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Image/Images: A Debate Between Philosophy and Visual Studies

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Where Images Make Their Wonder: An Introduction

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Those who had entered one of the Venetian venues of the François Pinault Foundation in early 2020, before the world closed for pandemic, would have been able to visit an exhibition that was not only superb but also philosophically interesting. On display in the rooms of Palazzo Grassi were some eighty works by one of the most important living painters in the world: the Belgian Luc Tuymans.

La Pelle (The Skin), this is the title of the exhibition, was interesting from a philosophical point of view because it allowed the most attentive spectators to sense some of the issues that are at the center of today's international debate about the status of images.

First of all, the paintings hanging on the walls of the museum featured representations of different kinds. Some of them depicted real existing objects; others were abstract, in part or entirely, or reproduced childhood doodles; still others were not simple representations, but representations of representations taken from the most disparate sources: analogue or digital photographs, films, TV programs, book illustrations, scientific illustrations or photographs produced with particular technologies, copies of drawings, 3D models, etc.

Each of the figures painted on the canvas had a particular relationship with its referent. Among very different degrees of verisimilitude, not everything was what it seemed: what at first glance appeared to be the representation of an imposing mountain, at a second glance turned out to be that of a small pile of sand. And yet, despite

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this figurative pluralism, all the works gathered in the museum could rightly be included in the same class: the class of images. But why? What shared characteristics or properties gave the painted figures the same ontological status?

Secondly, the exhibition was remarkable because there were no captions on the walls to accompany the artworks. At first sight, therefore, one found oneself observing Tuymans' paintings without any interpretative mediation; only later was it possible to delve into the meaning of each painting by reading a short guide that was provided at the entrance to the show. Thus, during the visit, two opposite experiences alternated. Sometimes it happened that the work itself communicated a certain feeling, which remained unchanged or intensified after reading the description included in the guide. At other times it could happen that apparently innocuous figures such as a face or a landscape depicted people or events of tragic historical significance: the portrait of a Nazi commander, a copy of a drawing made by a prisoner in a concentration camp. And so the paintings became colored with a different, disturbing emotion depending on whether or not one had read the description provided by the museum.

What do we see when we see an image? Is it possible, in an image, to see immaterial phenomena such as movement, emotion, or even the expression of an ethical-political value? When is this the result of perception and when is it the result of interpretation?

Third, by reading the supplied guidebook, one could discover that not all of Tuymans' paintings depicted real objects. Some canvases portrayed scenes or things that were the product of imagination, others represented experiences that the painter had lived in the past and then brought back to memory. In one way or another, many of the works exhibited in the Venetian museum had passed – perhaps – through the artist's mind before becoming real. Conversely, the same process seemed to happen in the mind of the viewer when, once back home, he reflected on the exhibition remembering what he had seen during his trip to Venice.

So can it be said that the artist and the viewers had mental images of the works on display? Do these mental images really exist? What do they consist of? And if they do exist, can we say that they are of the same kind as the other images we have mentioned so far?

Through this third issue of the *Journal for the Philosophy of Language, Mind and the Arts* we want to ask ourselves a series of questions similar to those raised by Tuymans' exhibition at Palazzo Grassi. We ask ourselves what images are and what properties characterize them; if and how they exist also in our mind; what relationship they have with phenomena such as perception, memory, language and interpretation. In fact, it is repeated more and more often that in the twenty-first century the world is overloaded with images, that our culture is now made up of images, but it is not at all clear what this

means. What, then, do we refer to when we speak of images?

The authors participating in this issue have been asked to answer these and other questions starting from and in dialogue with the two philosophical perspectives that, in our opinion, have most enriched the study of our object of research since the second half of the twentieth century: analytical philosophy and visual culture studies.

In the context of analytic philosophy, images have been considered – so to speak – one by one. Usually, in fact, theorists who have placed themselves along this axis of thought have examined images as single entities placed in relation, on the one hand, to a real or unreal referent and, on the other hand, to the perceptive or interpretative abilities of a given observer.

The debate on pictorial representation, though longstanding (think of Plato's *Cratylus*, Leon Battista Alberti's *De Pictura*, or Descartes' famous essay on optics), has only recently re-entered philosophical discussion, and only after the appearance of *Art and Illusion* (1960) by Ernst Gombrich (Lopes 1996, 8; also Newall 2011, 1). The nature of each intervention is animated by the following fundamental question: "what does it mean for X to depict Y?", or "what are the necessary and sufficient conditions for X to be said a pictorial representation of Y?" (Di Monte 2018). Depiction theorists have proposed various solutions, which can be ordered on the basis of a few major strands.[1]

The conventionalist theory (sometimes also referred to as the semiotic, or structuralist, model), defended by Nelson Goodman, assumes that pictures adhere to a certain representational code. According to this view, a picture X represents an object Y not because of a similarity between the object and the picture, but because of a convention stipulated within a community of individuals (Goodman 1968).

According to the so-called resemblance theories of depiction, on the other hand, the shapes and colours of an object Y resemble the shapes and colours of a picture X (which depicts Y). Goodman, who has been the severest critic of the resemblance theory of depiction, claims that the biconditional "X depicts Y if and only if X resembles Y" is essentially false.

Despite Goodman's position, influential scholars have subsequently reworked a new version of the resemblance theory. This is the case with John Hyman (but also Catharine Abell 2009), whose theory takes up the Fregean demarcation between *Sinn* and *Bedeutung* (Hyman, Bantinaki 2021). The relation between representing and represented is thus not explained in terms of *Bedeutung*, but in terms of *Sinn*; this means that, for example, a portrait of Y represents Y only in a certain respect, so that two different portraits of Y certainly refer to the same individual, but describe two different aspects of her, i.e. they differ in

1 For a recent and complete overview, see Hyman, Bantinaki 2021.

meaning. To give a concrete example, the Venetian painter Titian made at least two portraits of his friend Pietro Aretino, one in 1537 (now in New York), the other in 1545 (now in Florence). In the second one, Aretino appears in a frontal position, with his face in half-light and a frowning expression (like the choleric and daring "scourge of princes" that he actually was, a label he earned by force of blackmail against the powerful of his time). In the first portrait, however, he is portrayed in a three-quarter profile, with his face illuminated. He looks like a humanist of elevated rank, with an enlightened gaze – note the necklace in evidence and the gloves – and a calm, quiet attitude (Mozzetti 1996). The two portraits seem to depict two completely different men, what changes is therefore the meaning, but their reference is the same, namely Pietro Aretino. Hyman's theory is also based on the concept of occlusion shape, which is the smallest mark one would need to make on a sheet of glass, placed between the observer and an object Y, in order to completely hide Y. For example, the occlusion shape of a television set, with respect to a given point of view Z, is a rectangle, while that of a coin, again with respect to Z, is an ellipse. Thus, the similarity between the object Y and a representation of it concerns the sharing of the same occlusion shape, obviously with respect to a given point of view Z (Hyman 2006).

Another strand is that of the so-called psychological theories of depiction, which try to illustrate the phenomenon on the one hand by describing the experience that pictures evoke in the observer, on the other hand by focusing on their aptitude to trigger recognitional abilities in the viewer. According to Richard Wollheim, if a picture X represents an object Y, this means that the observer goes through a particular visual experience of X which establishes that X represents Y. This experience is called by Wollheim the "appropriate experience" of the picture (Wollheim 1998a, 217). According to Wollheim, moreover, the experience of seeing a picture is articulated through two distinct, but inseparable and simultaneous aspects: the configurational fold (the awareness of the pictorial surface as a support) and the recognitional fold (the fact of recognizing a content in the picture). This perceptual experience is defined by Wollheim seeing-in (Wollheim 1980): the observer *sees* the pictorial subject *in* the material surface of the painting (Wollheim 1998b). For Robert Hopkins (1998), the seeing-in concerns the fact of experiencing a similarity between the outline shape of the actual object and the outline shape of the depicted object. Depiction can thus be understood as the kind of representation that generates an experience whereby the viewer is led to notice that the outline shapes of the figures on the canvas resemble the outline shapes of the depicted objects. Kendall Walton, on the other hand, proposes an empirical theory of pictorial representation that is based on an exercise of imagination. According to Walton, representations – or rather, works of fiction – are props within what he calls the game of make-be-

lieve. Imagination, as Walton understands it, is propositional; he does not refer to a quasi-perceptual process, but to a propositional attitude (x imagines that p). This means that a representation prescribes an observer to imagine a proposition p. Such a proposition is then fictional, within the world created by the representation W, if a viewer's full appreciation of W requires him to imagine that p. Moreover, a proposition is true, within the fictional world created by the representation W, if W's appreciation requires that the proposition be imagined true within the fictional world created by W (Walton 1990). According to Flint Schier (1986, 43-4), instead, who defends a recognitional theory of depiction, a representational system can be defined as iconic only if, once some of its elements have been interpreted, one can proceed to interpret every other element of the system, provided that one is able to recognize the objects represented. Basically, a competent viewer, who correctly interprets a picture as a picture of Y, does not need a rule (e.g. a rule connecting the picture to the object it represents) to recognize the objects in the picture. Schier calls this property "natural generativity", and states that it is a peculiar characteristic of iconic representational systems (contrary to what happens in natural languages, where the interpreter must know the reference of the terms in order to interpret them correctly).

An intermediate position between a recognitional theory and an experience-based theory is held by Michael Newall (2011, §3), according to whom a surface X depicts Y if and only if: (i) X is capable of causing a non-veridical view of Y; and (ii) this non-veridical view accords with an adequate standard of correctness (where adequacy is established beforehand by the picture maker's intention to create a picture X that causes a non-veridical view of Y).

Finally, Alberto Voltolini (2015) has developed a personal theory, called syncretistic theory of depiction. A syncretistic theory thus merges what Voltolini identifies as the two main paradigms of pictorial representation, namely the semiotic (or structuralist) one, which refers to Goodman, and the perceptual one, which brings together both theories of similarity and those experience-based (Voltolini 2015, 16-17). As Voltolini himself declares, the core of this theory can be summed up through the following biconditional: an object P represents a subject O if and only if:

(i) the spectator experiences a state of seeing-in involving P (where the configurational fold of this seeing-in captures the properties that P approximately shares with O, while its recognitional fold is the consciously illusory perception of P as something belonging to a genre to which O himself belongs);

(ii) P entertains a proper causal/intentional relation with O (Voltolini 2015, 167).

While in the context of analytic philosophy, images have been thought of as single entities having significant relationships with both a referent and an observer, visual culture studies have also taken into consideration images in their multiplicity and reciprocal relationship.[2]

One of the pioneers of this approach to the study of images, which we could call iconological, is certainly the German historian Aby Warburg. Starting from his groundbreaking studies on the astrological motifs in the frescoes of Palazzo Schifanoja in Ferrara, Warburg (1922) believed he could demonstrate that certain images survive stylistic and historical changes, persisting through the centuries according to identifiable evolutional regularities. It is precisely this ability to survive (*Nachleben*) that makes images vehicles of meaning.

As Ernst Gombrich points out in his biography of the German thinker (1970), Aby Warburg was strongly influenced by the neurology of Richard Semon. In his treatise *Die Mneme* (1905), Semon argued that every event capable of affecting matter leaves on it a sort of unconscious mnemonic trace, which the biologist called an engram. Warburg applied Semon's theory of memory to the study of images, which were thus conceived as symbols of experiences lived by a certain society in the course of its history. *Pathosformel* was the term that the thinker coined to identify that activity of social memory capable of fixing emotional expressions in figurative repertories stable in time.

