the appreciative vocabulary of Chinese calligraphy does not aim at objectivity; it does not consider calligraphic brushstrokes as autonomous objects, like lines that need to be described from an external point of view. Unlike the Western graphological system that adheres to an ideal of “objective” description, and focuses on a precise and quantified analysis of “height”, “form” of lines, distance between down strokes, transposition or projection of body, etc., the Chinese calligraphic appreciative tradition uses bodily vocabulary to describe the characters. For instance, in his “On the Quintessence of the Brush,” the Tang dynasty calligrapher Yu Shinan (558–638) explains in the following terms the results of different ways of handling the brush:

¹⁸ See, for example, D. Freedberg and V. Gallese, “Motion, Emotion and Empathy in Esthetic Experience,” *Trends in Cognitive Sciences* 11, no. 5 (2007): 197–203.

¹⁹ Han Yu, “Song gaoxian shangren Xu,” in HUANG Jian, ed., *Lidai shufa* [Anthology of treatises], 292; trans. Y. Escande.

²⁰ For more details, see Y. Escande, *L’Art en Chine: La résonance intérieure* (Paris: Hermann, 2001), 84–104.

If the writing is too slow, then the calligraphy is not tense (*jin*); but if it is too quick, the script lacks bone (*gu*). If the brush hairs are inclined sideways and the handle oblique, the script is slow and flesh (*rou*) is plentiful; but if the handle is straight and the tip vertical, the script is dry and the bone stands out.²¹

Generations of calligraphers have studied *Bizhen Tu* [Battle map of the brush], a text book on calligraphy attributed to Lady Wei (272–349), the master of the best-known calligrapher of the Chinese calligraphic tradition, Wang Xizhi (303–361). In it, she insists on the technical characteristics of the physiological terminology used in calligraphy:

The calligraphers with a strong brushstroke produce characters with abundant bones (*gu*), those who lack strength fleshy (*rou*) characters; those whose characters are full of bone with little flesh are said to have a muscular (*jin*) script; those whose characters are fleshy with few bones are called ink pigs. A solid script is made up of strength and sinew; a script without strength and sinew is sickly.²²

In this excerpt, Lady Wei points out the positive or negative importance of “strength” (using a characterological vocabulary), related to “bones” and “sinews” or “muscles” (physiological vocabulary).

Apparently, nothing is said in this tradition about the gesture itself. Actually, the Chinese tradition never mentions the gesture as such because the goal is not the gesture itself, nor the perception of it, but its transmission from one generation to the next, through the creative interpretation of literati artists. The gesture is described in the technical terms of an apprenticeship, but not with the aim of studying its perceptive effect. Why, then, is this kind of vocabulary so efficient in this tradition, and why has it been chosen and preferred to any other kind of description, especially when related to emotions? One reason might be the importance of the capacity of embodiment in the apprenticeship. When learning calligraphy, one first begins by copying models. Even the greatest calligraphers in Chinese history all learnt calligraphy by copying. In this process, the choice of a model is fundamental, as the Qing dynasty theoretician and calligrapher Feng Ban (1614–1671) explains:

A poor literatus finds it difficult to learn calligraphy, because he doesn't have old manuscripts at home. But he only needs a few columns of an authentic work to awaken to the use of the brush and to the structure of characters.²³

This means that observing a calligraphy allows one to perceive the gesture that produced it, because copying does not mean imitating formal likeness. One begins by carefully absorbing the model, examining it for a long time, before re-writing it, as Qing dynasty calligrapher Song Cao (active ca. 1644–1661) puts it:

The beginner in calligraphy does not have to use a lot of paper and ink: after having chosen an old well-drawn stele, one only needs to observe it in detail and become immersed in it to the point of knowing it perfectly, then to recall it without referring to the model. After studying it and thinking about it, thinking and studying, when at last its layout takes shape in the heart, then seize your brush and follow it. If the obvious image in the heart cannot be rendered clearly by the hand, go back and study it and think about it, think and compare. Initially, you will only obtain twenty or thirty percent; you must keep working at it, to get to forty or fifty percent, and then start writing so to develop your capacities.²⁴

Hence, formal imitation is not the first step in copying a model, but close study, and an interpretation of the gesture that produced the brushstrokes; the essential aim is not to obtain verisimilitude, but to grasp the “spirit” of the model through the re-interpreted gesture. This process alone, it is said, allows a re-appropriation of the model. “Those who only look for formal resemblance in calligraphy do not understand anything about it,”²⁵ according to the theoretician Jiang Ji (eighteenth century). The AVE motor hypothesis is not expressed as such by Chinese theorists, because, contrary to the AVE position, Chinese theory does not focus on the perception of movement. Still the

²¹ Yu Shinan, “Bisui Lun” [On the quintessence of the brush], in HUANG Jian ed., *Lidai shufa* [Anthology of Treatises], 111; trans. Y. Escande.