Even without committing themselves to hypothesizing the existence of a collective unconscious, philosophers and historians inspired by Warburg have continued to thematize the relationship of images to social history. The historian Carlo Ginzburg, for example, related shamanic rites of Eurasian origin to some testimonies collected during the witchcraft trials instituted in Italy between the sixteenth and seventeenth centuries (1966, 1989). It was his merit to extend the Warburgian method well beyond the sphere of art and figuration, applying it to images evoked by written documentary sources and literary works. George Didi-Huberman, on the other hand, whose essay follows this introduction, elaborated the concept of *Nachleben*, arguing that every image is constructed and lives in the dimension of anachronism (2000). In fact, every figurative composition refers back to other images produced both synchronically and diachronically to it, in an entirely inhomogeneous temporal and cultural stratification. According to Didi-Huberman, the awareness of the multi-temporal nature of images imposes a rethinking of the role that historians are

2 We certainly do not want to affirm here a clear methodological distinction between analytic philosophy and visual studies. Let's think, for example, how much the relationship between image and referent is crucial in the concept of *Ikonische Differenz* as coined by Gottfried Boehm (2007). Rather, we want to emphasize an opposition in order to encourage comparison and dialogue between perspectives that are not always in contact with each other.

called upon to play: their task is not to reconstruct the linear chronology of a past event, but rather to make explicit the multiple temporalities that constitute each era. In this sense, images are the synthesis of a collective history that unravels between censorship and returns, repetitions, cancellations and misalignments.

The relevance that Warburg's perspective still enjoys today is evidenced by the exhibition *Aby Warburg: Bilderatlas Mnemosyne. The Original*, staged at the Haus der Kulturen der Welt in Berlin at the end of 2020. Curated by Roberto Ohrt and Axel Heil, the exhibition consisted of a faithful reconstruction of the 63 plates that make up the atlas *Mnemosyne* (1929), a collection of figures only, through which Warburg observed the permanence of images from classical antiquity in Renaissance and contemporary culture.

Both the exhibition and the catalogue published in conjunction with it (Ohrt, Heil 2020) do not fail to emphasize in an innovative way how the method traced by Warburg can dialogue today with digital technologies. Machine learning programs make it possible to compare infinitely more images with each other than a single scholar's attention can manage. Articles such as the recent ones by Amanda Du Preez (2020) and Stefka Hristova (2016) compare Warburg's methods and insights with today's cultural analytics and media visualization techniques, highlighting continuities between them that hint at possible future developments. Therefore, if it is true that the era in which we live is characterized by a massive production of images as well as of tools capable of analyzing them, it is also true that it is increasingly urgent to ask ourselves what epistemological changes this quantitative difference entails.

In the spirit of pluralism that characterizes the journal, this issue seeks to address the problem of images from several points of view and according to different methodologies. Ideally, the articles that will follow after this introduction can be divided into four main sections.

The first four essays address issues related to ontology. In their pages the question will be asked not only about the nature of images, but also about what it means for an image to represent an object or an action realistically – the emphasis here is of course on the adverb 'realistically.'

The section opens with an essay by George Didi-Huberman titled "S'inspirer des spirales" ("Inspired by Spirals") in which the French theorist reflects on the boundaries of pictoriality. Observing some drawings made by Walter Benjamin in the margins of his manuscripts and rereading the course held by Paul Klee at the Bauhaus in Weimar in 1921-22, Didi-Huberman identifies in the spiral the beginning and the end of every possible image. On the one hand, in fact, the spiral is associated with infantile drawing, which marks the sheet of paper like a big bang: from it, children give rise not only to their first figures, but also to their first words in the form of little cries that accom-

pany their gestures. On the other hand, whirling characterizes the scribbles that Benjamin himself sketched during a series of experiments with drugs conducted under the guidance of Dr. Fritz Fränkel. The spiral then becomes the sign of the sinking of the logos into the depths of the unconscious. Both cases are evoked by Didi-Huberman to allude to the indeterminacy that characterizes the margins of language as well as those of figuration: is a whirlpool an image or not?

Jesse Prinz, in his "Realism Relativized: A Cultural-Historical Approach to What Images Capture", offers a fascinating journey into both western and non-western artistic tradition to expand the survey around the concept of pictorial realism. What does it mean that an Italian Renaissance painting or a Japanese *ukiyo-e* print are realistic? Are we talking about the same kind of realism? And does it make sense to compare the two types of realism or even to draw a rule that lumps them together under the same definition? After examining (and rejecting) two distinct groups of philosophical theories – those that emphasize perceptual processing and those that define realism in terms of informativeness – Prinz proposes his own alternative account of pictorial realism. The MCA analysis (an acronym standing for manners, capture and aspects) describes what aspects of reality an artwork or a style capture, and in what manner they capture these aspects. Given these premises, the MCA solution is necessarily relative to a specific historical, cultural and social context, so the philosophical analysis must proceed in concert with art history investigation.

In her "On the Narrative Potential of Depiction", Katerina Bantinaki argues against skeptical positions that depreciate the narrative potential of monophase pictures. She identifies two main strands of skepticism. The first one derives from Lessing's *Laocoön*: static pictures are related to space and not to time, so they cannot represent actions. According to this account, any sense of temporality emerging from the picture is not really perceived but depends on our imagination or interpretation. The second one claims that monophase pictures have to be excluded from the realm of narratives because they cannot express causal relations between temporally ordered events of which a story is composed. While the first strand of skepticism has been brilliantly faced in many ways – for example, emotions facially expressed by the characters in a painting lead unambiguously to the recognition of a specific action – the second strand is more thorny. In order to tackle this last position, Bantinaki argues that (i) the concept of 'causal relation' itself needs to be better defined, and that (ii) in this case empathy plays a fundamental role. For what concerns the second point, looking at a picture, gestures, gaze directions and facial expressions can activate the viewer's life experience in order to recover the causal relations between depicted characters and events. From this perspective, causal relations are not an imag-

inative construct of the spectator, rather they are a product of the picture's design itself.

"The Treachery of Images" by Riccardo Manzotti concludes the series of essays dealing with ontological matters. The philosopher claims a radical eliminativist thesis that develops on a double front. In the first part of the article the distinction between physical supports and images is refuted. According to Manzotti indeed, images are ontologically superfluous entities: only flat physical objects having the power to cause certain visual effects under certain conditions really exist. In the second part of the paper the logical consistency of the notion of mental image is questioned, as well as its empirical soundness. The author argues that, in neuroscience, referring to images risks to causally overdetermine phenomena that can be explained simply in terms of neuronal activity. The purpose of Manzotti's double refutation is the achievement of an ontology in which there is no need of mediation, and therefore of distinction, between subject and object by means of images.

The second part contains discussions related to the topics of perception, appreciation and creation of pictures. Gabriele Ferretti opens this section with his "Motoric Understanding and Aesthetic Appreciation". He presents a manifesto of what he calls "Motoric Aesthetic Appreciation" of pictures, based on the analysis of experimental results from neuroaesthetics. As is well known, according to Richard Wollheim, the nature of pictorial experience is twofold, and so is aesthetic appreciation of a picture. In picture perception, the observer is visually aware of the surface she looks at, while also recognizing something that emerges from that surface. Ferretti claims that also motor representations play a central role in order for a viewer to reach pictorial aesthetic appreciation. Nevertheless, this is not to be understood in the sense that the viewer represents the action related to the pictorial content. Rather, according to Ferretti, the viewer represents the gestures by means of which the artist creates the painting, i.e. thanks to which the marks responsible for a pictorial significance are generated on a material surface. This leads the spectator to perceptually realize *that* the pictorial space is realized by the painter and *how* it emerges from the surface that hosts the depicted object.

Starting from Mark Johnston's analysis of Lockean primary and secondary qualities, Nathaniel Goldberg and Chris Gavaler put forward an original account of picture and style perception with their "Perceiving Images and Styles". According to Goldberg and Gavaler, a pencil line on a sheet of paper is response-independent like Lockean primary qualities, whereas the corresponding picture emerging from that line (for example, the skidding of a bike tire) is response-dependent like Lockean secondary qualities. While the physical properties of the mark on the paper do not depend on a spectator, the tire skid represented by that mark on the paper is relative to a perceiv-

er. Also, Goldberg and Gavaler distinguish between a physical style, say, the shape of the mark on the paper, and a representational style, say, the shape of the depicted tire skid. But how does the representational style of a picture is connected to the corresponding depicted object? Here, their solution draws on Paul Grice's distinction between conventional and conversational implicature.

In their "Neuroimagining: How to Question Scientific Images and their Artistic Value", Emanuele Carlenzi, Davide Coraci and Alessandro Pigoni claim that, although the topic of images has been most frequently associated with art history and aesthetics, it has also profoundly influenced the vast field of science. Taking into account fMRI-based images, one of the aims of Carlenzi, Coraci and Pigoni is to present the figure of the neuroscientist not only as a simple documenter of reality, but also as an image maker. Like many other pictures, fMRI images try to convey some information (in this case, about the neuronal activation). Yet, the more informative fMRI products are about the brain activity the further they move away from an exact reproduction of reality. In this sense, Carlenzi, Coraci and Pigoni argue, resemblance and informativeness are two independent concepts. In fact, in order to communicate a specific content as fully as possible, neuroscientists operate on pictures modifying them, making visible what is not immediately visible, in a complex process that also involves their creativity and imagination.

The third section goes through the problems related to the very concept of representing by images. In his "Wittgenstein's Bridge: A Linguistic Account of Visual Representation", Michael Biggs compares Wittgenstein's early philosophy with Wittgenstein's later philosophy in order to fill the apparently incommensurable gap between the analytic and the visual culture approaches to image interpretation. All over his whole life, Wittgenstein used images to clarify the nature of the relationship between language and the world. According to Biggs, in his early period this relationship was illustrated through the analytic picture theory of meaning, while in his later period he embraced a more culturally centered explanation. Whereas in the early period the representational relationship between language and world is first comparable to similarity and then to analogy, in the later period it is better described by a metaphorical functioning. The former approach is more analytical, while the latter is closer to the visual culture tradition. For Biggs, then, the structural linguistics is the common ground that could place the two approaches near, investigating the relationship between analogy and metaphor.

In her "The Visual Power of Photography and Its Status as a Representation" Katarzyna Weichert criticizes Roger Scruton's theory that photographic images cannot be considered representations in their own right. Taking his cue from Currie's observation that photographs, like films, depend on the existence of the objects they cap-

ture, Scruton argues that these sorts of artworks cannot, by origin, represent anything other than the real things which cause them; it is only by use that this limit can be overcome. Weichert opposes this argument using the concept of aesthetic nondifferentiation as coined by Gottfried Boehm. In fact, the Polish theorist claims that Scruton's mistake is to separate the subject of a film or photograph from its mode of presentation. On the contrary, every photo or movie has compositional and editing features that express the intention of the artist and determine the way in which what is depicted is to be interpreted. For this reason, even mechanically produced representations can be said to be representations to all intents and purposes, by both origin and use.

Finally, in "The Productive Inadequacy of Image for Contemporary Painting" Moyra Derby analyzes the production of three artists working with abstraction in the twenty-first century. The author's aim is to resist a tout court assimilation of painting to the notion of image in its triple meaning of visual artifact, organized system of data, unitary perceptive experience. The works of Beth Harland, Jacqueline Humphries and R.H. Quaytman are shown as critical processors that are activated in a dimension that extends between the tactility of the colour on the canvas, their unfaithful transposition and dissemination on digital media, the relationship with other works and images more or less contiguous and homogeneous to them. The outcome of the essay is demonstrating how, in the three instances examined, the viewer's senses, attention and memory are mobilized well beyond the ocularity and frontality with which painting is generally associated.

The last section of the issue is devoted to two cases in which images are used not so much and not only to represent something, but also to convey ethical-political values. Hanna Fasnacht examines climate change protest photographs in their functions as historical documents, exemplary illustrations, and tools for social change. In her "The Narrative Aesthetics of Protest Images", the theorist analyses both crowd images – focusing on the role played by signs and banners in the interpretation of the message depicted – and images of collective actions inspired by works of art and movies. In both cases, the author emphasizes the narrative characteristics of photographs, defined by Bence Nanay (2009) as the ability to represent goal-directed actions. Building on Nanay, Fasnacht concludes that the most media-effective protest images are based on dramatization efforts whose aesthetics recall the temporality of an apocalyptic future.

The issue ends with an essay by Oliwia Olesiejuk dedicated to the work of Andrea Carlson, a multimedia artist born in the Grand Portage Ojibwe Indian Reservation renown for being involved in the Indigenous Futurism movement. In her "Decolonizing Visuality" Olesiejuk focuses on a small body of works through which Carson investigated a portion of land along the Mississippi river once occu-

pied by Dakota tribes. In particular, the comparison between two video animations by the artist and the maps that led to the construction of the Upper St. Anthony Lock and Dam in 1960 allows the author to show how cartography, too, is a technique informed by colonial power relations. The artist, Olesiejuk notes, reintroduces into the field of representation places significant to indigenous culture that had previously been removed. In doing so, Carlson not only makes a gesture of decolonization through images, but also suggests that the concept of Anthropocene is in itself tainted by the perspective of a colonizing subject.

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Inspired by Spirals

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It's inspiring, a spiral. Even more so when there isn't just one: when spirals proliferate, manifest themselves, wander, seek openings. This moves the mind, excites it, sets it in motion – and never in a straight line, of course.

A child of two and a half years, who also loves soap bubbles (especially when there are many of them and of all sizes), takes a soft lead pencil and, on a sheet of paper, twirls his hand: messy spirals. Graphic emotions. Laughter breaks out at every turn. How beautiful! It always comes back (repetition), but it's never the same (difference). It bursts with rhythms which are generated by a continuum (a single line for multiple turns) and yet are *modulated*, taking some risks, and are dissimilar to one another: wide lines here and narrow ones there; emphatic strokes or relaxed gestures; overcrowded spaces (mostly at the center of the vortex) or empty spaces (mostly along the edges). It is a real dance whose outline the paper records, like a seismograph. The movement – of rotation – is undoubtedly very simple. But, merely by virtue of the fact that it varies slightly, constantly surprising itself – becoming wider or narrower, stronger or lighter – the result will be complex, potentially infinite in its diversity. A whole world is created through the countless actual variations of the hand, the emotional variations of the gaze. A whole world of forms that Henri Michaux knew how to describe so well:

> The child [...] draws disorderly circle lines on the sheet of paper, almost one on top of the other.
> Full of energy, he does this over and over again, without stopping. [...]

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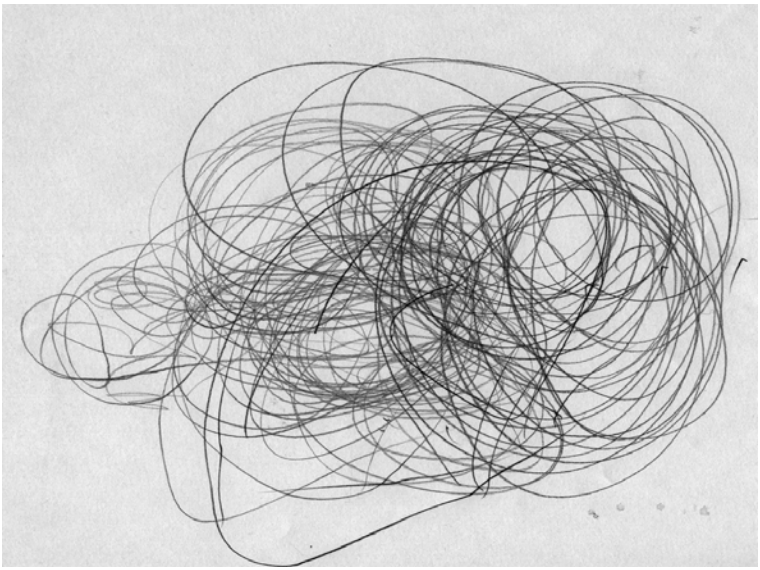

Figure 1 *Dessin d'un enfant de deux ans et demi*, 2020. Crayon sur papier. Photo G.D.-H

Revolving, revolving lines of wide, clumsy circles,
tangled,
incessantly resumed
again, again
as one plays with a spinning top

Circles. Desires for circularity.
Room for swirling.

These are but spirals in every respect, even if the gyratory movement that presided over their formation was, more or less, identical. *Unbridled* spirals. They are constantly running outside of themselves: hence, they are *moved*. They have nothing to do – at least, at first sight – with the spiral understood as the archetypal figure of an eternal, cosmic construction. We have neither "Archimedes' spiral", nor "Galileo's", neither "Bernoulli's spiral" nor "Fermat's" (each being distinct from the other according to its own law of regularity). What we have is even far less regular than the baker's raisin bread, snail shells, the texture of broccoli, pine cones, runes or medieval Irish illuminations. It is much less "spiral-like" than spiral notebooks or mosquito-repellent spirals. Much less necessary – at least at first glance – than the configuration of fingerprints, the structure of DNA or that of galaxies. Nevertheless, it is a world. Like a small, tiny galaxy in formation: here it *rises*, shows itself and *comes apart* at the

same time, like a storm in its inceptive stirring. It will have no final order. In it everything is always starting.

Therefore, it is not a "formed form", a form elevated to the nobility of a finite, untouchable, defined being. What we see on the sheet is in no way "definitive": only suspended or interrupted by what will be improvised as the hand's next game. It is a *form in formation*: an indefinite and, potentially, infinite form. It is not a *Gestalt* but a *Gestaltung*, as Paul Klee said in the margin of his *Fundamental Elements of the Theory of Form* [Ed.: the course he held at the Bauhaus in 1921-22], drawing a doodle and a spiral to better reflect on the original relationship between the "chaotic" and the "cosmic". These very reflections of Klee's later gave Henri Maldiney the opportunity to develop a whole "aesthetic of rhythms" in which something like a vertigo of spirals was suggested from the outset, conceived of as a "self-movement of chaos".

Alternatively, this would be an *imagement*, as Jean-Christophe Bailly has recently sought to translate the word *Bildung*, "formation". Indeed, it is constantly forming and reforming, *re-imagining* itself. And why does it keep starting? Because it proceeds, above all, from a *gesture*. A power of the whole body, starting from the hand that experiments, which goes back and forth, which gropes in space, which questions duration and starts over again. A gesture to retrace, therefore, to make traces and not to represent something. Antonio Machón, in his great study on drawing among children, devoted an entire chapter to it, full of very similar examples. Here is a gesture to *start again in plural loops*, endlessly if possible: a gesture to produce, to throw *primordial swirls* onto the paper.

In his marvelous 1921-22 courses at the Bauhaus in Weimar – entitled *Contributions to the Theory of Pictorial Form* – Paul Klee never ceased to question this kind of gesture. This is why, in these pedagogical notes, we find drawings of spirals, vortexes, whirlpools, and counter-clockwise gyratory movements everywhere. For example, folios 132 to 134 of his handwritten notes show circular movements which differ or are even dramatically opposed: on the one hand, the dynamics of capturing, on the other the dynamics of liberation. On the one hand, a "spiral hostile to movement", a "spiral of death in which the movement curve narrows down more and more", as if in a funnel where everything will disappear; on the other hand, what he calls the "chance of salvation [which] opens a door somewhere" thanks to a "new emancipatory force" of an *eccentric* nature, which suddenly no longer obeys the centripetal rule of basic movement. It is an escape that creates both a difference and the possibility of "starting the loop again…" by leaving the loop through a game of multiple conflicts – this multiplicity being fundamental, since it is what makes the *whirlpool* – between contradictory "causes" (*Ursachen*) and heterogeneous "effects" (*Wirkungen*).

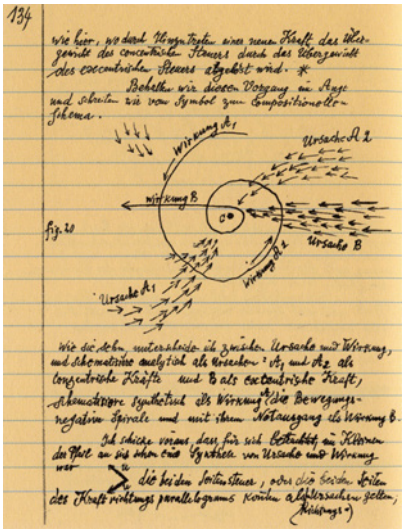

Figure 2 *Paul Klee, Chaotique et cosmique (en évolution)*. 1921. Dessins illustrant les « Éléments fondamentaux de la théorie de la forme », trad. S. Girard, *La Pensée créatrice. Écrits sur l'art*, I, éd. J. Spiller, Paris, Dessain & Tolra, 1973, p. 2. Photo G.D.-H.

To create whirlpools or "wild spirals" would therefore be to create inceptive movements: origins. In Paul Klee's notes – in his drawings and even in his paintings – we sometimes see figures of interference in waterways, what he occasionally calls "sources in the stream". These – who knows? – might be echoes of Leonardo da Vinci's depictions of the Deluge, that *original whirlpool* in the Genesis account. How, then, can we not newly invoke the notion of "origin" (*Ursprung*: the initial "jump" or "leap") as a "whirlpool", as it appears in the writings of the young Walter Benjamin, again the 1920s? He spoke of it in a way that was very enigmatic in the eyes of his contemporaries: "Origin is a whirlwind in the river of becoming (*der Ursprung steht im Flu des Werdens als Strudel*), and it drags the emergent matter (*Entstehungsmaterial*) into its rhythm (*seine Rythmik*)".

Benjamin points out – and this is a crucial aspect of the question – that all of this, this swirling appearance or *rhythm*, "can only be perceived from a double perspective (*Doppeleinsicht*). On the one hand, it needs to be recognized as a restoration, a restitution (*als Restauration, als Wiederherstellung*); on the other hand, as something that is unfinished, always open (*Unvollendete, Unabgeschlossene*)". The "double understanding" (*Doppeleinsicht*) that Benjamin demanded here obviously foreshadows what he was later to enunciate about *dialectic*. In the overall context of his text, however, it is to the notion of *rhythm* that such an understanding refers: "restitution" on the one hand, which is to say the power of *repetition*, and the "unfinished opening" on the other, which is to say the power of *difference*.

It goes back and forth, ceaselessly, between the "re-" and the "start" of the same gesture in order to "restart".