²² Yu Shinan, “Bisui Lun” [On the quintessence], 22; trans. Y. Escande.

²³ Feng Ban, “Dunyin shuyao” [The essential on calligraphy (of the old) singing idiot], in *Meishu congshu* [Compilation of treatises on arts: A series on fine arts in three books], DENG Shi, HUANG Binhong, eds. 3 vols. (Yangzhou: Jiangsu guji chubanshe, 1986), 1:191, f. 2a-b; trans. Y. Escande.

²⁴ Song Cao, “Shufa yueyan” [Brief Words on Calligraphy], in *Lidai shufa* [Anthology of treatises], 565; trans. Y. Escande.

²⁵ Jiang Ji, “Xu shufa lun” [Continuation on calligraphy], in *Meishu congshu* [Compilation of Treatises], 3:2061; trans. Y. Escande.

Chinese traditional categorization explicitly makes a link between creative brushwork, its visual effect, and the capacity to embody it. Like AVE's motor hypothesis, the above-mentioned link is said by Chinese theorists to be the basis of the emotional power of the brushstroke.

Conclusion

We will conclude with some remarks on the conception of line in Chinese calligraphy and show that, for some reason, this conception has been misunderstood by Western philosophers. An explanation of the appropriateness of the "physiological" vocabulary used by Chinese art theorists to describe brushstrokes needs to be based on their understanding of the strokes.

For Chinese art theorists, the Chinese calligraphic brushstroke is not considered as a geometrical line. Nor is it considered as a line in the sense given by Merleau-Ponty to Klee's lines. In *L'Œil et l'esprit* [Eye and mind],²⁶ Merleau-Ponty states that in the paintings of Matisse or Klee: "*il n'y a pas de lignes visibles en soi*," ("there are no lines visible per se", p. 73), and proposes that the line marks a distinction between one thing and another (p. 71–74). On this basis, Merleau-Ponty expands on the importance of color in Matisse's or Klee's painting (p. 74), because color alone renders things visible ("*rend visible*"). In an elusive way, Merleau-Ponty concludes that "*Jamais peut-être avant Klee on n'avait 'laissé rêver une ligne'*." ("Never before Klee had anyone 'let a line dream'," p. 74). For Merleau-Ponty, the line is considered to exist only by "making visible" some other thing.

One finds an altogether different conception of the line in Chinese calligraphy. According to Chinese art theoreticians, the brushstroke is not considered as making something visible. The brushstroke-line is said to be a living being, a body, related to other bodies and phenomena on the paper and in the universe. In this sense, the brushstroke does not create a line as in Merleau-Ponty's conception of the line: when the brushstroke is completed, it is then perceived as the dynamic body it is, and as a body expressing emotions, it expresses emotions itself and is experienced by the viewer as expressing emotions.

As mentioned above, but in other words, Chinese art theorists do not conceive of the calligraphic brushstroke as having an outline. On that basis, it can be said that for Chinese art theoreticians, a brushstroke immediately has the plenitude of a surface. Nevertheless, one should be careful here since, for Chinese art theorists, the calligraphic brushstroke is not considered as a surface. Actually, according in Western geometrical terms, a surface is conceived of as an entity whose function is to divide space in parts. By contrast, the role of the surface, as conceived by the Chinese, is to create unity among various elements of space. This is why in the Chinese vision, a stroke is not what separates space as a line or a surface would: a calligraphic stroke is not considered as an "object", but as a living body. Its role is to establish a relationship with its environment, whether another brushstroke or a blank space, thus establishing a yin-yang relationship, just as things in nature are not separated but all related to one another.

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²⁶ *L'Œil et l'esprit*, Paris: Gallimard, 1964.

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