But isn't that exactly what the two-and-a-half-year-old child introduces into his or her drawing? A gyratory (and already cosmic) "restitution" of the line that returns to itself and a (still chaotic) "unfinished opening" of the same line that will be lost at the ends? A wide gesture that suddenly tightens, and then frees itself again? An emphatic stroke that can be modulated and relaxed, first scratching the surface and then barely caressing it? An occupation of space that here seems to plug holes and, there, to make some room, to free up space? A form that is at once circular (turning back on itself) and wandering (fleeing itself)? Systematic and yet disassembled? Such would, perhaps, be the primordial spiral: following the thread of the labyrinth, one never knows if one has come too close to the navel or if one has moved away from it for good. At every moment, therefore, one finds oneself *between proximity and distance*, contact and withdrawal, a force of gravity and a force of liberation. And this can also be said temporally: every *now* I am in touch and disengaged – rhythmically, my mind grasping and divesting itself – with all my "*in other times*".

What is this child doing with his pencil at his fingertips? He is having fun alternating, without rest, a gesture to move away and a gesture to draw closer, by instinct or by decisions as sovereign as they are sudden. When the roundabout movements become more pronounced, a distance emerges, which is immediately countered by tighter movements in which closeness can occur. The child thus establishes a rhythmic, if not a dialectic, of *departure* (an escape to somewhere else) and *coming back* (a return to the inside). Or, possibly, one of possession and dispossession: of centrifugal *loss* or loss of control and centripetal *taking* or control. This is very much like a graphic version of the child's game described by Freud in his 1920 article *Beyond the Pleasure Principle*. In both cases it is a game; in both cases it must first be examined according to what Freud calls the "consideration of the gain of pleasure (*Rücksicht auf Lustgewinn*)"; in both cases, again, it is a reciprocal transformation – dialectical and rhythmic, through interposed gestures – of distance into proximity, or of loss into a recapturing.

Through the rhythm of the "*o-o-o-o*" and the "*da*" – i.e. the "gone!" (*loud*) and the "here it is!" (*da*) – Freud saw the child playing on the reel as a structural, complete situation: it is a "complete game of disappearance and return (*komplette Spiel, Verschwinden und Wiederkommen*)". But this game is complete only because it is dialectical: it shows conflicting relationships that it immediately brings together and *puts back into work*. On the one hand, the game repeats a painful experience, the mother's departure ("gone!"); on the other, it establishes the new, imagined, mastered, newly begun pleasure of her return ("here it is!"). "The child has transformed his ex-

perience (*Erlebnis*) into a game (*Spiel*) [...]. He was passive, at the mercy of the event; but now, by repeating it, however unpleasant it may be, as a game, he assumes the active role". The "gain of pleasure" – or the transformation of anguishing disappointment into a joyful recovery – is directly linked, as Freud emphasizes, to the power of *repetition*.

Now, insofar as it can play and modulate itself, thus creating difference, repetition is nothing other than a form: *a form of time*. It transforms the experience suffered (as *Erlebnis*) into a playful experience (as *Experiment*), where a real "work" on the form emerges, producing an experimental joy. In these conditions, it is unsurprising that Freud concluded his analysis by mentioning, as though in passing, the fact that his small observation could possibly serve as a paradigm for a future "aesthetic of economic orientation (*ökonomisch gerichtete Ästhetik*)". By producing his wild spirals in one go, as something at once "chaotic" and "cosmic", the child draftsman plays on the dialectic, the dynamics or the economy of the "gone!" In the midst of his cries of joy accompanying the tracing of the spirals, he drops, together, his two favorite words: the first and most frequently uttered ones, "*paeï*!" – which in his mother's tongue means "*parti* (gone)!" (in his more recent games with soap bubbles, when the bubbles disappear before his eyes, he utters a repeated formula: "Too late!") – and "*gaga*!", which is the contracted form of the signifier for the moon, but which designates for him everything that glows beneficially, everything that appears. "Here it is. *Voilà!*".

It is fascinating that the simplest gesture (here a gyratory one), the most elementary stroke (here a doodle of rough spirals), can convey such *dialectical* complexity. This last word may seem exaggerated in such a context, or at least premature. However, I am using it on account of the fact it was associated by Walter Benjamin not only with the idea of *rhythm* (in the context of his reflection on the origin as a whirlpool), but also with that of *elliptic*. In a letter to Gershom Scholem of 12 June 1938, for example, Benjamin spoke of the Kafkaesque dialectic by using the image of an "ellipse whose focal points are far apart". In our child's drawing, we will have noticed that the spirals are never circular, but elliptical: this means that there are "foci", "centers", everywhere or nowhere. And, in any case, it would be pointless to look for a single center from which – as in classical spirals – everything proceeds.

It is also fascinating (if only in a symmetrical way) that Walter Benjamin, exactly on 22 May 1934 – that is, at the age of forty-two – drew and then preserved in his papers what must, in a way, be regarded as *one of his childhood drawings*. This drawing, in ink, appears in a series of notes taken in the course of drug experiments carried out from time to time from 1927 onward. On that day, his friend, the doctor Fritz Fränkel, administered twenty milligrams of mescaline to

him and meticulously recorded the course of the experiment. Benjamin therefore begins by "regressing", as they say (though what else could this be but a basic form of the *Search of Lost Time*? Or a form of ritual lamentation, of wailing?): he "starts to weep, he groans about himself and his state". He invokes what he calls the "hazy world of affects (*Nebelwelt der Affekte*)". Fränkel explains: "[He] means that at an earlier stage of life the affects are not yet clearly differentiated, and what later comes to be known as ambivalence (*Ambivalenz*) is the rule".

This would be the original psychic whirlwind: our affects are undifferentiated as in a ball of threads that come and go, as in a scribble of irregular spirals. They go off in all directions, only to continually return to their own inherence or ambivalence. Benjamin then evokes a "first experience (*erste Erfahrung*) that the child has of the world[: it] is not that adults are stronger, but that they cannot be magicians (*nicht zaubern kann*)". But, Fränkel notes, "in the meantime, with ever-increasing intensity, an incredible [or even frightening] sensitivity (*eine ungeheuere Empfindlichkeit*) to acoustic and optical excitations is developing [in Benjamin]" – followed by tactile ones. "B[enjamin] is terribly sensitive to the slightest touch". He speaks above all of tickling, that "thousandfold access to a person", whether or not in a fit of laughter, as is so often the case with children. Then, the theme of contact unfolds in relation to *caressing* ("the true reign of the mother"), *combing* (but "the comb begins by removing dreams from the hair") and *unravelling*. Benjamin, then, has the feeling that he "is fraying the fringes of his experiences, braiding them".

With this feeling of fraying and this fringe theme, a *graphic motif* powerfully emerges. There are lines everywhere (incidentally, as in some of Paul Klee's drawings). "Closing his eyes tightly, B[enjamin] […] sees something ornamental, which he describes as hair-thin ornaments (*als eine haarfeine Ornamentik*)". If he hears the refrain of a song, it seems modeled after the weaving of threads: a "hem pattern". He rejects the images of the Rorschach test, only to then ask for them. He takes the pen himself. He writes words, bits of sentences. Above all, "he writes like a child (*sie kindlich schreibt*)". And what he writes – in two series of short sentences – comes back to him from memories, from old refrains, from children's songs:

The little sheep reads
Go to sleep, my little sheep, go to sleep
Is the frame a song of writing? Is it an image?
Write, my little sheep, write

Sheep, my dodo sheep
Sheep, my dodo sheep
Sheep

My dodo sheep
Go to sleep, my little child, go to sleep
Sleep well, get a good night's sleep.
You have to sleep

The first series of words are written in a way that is not only childish, but also extremely embellished: much more so, no doubt, than is required at school when introducing children to calligraphy. The *S*s or *B*s, for example, begin or end with large spirals. The second series encompasses letters and spirals in a large ellipse, which is itself turned over, twisted back onto its own path. Benjamin immediately "noticed the embryo form (*Embryo-Form*) within which there were several [other] embryo forms". We are far from any theoretical inference of space from the "point-line-plane" sequence, for example, Benjamin here suggests an inference of his own actual body from the "line-spiral-ellipse-embryo" sequence, a sequence to which the letters themselves – these means of conveying language and thought – would be able to return as to their native condition.

The rest of this session continued to be dominated by the pattern of lines, whether drawn together or not: "the hands tighten a net […]. To be or not to be? Net or coat, that is the question. [Benjamin] explains that the net (*Netz*) relates to the nocturnal side and everything that makes existence shiver. The 'shiver' (*Schauer*), he explains, is the shadow of the net on the body". When children "laze around" – that is, when they *take their time* with no concern for social usefulness – "they unravel experiences, weave them together". That is exactly what happens in the present experience: the hand of the draftsman/writer "dawdles" in its own way, gaining maximum "pleasure" (*Lust*) from its own "catatonic" wandering: "To the minimum of change in innervation [it] associates the maximum of change, of reversal (*Wechsel*) in the representations. This economy is its pleasure. It's like a draftsman who has given shape to the outline of his drawing and now derives ever new images from it (*immer neue Bilder*)".

This last impression – which is also an authentic thought about what is happening to him – is found in Benjamin as a leitmotif marking all his experiences with drugs. "Ever new images" emerge from jumbled configurations, like balls, spools or skeins from which threads could be drawn in several directions. As early as September 1928, in Marseilles, Benjamin wrote: "To get a closer look at the enigma of the happiness of intoxication (*Rätsel des Rauschglücks*), one must once again think of Ariadne's thread. What a pleasure in this simple act: unrolling a ball. And this pleasure is very closely related to the pleasure of intoxication and the pleasure of creating, of doing (*Schaffenlust*)". It is as if the chaos or labyrinth of spirals tangled together called for the expansive movement of free lines capable, as Benjamin writes, of "producing real bursts of images (*eine stürmis-*

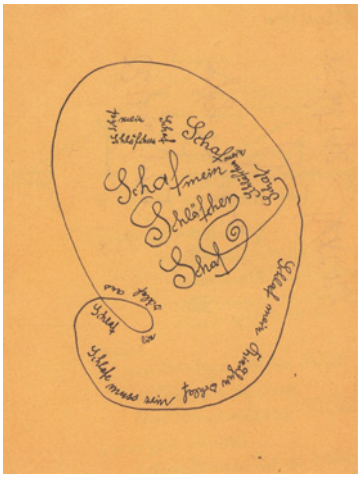

Figure 3 Paul Klee, *Concentrique-Excentrique.* 1922. Dessins illustrant le Cours du Bauhaus, Weimar 1921-22, folios 132-3. Photo DR

che Bildproduktion)". In June 1930, he evoked the vision of a dancer: "When she danced, I drank each of the lines (*als sie tanzte, trank ich jede Linie*) that she set in motion". In an undated protocol, Benjamin was to write, in French (a "scraped" version of a sentence by Paul Klee): "Je brousse les images [Ed.: I am grazing the images]" – in the ambivalence of an act of incorporation (*brouter*) and a sensation of being lost himself, eaten in the "bush" (*brousse*) of a spiral-like chaos.

Now, in this great bush of lines, there also arise, on all sides, a host of *bifurcations*. The ball motif unfolds through "constant digressions (*ständigen Abschweifungen*)" and a "phenomenon of space peddling (*Kolportagephänomen des Raumes*)". Everything forks out, swarms and migrates here and there. All ambivalence throbs with the "coming and going (*Hin und Her*) [of] the thing and its opposite (*Teil und Gegenteil*)". In a protocol written by Fritz Fränkel in April 1931, we read that, for Benjamin in a state of hashish intoxication, "two terms of a representation separate to accommodate in their separation the whole mass of images of a new phase. We are, so to speak, dealing with an 'Open Sesame' addressed to representation. The representation divides itself and gives free access to new treasures of images (*die Vorstellung selber tritt auseinander und gibt den Zugang zu neuen Bilderschätzen frei*)". For example: "All colors start from the snow (*alles Farben gehen aus dem Schnee fort*)".

The fact that all colors are thus able to "start from the snow" ultimately means that, in this type of process, the incessant bifurcations – resulting from chaotic and tangled balls – are endowed with centrifugal, radiant energy. The *aura* motif arises here, which is not religious, and which even goes well with childish laughter and intoxicating pleasure: "All those present become comically iridescent (*alle*

Anwesenden irisieren ins Komische). At the same time one is penetrated by their aura". Benjamin reminds us that this is a way of "playing with spaces (*mit Räumen zu spielen*) [while] there is a loss of orientation (*Verführungen Orientierungssinnes*)". Finally, "the authentic aura (*die echte Aura*) appears on all things [and] changes from top to bottom with every movement made by the thing whose movement is the aura". This aura – famously defined by Benjamin as a single weft of space and time, near and far – thus reconfigures its "weft" with each new gesture that sets it in motion (and of which it constitutes the movement). The context of hashish intoxication also makes it possible to understand that everything Benjamin says about the *visual* must also be understood as a *temporal* experience: that is, as a singular weft combining the instant and the origin in the same whirlpool of experience.

We also know a drawing – thanks to the *Benjamin-Archiv* of the Akademie der Künste in Berlin, which exhibited it in 2006 – that is dated 1930 and remarkable for its double elliptical shape.

In it, Benjamin establishes a relationship between "Eros and language" or "sensuality and spirit": all of this within a process of turning and returning, as with some planets' trajectory – by making a return and revolution at each turn. The two terms written in large print on the drawing, as if they were the two main poles of these elliptical movements, are "Demonic" (*Dämonische*) and "Dialectic" (*Dialektik*). This brings great anthropological instincts to mind such as the Dionysian and Apollonian envisaged by Nietzsche or – to consider Benjamin's contemporaries – the Chaotic and Cosmic in Paul Klee, the *monstra* of the impulse and the *astra* of thought in Aby Warburg…

But what matters here is that such terms were not simply opposed, set up on either side of an impassable border. On the contrary, they did not stop moving and transforming each other in the rotation or *revolution* suggested by the double ellipse. The question arises, therefore, as to how far the same experience – scribbling disorderly spirals on a sheet of paper, for example – can be at once, instinctively, "chaotic" and "cosmic", "demonic" and "dialectical", "monstrous" and "astral". Is the child's *graphic emotion* to be understood according to the "double perspective" that Benjamin talked about in relation to the whirlwind? But how can this double perspective be understood? Through what notion, through what word for such a rhythm?

The answer will be given by the child himself. In spite of his still developing language, he will state the thing with wonderful precision. Because, even before he knows all the words, he has understood that each of them has its own aura, its iridescence, its power of play, its expansive force. He will therefore exclaim: "*gaga*!". And everything will have been said. I have yet to understand what he has already understood through this expression. So I must listen, look a little more. There he is in front of his paper: he throws himself, pencil in hand.

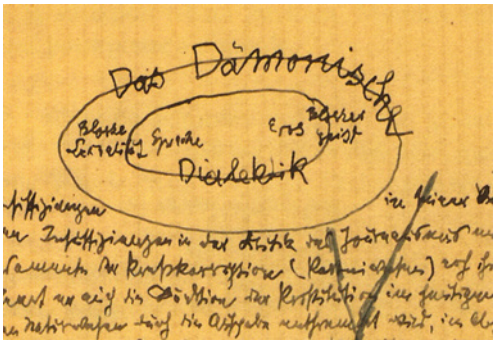

Figure 4 Paul Klee, *Effets-Causes*. 1922. Dessin illustrant le Cours du Bauhaus, Weimar 1921-22, folios 134. Photo DR

We're going to make a spiral, but if we have to make one, we might as well make dozens of irregular spirals in a single gesture, superimpose them, spin them as quickly and powerfully as possible: make them *play chaos*. Let them really make – and not just represent – a whirlpool of multiple forces on the scale of a sheet of paper. To populate space, to confuse things and, at the same time, to deliver them as they are being born.

The gesture is therefore, in the first place, effusive, explosive. It is that of an instantaneous *putting into disorder*: "chaotic" or "demonic". And the great cry of joy that doubles it is also "*gaga*!". This word, triumphantly uttered in the very instant of the gesture, directly accompanies the "bursts of images" that the hand traces at full speed. It thus expresses a pure joy linked to the *phenomenon*: "Voilà! It appears! It glows and radiates from all sides from the energy of my own gesture, of my body, of my imagination and of this marvelous operation which consists in *making* many things *appear* in an instant with a simple pencil". Now, this word thrown in the instant of the gesture will be followed by the same word, subsequently uttered, once the hand has stopped and the child considers – contemplates for a moment – what he has just done. So he looks at his disorderly spirals and – in a very different tone now, which seems astonished, pensive, almost admiring – repeats: "*gaga*!".

It is not his "work" that he admires, then, still less his own "artistic" skill (these are only problems for old people). What he admires – what leaves him pensive and makes him utter his sweetest "*gaga*" – seems to be the hitherto unsuspected capacity of the graphic web itself to create new images without anyone wishing to represent them. Suddenly he sees what I cannot see yet. I will only be able to see it thanks to his *word that sees*, his pretty little word "*gaga*!"– which means "the moon" (it is an abbreviation of the Greek *fengári*, φεγγάρι). It designates, in this child, not only the luminous appearance in general, the moon-*phenomenon* extended to everything that glows in the dark, but also the moon-*form*. Now the child knows that

this form takes many forms: it changes from one night to the next, from the full moon to the thinnest crescent. He even sees it in the contour of the mouth when someone smiles. So he did not fix the word "*gaga*" on a single thing, a single phenomenon or a single form, and it is already there as an *Urphänomen*, an original form of poetry through the *radiant empowering* of a single word.

Thus, when he says "*gaga*!" for the second time, considering his own drawing, it is as if he was inviting me to take a better look at his wild spirals: to get closer to what should also be seen, beyond the disorder itself. I then discover this evidence left behind by my preliminary observation: as soon as two curved lines cross, this indeed gives the outline of a crescent. The gyratory and spiral movement of the pencil has disseminated a treasure trove of "*gagas*", that is to say these multiple forms evoking crescent moons that proliferate in all directions and in all dimensions, without, of course, ever representing something such as "The moon in a nocturnal landscape". It was a question of doing much more: of engendering, of making visible to oneself, a thousand and one possible moons.

It is often said that children "ask for the moon", to suggest that they desire the impossible. One forgets that they know how to bring it back to themselves with disconcerting ease, unpredictably fast movements, a multiplying imagination and an extraordinary power of observation. At the very moment of *playing chaos*, this child will have seen his scribble as a way of *playing cosmos* through inspired spirals – all this through the simple joy of drawing freely. And he will have done so without wasting his time by paying attention to sterile aesthetic judgments seeking to distinguish once and for all between what is "form" and what is "formless".

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S’inspirer des spirales

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C’est inspirant, une spirale. Plus encore lorsqu’il n’y en a pas qu’une : lorsque les spirales prolifèrent manifestent, extravaguent, cherchent l’ouverture. Cela émeut la pensée, l’excite, la met en mouvement – et jamais en ligne droite, bien sûr.

Un enfant de deux ans et demi qui, par ailleurs, adore les bulles de savon (surtout quand elles sont nombreuses et de toutes tailles), prend un crayon à mine grasse et, sur une feuille de papier, fait tournoyer sa main : spirales désordonnées. Émotions graphiques. Les rires fusent à chaque tour. Comme c’est beau ! Cela revient toujours (répétition), mais ce n’est jamais pareil (différence). Cela explose de rythmes engendrés par un continu (une seule ligne pour de multiples tours) et cependant *modulés*, prenant des risques, dissemblables les uns des autres : amplitudes ici et, là, resserrements ; traits appuyés ou gestes relâchés ; espaces surpeuplés (plutôt au centre du vortex) ou bien libérés (plutôt sur les bords). C’est une véritable danse dont le papier va garder, comme sur un sismographe, le tracé. Le mouvement, de rotation, est sans doute très simple. Mais, par le seul fait qu’il se nuance, se surprend lui-même constamment – plus large ou plus resserré, plus appuyé ou plus léger –, le résultat sera complexe, potentiellement infini dans sa diversité. Tout un monde se crée à travers les innombrables modulations effectives de la main, affectives du regard. Tout un monde de formes que savait si bien décrire Henri Michaux :

> L’enfant […] va sur la feuille de papier tracer désordonnément
> des lignes encerclantes, les unes presque sur les autres.
> Plein d’allant, il en fait, en refait, ne s’arrête plus. […]

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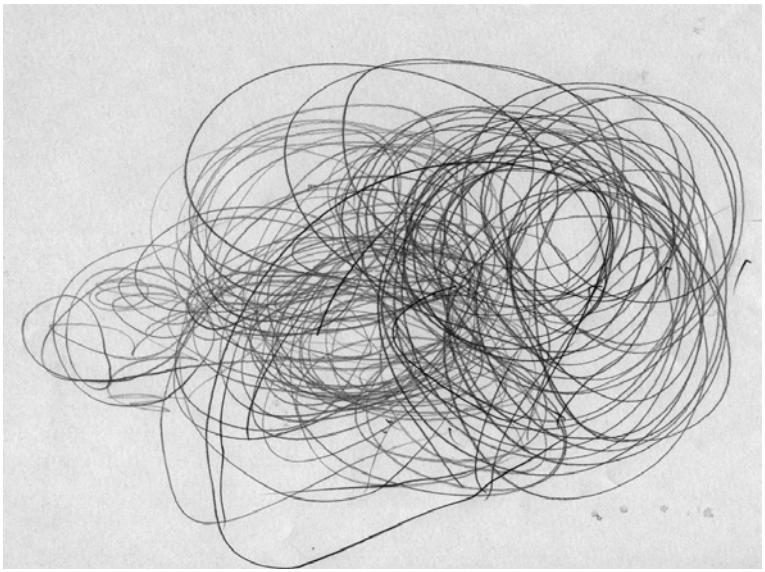

Figure 1 *Dessin d'un enfant de deux ans et demi*. 2020. Crayon sur papier. Photo G.D.-H

En tournantes, tournantes lignes de larges cercles
maladroits,
emmêlés,
incessamment repris
encore, encore
comme on joue à la toupie

Cercles. Désirs de circularité.
Place au tournoiement.

Ce ne sont que spirales en tous sens, même si le mouvement giratoire qui a présidé leur formation fut, plus ou moins, identique. Spirales *échevelées*. Elles courent constamment hors d'elles-mêmes : *émues*, par conséquent. Rien à voir – à première vue, tout au moins – avec la spirale comprise comme figure archétypale d'une construction éternelle, cosmique. Il n'y a là ni « spirale d'Archimède », ni « spirale de Galilée », « de Bernoulli » ou « de Fermat » (chacune distincte de l'autre selon sa propre loi de régularité). C'est même beaucoup moins régulier que le pain aux raisins de la boulangère, que les coquilles d'escargot, la texture des brocolis, celle des pommes de pin, des runes ou des enluminure médiévales irlandaises. Beaucoup moins « spiralé » que les cahiers à spirales ou que les spirales anti-moustiques. Beaucoup moins nécessaire – à première vue, tout au moins – que la configuration des empreintes digitales, la structure de l'ADN ou celle des ga-

laxies… C'est un monde néanmoins. Comme une petite, une minuscule galaxie en formation : voilà qu'elle *surgit*, se montre et *se démonte* à la fois, telle une tempête dans son remuement inchoatif. Elle n'aura pas d'ordonnancement final. En elle tout n'arrête pas de commencer.

Ce n'est donc pas une « forme formée », une forme élevée à la noblesse d'un être fini, intouchable, défini. Ce qu'on voit sur la feuille n'est en rien « définitif » : seulement suspendu ou interrompu par ce qui s'improvisera comme le prochain jeu de la main. C'est une *forme en formation* : une forme indéfinie et, potentiellement, infinie. Ce n'est pas une *Gestalt* mais une *Gestaltung*, comme le disait Paul Klee à l'orée de ses *Éléments fondamentaux de la théorie de la forme*, dessinant le couple d'un gribouillage et d'une spirale pour mieux réfléchir sur le rapport originaire qui se trame entre le « chaotique » et le « cosmique ». Ces mêmes réflexions de Klee qui auront, plus tard, donné l'occasion à Henri Maldiney de développer toute une « esthétique des rythmes » où quelque chose comme un vertige des spirales était suggéré dès le départ, pensé comme un « automouvement du chaos ».

Ou bien ce serait un *imagement*, comme Jean-Christophe Bailly a voulu, récemment, traduire le mot *Bildung*, « formation ». Cela, en effet, se forme et se reforme, se *réimage* sans cesse. Et pourquoi cela n'arrête-t-il pas de commencer ? Parce que cela procède, avant toute chose, d'un *geste*. Une puissance du corps tout entier à partir de la main qui expérimente, qui va et revient, qui tâtonne dans l'espace, qui interroge la durée et qui recommence derechef. Un geste pour retracer, donc, pour faire traces et non pas pour représenter quelque chose. Antonio Machón, dans sa grande étude sur le dessin d'enfant, lui aura consacré un chapitre entier rempli d'exemples très proches. Voici donc un geste pour *recommencer en boucles* plurielles, à l'infini si c'était possible : geste pour effectuer, pour jeter sur le papier des *tourbillons d'origine*.

Paul Klee, dans ses merveilleux cours de 1921-22 au Bauhaus de Weimar – intitulés *Contributions à la théorie de la forme picturale* –, ne cessa pas d'interroger ce genre de geste. C'est pourquoi on trouve partout, dans ces notes pédagogiques, des dessins de spirales, de vortex, de tourbillons, de mouvements giratoires contrariés. Par exemple, aux folios 132 à 134 de ses notes manuscrites, figurent des mouvements circulaires qui se différencient et, même, s'opposent dramatiquement : d'un côté des dynamiques de capture, de l'autre des dynamiques de libération. D'un côté une « spirale hostile au mouvement », « spirale de mort où la courbe de mouvement se rétrécit de plus en plus », comme dans un entonnoir où tout va disparaître ; d'un autre côté, ce qu'il nomme la « chance de salut [qui] ouvre une porte quelque part » grâce à une « nouvelle force » émancipatrice, de nature *excentrique*, et qui n'obéit plus, tout à coup, à la règle centripète du mouvement de base. C'est une échappée qui crée à la fois une différence et une possibilité de « recommencer la boucle »… en sortant

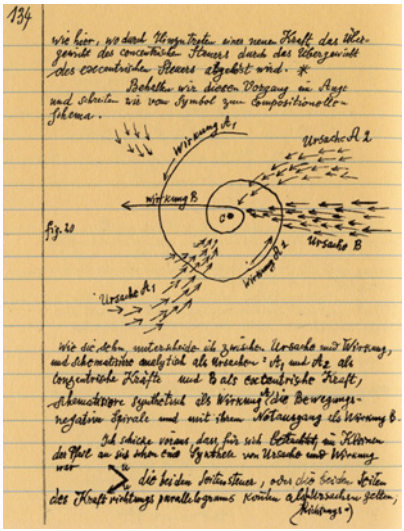

Figure 2 *Paul Klee, Chaotique et cosmique (en évolution)*. 1921. Dessins illustrant les « Éléments fondamentaux de la théorie de la forme », trad. S. Girard, *La Pensée créatrice. Écrits sur l'art*, I, éd. J. Spiller, Paris, Dessain & Tolra, 1973, p. 2. Photo G.D.-H.

de la boucle par un jeu de conflits multiples – cette multiplicité étant fondamentale, puisque c'est elle qui fait *tourbillon* – entre « causes » (*Ursachen*) contradictoires et « effets » (*Wirkungen*) hétérogènes.

Créer des tourbillons ou des « spirales échevelées » ce serait donc créer des mouvements inchoatifs : des origines. On voit surgir quelquefois, dans les notes de Paul Klee – dans ses dessins et, même, dans ses tableaux –, des figures de perturbations dans les cours d'eau, ce qu'il pouvait nommer, à l'occasion, « source dans le courant ». Souvenir, qui sait, des représentations par Léonard de Vinci du déluge, ce *tourbillon originaire* dans le récit de la Genèse. Comment, alors, ne pas reconvoquer la notion d'« origine » (*Ursprung* : le « saut » ou le « bond » initial) en tant que « tourbillon », telle qu'elle apparaît dans les écrits du jeune Walter Benjamin, soit dans les mêmes années 1920 ? Il en parlait d'une façon qui fut alors très énigmatique aux yeux de ses contemporains : « L'origine est un tourbillon dans le fleuve du devenir (*der Ursprung steht im Fluß des Werdens als Strudel*), et elle entraîne dans son rythme (*seine Rythmik*) la matière de ce qui est en train d'apparaître (*Entstehungsmaterial*) ».

Et Benjamin de préciser – aspect crucial de la question – que tout cela, cette apparition tourbillonnante ou cette *rythmique*, « ne peut être perçue que dans une double optique (*Doppeleinsicht*). Elle demande à être reconnue d'une part comme une restauration, une restitution (*als Restauration, als Wiederherstellung*), d'autre part comme quelque chose qui est par là même inachevé, toujours ouvert (*Unvollendete, Unabgeschlossene*) ». La « compréhension dédoublée » (*Doppeleinsicht*) qu'exigeait ici Benjamin augure, évidemment, de tout ce

qu'il devait énoncer, plus tard, de la *dialectique*. Dans l'économie de son texte, cependant, c'est à la notion de *rythmique* qu'est référée une telle compréhension : la « restitution » d'un côté, à savoir une puissance de la *répétition*, et l'« ouverture inachevée » de l'autre, à savoir une puissance de la *différence*. Cela va et vient, sans cesse, entre le « re » et le « commencer » du même geste pour « recommencer ».

Or n'est-ce pas cela exactement que l'enfant de deux ans et demi instaure dans son dessin ? Une « restitution » giratoire (déjà cosmique) du trait qui revient sur lui-même et une « ouverture inachevée » (encore chaotique) du même trait qui va se perdre aux extrémités ? Un geste ample qui soudain se resserre, puis se libère à nouveau ? Un trait appuyé qui sait se moduler, se relâcher, griffant la surface puis la caressant à peine ? Une occupation de l'espace qui semble, ici vouloir boucher des trous et, là, vouloir faire de la place, libérer de l'espace ? Une forme tout à la fois circulaire (en retour sur soi) et extravagante (en fuite hors de soi) ? Systématique et néanmoins démontée ? Telle serait, peut-être, la spirale des origines : en suivant le fil du labyrinthe, on ne sait jamais si l'on s'est trop approché de l'ombilic ou si l'on s'en est irrémédiablement éloigné. À chaque instant, donc, on se trouve *entre une proximité et un éloignement*, un contact et un retrait, une force de gravitation et une force de libération. Et cela peut se dire aussi temporellement : à chaque *maintenant* je suis en prise et en déprise – rythmiquement, mon esprit saisissant et se dessaisissant – avec tous mes *autrefois*.

Que fait donc cet enfant avec son crayon au bout des doigts ? Il s'amuse à alterner sans relâche, par pulsations ou par décisions aussi souveraines que soudaines, le geste pour éloigner et le geste pour rapprocher. Quand les mouvements giratoires s'amplifient, un lointain se dessine, aussitôt contredit par des mouvements resserrés dans lesquels une proximité peut advenir. L'enfant instaure donc une rythmique, si ce n'est une dialectique, du *départ* (fuite vers l'ailleurs) et du *retour* (reconduite vers l'intérieur). Ou alors, pourrait-on imaginer, de la possession et de la dépossession : de la *perte* ou déprise centrifuge et de la *prise* ou maîtrise centripète. Voilà qui ressemble fort à une version graphique du jeu enfantin décrit par Freud en 1920 dans son article « Au-delà du principe de plaisir ». Dans les deux cas il s'agit d'un jeu ; dans les deux cas il faut commencer par l'interroger selon ce que Freud nommait la « considération du gain de plaisir (*Rücksicht auf Lustgewinn*) » ; dans les deux cas, encore, il s'agit d'une transformation réciproque – dialectique et rythmique, par geste interposé – de l'éloignement en la proximité, ou de la perte en ressaisissement.

À travers la rythmique du « *o-o-o-o* » et du « *da* » – c'est-à-dire du « parti ! » (*fort*) et du « voilà ! » (*da*) – Freud aura vu le jeu de l'enfant à la bobine sous l'angle d'une situation structurale, complète : c'est un « jeu complet [de] disparition et retour (*komplette Spiel, Verschwinden und Wiederkommen*) ». Or ce jeu n'est « complet » que parce

qu'il est dialectique : il montre des rapports conflictuels qu'aussitôt il retresse l'un avec l'autre pour les *remettre en œuvre*. D'un côté le jeu répète une expérience pénible, le départ de la mère (« partie ! »), d'un autre il instaure le plaisir neuf, imaginé, maîtrisé, recommencé, de son retour (« voilà ! »). « L'enfant a transformé son expérience (*Erlebnis*) en jeu (*Spiel*) […]. Il était passif, à la merci de l'événement ; mais voici qu'en le répétant, aussi déplaisant qu'il soit, comme jeu, il assume le rôle actif ». Le « gain de plaisir » – ou la transformation de la déprise angoissante en reprise joyeuse – est directement lié, insiste Freud, à la puissance de *répétition*.

Or la répétition, pour autant qu'elle sache jouer, se moduler, donc créer de la différence, n'est autre qu'une forme : une *forme du temps*. Elle transforme l'expérience subie (comme *Erlebnis*) en expérience enjouée (comme *Experiment*) où se développe justement un véritable « travail » de la forme, producteur de joie expérimentale. Rien d'étonnant, dans ces conditions, à ce que Freud ait terminé son analyse pour évoquer, comme en passant, que sa petite observation pourrait éventuellement servir de paradigme pour une future « esthétique d'orientation économique (*ökonomisch gerichtete Ästhetik*) ». En produisant d'un seul trait, tout à la fois « chaotique » et « cosmique », ses spirales échevelées, l'enfant dessinateur joue, lui aussi, sur la dialectique, la dynamique ou l'économie du « parti ! » et du « voilà ! ». Au milieu de ses cris de joie accompagnant le tracé des spirales, il lâche en effet, l'un avec l'autre, ses deux mots de prédilection, les plus anciennement et les plus innombrablement prononcés : « *paeï !* », qui signifie, dans l'idiome maternel, « parti ! » (au cours de jeux plus récents avec les bulles de savon, il s'exclame désormais d'une formule répétée, lorsque les bulles disparaissent sous ses yeux : « Trop tard ! ») – et « *gaga !* », qui contracte le signifiant de la lune, mais qui désigne chez lui tout ce qui luit bénéfiquement : tout ce qui apparaît. « Voilà ! ».

Il est fascinant que le geste le plus simple (ici giratoire), le trait le plus élémentaire (ici un gribouillage en spirales approximatives) puissent véhiculer une telle complexité *dialectique*. Ce dernier mot pourra sembler exagéré en un tel contexte, à tout le moins prématuré. Cependant je l'emploie à raison du fait qu'il fut non seulement associé par Walter Benjamin à l'idée de *rythmique* (dans le contexte de sa réflexion sur l'origine comme tourbillon), mais encore à celle d'*elliptique*. Dans une lettre à Gershom Scholem du 12 juin 1938, par exemple, Benjamin parlait de la dialectique kafkaïenne en utilisant l'image d'une « ellipse dont les foyers [sont] très éloignés l'un de l'autre ». On aura remarqué, dans le dessin de notre enfant, que les spirales ne sont jamais circulaires, mais bien elliptiques : cela signifie qu'il y a des « foyers », des « centres », partout ou bien nulle part. Et qu'il serait vain, en tout cas, d'y chercher un seul centre d'où – comme dans les spirales classiques – tout procéderait.

Il est aussi fascinant (quoique de façon symétrique) que Walter Benjamin, le 22 mai 1934 exactement – à l'âge de quarante-deux ans, donc –, ait tracé puis conservé dans ses papiers ce qu'on doit, d'une certaine manière, considérer comme un de ses *dessins d'enfant*. Le dessin, à l'encre, apparaît dans une série de notes prises au cours d'expériences sur les drogues menées, épisodiquement, depuis 1927. Ce jour-là, son ami le médecin Fritz Fränkel lui administre vingt milligrammes de mescaline et consigne méticuleusement le déroulement de l'expérience. Benjamin commence donc par « régresser », comme on dit (mais qu'est-ce d'autre sinon une façon élémentaire de *Recherche du temps perdu* ? Ou bien une façon de plainte rituelle, de lamentation ?) : il « se met à larmoyer, il gémit sur lui et son état ». Il invoque ce qu'il nomme le « monde brumeux des affects (*Nebelwelt der Affekte*) ». Fränkel précise : « [Il] veut dire par là qu'à un stade antérieur de la vie, les affects ne sont pas encore franchement différenciés, et ce qu'on désigne plus tard du nom d'ambivalence (*Ambivalenz*) est la règle ».

Tel serait le tourbillon psychique originaire : nos affects sont indifférenciés comme dans une pelote de fils qui se défont et se rembobinent, comme dans un gribouillage de spirales irrégulières. Ils partent dans tous les sens pour, continuellement, revenir à leur propre inhérence ou ambivalence. Benjamin évoque alors une « première expérience (*erste Erfahrung*) que l'enfant fait du monde [: ce] n'est pas que les adultes sont plus forts, mais qu'ils ne peuvent pas être des magiciens (*nicht zaubern kann*) ». Or, remarque Fränkel, « pendant ce temps se développe [chez Benjamin], avec une intensité toujours croissante, une incroyable [ou, même, effrayante] sensibilité (*eine ungeheuere Empfindlichkeit*) aux excitations acoustiques et optiques »… puis tactiles. « B[enjamin] est terriblement sensible au moindre contact ». Il parle surtout du chatouillement, cet « accès multiplié par mille à une personne », que ce soit ou pas dans une crise de fou-rire, comme on le fait si souvent avec les enfants. Puis, le thème du contact se développe lui-même du côté de la *caresse* (« le véritable règne de la mère »), du *peignage* (mais « le peigne commence par retirer les rêves des cheveux ») et de l'*effilochage*. Benjamin, alors, éprouve la sensation qu'il « effiloche [lui-même] les franges des expériences vécues, [qu']il les tresse ».

Avec cette sensation d'effilochage et ce thème des franges surgit donc, impérieux, un *motif graphique*. Il y a des lignes partout (comme dans certains dessins de Paul Klee, soit dit en passant). « En fermant très fort les yeux, B[enjamin] […] voit de l'ornemental, qu'il décrit comme une ornementation fine comme des cheveux (*als eine haarfeine Ornamentik*) ». S'il entend le refrain d'une chanson, c'est sur le modèle d'un travail avec des fils : un « modèle d'ourlet ». Il refuse les images du test de Rorschach avant de les réclamer. Puis il prend lui-même la plume. Il écrit des mots, des bouts de phrases. Surtout, « il écrit comme un enfant (*sie kindlich schreibt*) ». Et ce qu'il écrit – en

deux séries de bouts de phrases – lui revient de souvenirs, de vieilles ritournelles, de chansons enfantines :

> Le petit mouton lit
> Fais dodo mon petit mouton fais dodo
> Le cadre est-il une chanson d'écriture est-ce une image
> Écris mon petit mouton écris
>
> Mouton mon dodo mouton
> Mouton mon dodo mouton
> Mouton
> Mon dodo mouton
> Fais dodo mon petit enfant fais dodo
> Endors-toi bien fais bien dodo
> Il faut dormir

La première série de mots est écrite de façon, non seulement enfantine, mais encore extrêmement ornementée : bien plus, sans doute, que tout ce qu'on demande à l'école lors de l'initiation des enfants à la calligraphie. Les *S* ou les *B*, par exemple, commencent ou se terminent par de grandes spirales. La seconde série englobe lettres et spirales dans une grande ellipse elle-même retournée, chantournée sur son propre tracé. Benjamin en fait aussitôt « remarquer la forme d'embryon (*Embryo-Form*) à l'intérieur [de laquelle] se trouvent plusieurs [autres] formes d'embryon ». Bien loin de toute inférence théorique de l'espace à partir de la séquence « point-ligne-plan », par exemple, Benjamin suggère ici une inférence de son propre corps actuel à partir de la séquence « ligne-spirale-ellipse-embryon »… Séquence à laquelle les lettres elles-mêmes, ces véhicules du langage et de la pensée, seraient capables de revenir comme à leur condition native.

La suite de cette séance restera dominée par le motif des lignes, resserrées ou non : « les mains resserrent un filet […]. Être ou ne pas être ? Filet ou manteau, voilà la question. [Benjamin] explique que le filet (*Netz*) vaut pour le côté nocturne et tout ce qui fait frissonner dans l'existence. Le "frisson" (*Schauer*), explique-t-il, est l'ombre du filet sur le corps ». Quand les enfants « musardent » – c'est-à-dire *prennent leur temps* hors de toute utilité sociale –, « ils effrangent les expériences vécues, les tressent ». Or c'est exactement ce qui se passe dans l'expérience présente : la main du dessinateur-scripteur y « musarde » à sa façon, gagnant un maximum de « plaisir » (*Lust*) à partir de sa propre divagation « catatonique » : « Au minimum de changement dans l'innervation [elle] associe le maximum de changement, de retournement (*Wechsel*) dans les représentations. Cette économie est son plaisir. C'est comme un dessinateur qui a donné forme au contour de son dessin et en tire à présent des images sans cesse nouvelles (*immer neue Bilder*) ».

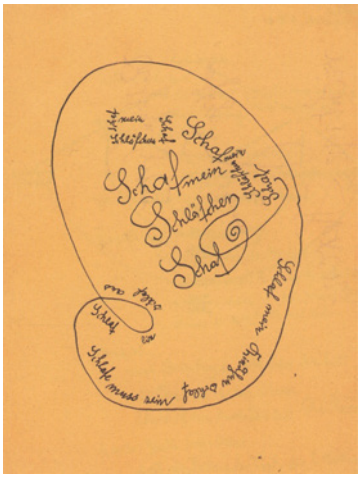

Figure 3 Paul Klee, *Concentrique-Excentrique*. 1922. Dessins illustrant le Cours du Bauhaus, Weimar 1921-22, folios 132-3. Photo DR

Cette dernière impression – qui est, aussi, une authentique pensée de ce qui est en train de lui arriver – se retrouve chez Benjamin comme un leitmotiv de toutes ses expériences avec les drogues. Les « images sans cesse nouvelles » émergent de configurations embrouillées, comme des pelotes, des bobines ou des *écheveaux* dont on pourrait tirer des fils en plusieurs sens. Dès septembre 1928, à Marseille, Benjamin écrivait : « Pour approcher de plus près l'énigme du bonheur de l'ivresse (*Rätsel des Rauschglücks*), on doit encore une fois songer au fil d'Ariane. Quel plaisir dans ce simple acte : dérouler une pelote. Et ce plaisir est très profondément apparenté à celui du plaisir de l'ivresse et du plaisir de créer, de faire (*Schaffenlust*) ». C'est comme si le chaos ou le labyrinthe des spirales embrouillées les unes dans les autres appelaient le mouvement expansif de libres lignes capables, écrivait Benjamin, de « produire de véritables rafales d'images (*eine stürmische Bildproduktion*) ». En juin 1930, il évoquera ainsi une vision de danseuse : « Lorsqu'elle dansait je buvais chacune des lignes (*als sie tanzte, trank ich jede Linie*) qu'elle mettait en mouvement ». Dans un protocole non daté, Benjamin écrira, en français (version « écorchée » d'une phrase de Paul Klee) : « Je brousse les images » – dans l'ambivalence d'un acte d'incorporation (brouter) et d'une sensation d'être soi-même perdu, mangé dans la « brousse » des chaos spiralés.

Or, dans cette grande broussaille de lignes, surgissent également, de toutes parts, des pléiades de *bifurcations*. Le motif de la pelote va ainsi se déplier en « digressions constantes (*ständigen Abschweifungen*) » et en un « phénomène de colportage de l'espace (*Kolportagephänomen des Raumes*) ». Tout bifurque, pullule et se met à migrer de ci, de là. Toute ambivalence palpite du « va-et-vient (*Hin und Her*)

[de] la chose et [de] son contraire (*Teil und Gegenteil*) ». Dans un protocole écrit par Fritz Fränkel, en avril 1931, on lit que, pour Benjamin en état d'ivresse haschichique, « deux termes d'une représentation se séparent pour accueillir dans leur écartement toute la masse des images d'une nouvelle phase. On a pour ainsi dire affaire à un "Sésame ouvre-toi" adressé à la représentation. La représentation se divise elle-même et donne libre accès à de nouveaux trésors d'images (*die Vorstellung selber tritt auseinander und gibt den Zugang zu neuen Bilderschätzen frei*) ». Par exemple : « Toutes les couleurs partent de la neige (*alles Farben gehen aus dem Schnee fort*) ».

Que toutes les couleurs soient ainsi capables de « partir de la neige », cela signifie enfin que, dans ce type de processus, les bifurcations incessantes – issues de pelotes chaotiques et embrouillées – sont douées d'une énergie centrifuge, irradiante. Surgit alors le motif de l'*aura* qui ne désigne, ici, rien de religieux, et qui fait même bon ménage avec le rire enfantin et le plaisir d'ivresse : « Tous les présents s'irisent de comique (*alle Anwesenden irisieren ins Komische*). En même temps on se pénètre de leur aura ». Benjamin rappelle que c'est là une façon de « jouer avec les espaces (*mit Räumen zu spielen*) [alors même qu']il se produit des égarements du sens de l'orientation (*Verführungen Orientierungssinnes*) ». Pour finir, « l'aura authentique (*die echte Aura*) apparaît sur toutes les choses [et] se modifie de fond en comble à chaque mouvement que fait la chose dont le mouvement est l'aura ». Cette aura – dont on connaît les fameuses définitions benjaminiennes comme trame singulière d'espace et de temps, de proche et de lointain – reconfigure donc sa « trame » à chaque nouveau geste qui la met en mouvement (et dont elle constitue le mouvement). Le contexte de l'ivresse haschichique permet aussi de comprendre que tout ce qu'énonce Benjamin du *visuel* doit aussi se comprendre comme expérience *temporelle* : à savoir comme trame singulière de l'instant et de l'origine dans le même tourbillon de l'expérience.

Nous connaissons aussi – grâce au *Benjamin-Archiv* de l'Akademie der Künste de Berlin qui l'exposa en 2006 – un schéma daté de 1930, remarquable par sa double forme elliptique.

Benjamin y mettait en relation « Éros et langage », ou bien « sensualité et esprit » : tout cela tournant, retournant comme dans une trajectoire de planètes. Tout cela faisant retour et révolution à chaque tour. Les deux termes écrits en gros caractères sur le dessin, comme s'il s'agissait des deux pôles principaux de ces mouvements elliptiques, étaient désignés comme le « Démonique » (*Dämonische*) et la « Dialectique » (*Dialektik*). Ce qui fait penser aux grandes pulsations anthropologiques telles que le Dionysiaque et l'Apollinien imaginés par Nietzsche ou bien – contemporains de Benjamin – le Chaotique et le Cosmique chez Paul Klee, les *monstra* de la pulsion et les *astra* de la pensée chez Aby Warburg…

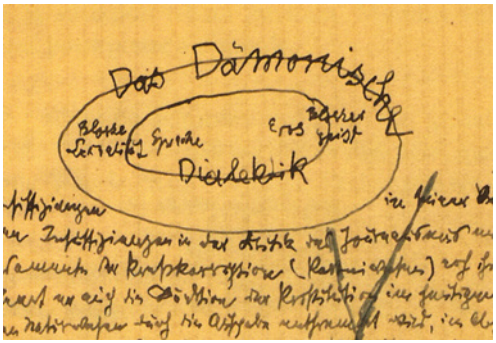

Figure 4 Paul Klee, *Effets-Causes*. 1922. Dessin illustrant le Cours du Bauhaus, Weimar 1921-22, folios 134. Photo DR

Mais ce qui compte, ici, c'est que de tels termes n'étaient pas purement et simplement opposés, arc-boutés de part et d'autre d'une frontière infranchissable. Au contraire, ils ne cessaient pas de se mouvoir et de se transformer l'un avec l'autre dans la rotation ou *révolution* suggérée par la double ellipse. La question se pose donc de savoir dans quelle mesure une même expérience – griffonner des spirales en désordre sur une feuille de papier, par exemple – peut être à la fois, pulsativement, « chaotique » et « cosmique », « démonique » et « dialectique », « monstrueuse » et « astrale ». L'*émotion graphique* de l'enfant serait-elle donc à comprendre selon la « double optique » dont parlait Benjamin à propos du tourbillon ? Mais de quelle façon comprendre cette double optique ? Avec quelle notion, avec quel mot pour une telle rythmique ?

La réponse sera donnée par l'enfant lui-même. Malgré son langage en formation, il va énoncer la chose avec une merveilleuse précision. Car, avant même de connaître tous les mots, il a compris que chacun d'eux possède son aura, son irisation, sa puissance de jeu, sa force expansive. Il va donc s'exclamer : « *gaga !* ». Et tout sera dit. Encore me reste-t-il à comprendre ce qu'il a, lui, déjà compris dans cette expression. Il me faut donc écouter, regarder encore un peu. Le voilà devant sa feuille : il se lance, le crayon à pleine main. On va faire une spirale mais, s'il faut en faire une, autant faire fuser des dizaines de spirales irrégulières en un seul geste, les superposer, les faire tournoyer aussi vite et puissamment que possible : les faire *jouer au chaos*. Qu'elles fassent réellement – et non pas seulement qu'elles représentent – un tourbillon de forces multiples à l'échelle d'une feuille de papier. Peupler l'espace, embrouiller les choses et, en même temps, les délivrer comme elles le font quand elles sont en train de naître.

Le geste est donc, en premier lieu, effusif, explosif. C'est celui d'une *mise en désordre* instantanée : « chaotique » ou « démonique ». Et le grand cri de joie qui le double l'est aussi : « *gaga !* ». Ce mot, exclamé triomphalement dans l'instant même du geste, accompagne sans médiation les « rafales d'images » que la main trace à toute vi-

tesse. Il exprime donc une pure joie liée au *phénomène* : « Voilà ! Cela apparaît ! Cela luit et irradie de toutes parts depuis l'énergie de mon propre geste, de mon corps, de mon imagination et de cette opération merveilleuse qui consiste à *faire apparaître* beaucoup de choses en un instant avec un simple crayon à papier ». Or, à ce mot lancé dans l'instant du geste va succéder le même mot, prononcé après coup, une fois que la main s'est arrêtée et que l'enfant considère – contemple un moment – ce qu'il vient de faire. Il regarde donc ses spirales en désordre et il répète, mais sur un ton bien différent désormais, qui semble étonné, songeur, presque admiratif : « *gaga !* ».

Ce n'est pas son « œuvre » qu'il admire alors, encore moins sa propre capacité « artistique » (ce ne sont là que des problèmes pour les vieux). Ce qu'il admire – qui le laisse songeur et lui fait prononcer son plus doux « *gaga !* » – semble être la capacité insoupçonnée du réseau graphique lui-même à faire naître, sans que personne n'ait voulu les représenter, de nouvelles images. Tout à coup il a vu ce que je ne vois pas encore. Je ne pourrai le voir que grâce à son *mot qui voit* – son joli petit mot de « *gaga !* ». Qui veut donc dire « la lune » (c'est une abréviation du grec phengari, φεγγάρι). Il désigne, chez cet enfant, non seulement l'apparition lumineuse en général, le *phénomène*-lune étendu à tout ce qui luit dans l'obscurité, mais encore la *forme*-lune. Or l'enfant sait bien que cette forme prend plusieurs formes : elle se transforme d'une nuit à l'autre, depuis la pleine lune jusqu'aux croissants de plus en plus fins. Il la voit même dans le contour de la bouche lorsque quelqu'un sourit. Il n'a donc pas fixé le mot « *gaga* » sur une seule chose, un seul phénomène ou une seule forme, et c'est déjà là comme un *Urphänomen*, une forme originaire de poésie par la *mise en puissance irradiante* d'un seul mot.

Ainsi, lorsqu'il dit « *gaga !* » pour la seconde fois, en considérant son propre dessin, c'est comme s'il m'invitait à mieux regarder ses spirales échevelées : à m'approcher de ce qu'il fallait voir aussi, par-delà le désordre lui-même. Je découvre alors cette évidence laissée au rebut de mon observation préalable : dès que deux lignes courbes se croisent, cela donne, en effet, le contour d'un croissant. Le mouvement giratoire et spiralé du crayon a disséminé un trésor de « *gagas* », à savoir ces multiples formes évoquant des croissants de lune qui prolifèrent dans toutes les directions et dans toutes les dimensions, sans qu'il se soit jamais agi, bien sûr, de représenter quelque chose du genre : « La lune dans un paysage nocturne ». Il s'agissait de faire beaucoup plus : de faire naître, de se donner à voir, mille et une lunes possibles.

On dit souvent que les enfants « demandent la lune », pour signifier qu'ils désirent l'impossible. On oublie de voir qu'ils savent la ramener à eux avec une facilité déconcertante, une vitesse de geste imprévisible, une imagination démultipliante et une puissance d'observation extraordinaire. Voilà donc qu'au moment même de *jouer*

au chaos, cet enfant aura envisagé son gribouillage comme une façon, aussi, de *jouer au cosmos* par spirales inspirées – tout cela dans la simple de joie de tracer à l'aventure. Et sans perdre son temps, du coup, à prêter attention aux stériles jugements esthétiques qui voudraient trancher une fois pour toutes entre ce qui est « forme » et ce qui est « informe ».

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Realism Relativized: A Cultural-Historical Approach to What Images Capture

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Abstract It is sometimes assumed that there can be a unified and universal analysis of pictorial realism, but this seem implausible. Realism has been understood differently at different times in Western art history, and art-making traditions elsewhere often aspire to forms of realism that contrast with forms operative in the West. Such variations are presented here, with examples from European, African, and East Asian art. Contact between cultural traditions is also considered. Within analytic aesthetics, some definitions of realism are designed to accommodate cultural diversity, but they face challenges. Leading definitions are critically examined. For example, there are theories that focus on entrenchment, visual skills, and informativeness. None of these constructs captures what realist systems share in common, and none provides an ideal framework for explicitly describing how such systems differ. An alternative theory of pictorial realism is presented. On that theory, realist systems each aim to capture aspects of reality, but they focus on different aspects and provide different manners by which those aspects may be captured.

Keywords Realism. Art. Depiction. Culture. Relativism. Art History.

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1 Introduction

Realism has been a central theme in the analytic philosophy of images. Images or pictures are said to depict, and they can depict things more or less realistically. This has spawned numerous theories of pictorial realism, theories involving resemblance, illusion, convention, recognition, information, and much else. In recent decades, there has been an appreciation of the fact that pictorial realism may be relative. Indeed, numerous dimensions of relativism appear in the literature. First, the very concept of realism has been used in a number of ways (e.g. Lopes 1995; McMahon 2007); realism can apply to different things: works, features, manners, styles, systems, etc. (e.g. Abell 2007; Kulvicki 2014); realism has been said to be culturally relative (e.g. Goodman 1968; Grigg 1984); realism has been said to vary with the knowledge, interests, and experience of each observer (e.g. Lopes 1995; Abell 2007); there can be incompatible pictorial systems that qualify as equally realistic (e.g. Newall 2011). I aim to contribute to this crowded literature in three ways. First, combining relativism about both culture and the concept of realism, I want to explore how the aims of realistic depiction have varied across time and place. Second, I will draw an implication from these observations. Leading theories of realism may be too ambitious: they try to identify a notion of realism that cuts across diverse traditions. In so doing, they end up being either parochial – overemphasizing recent Western standards – or uninformative – distracting away from the standards by which cultural groups assess their images. Third, I will offer an alternative that places more explicit emphasis on the relativity of realism.

I begin by raising some questions that problematize the notion of realism. Then I turn to art history. After a brief genealogy of realisms in the history of Western art. I survey pictorial aspirations across cultural contexts, along with cases of cross-cultural contact. Some philosophically oriented readers may be impatient with historical details, but, like empirical results more generally, they provide the evidence against which theories of realism must be weighed. With the historical examples in hand, I will turn to philosophical theories of pictorial realism and raise concerns about them. I will end by sketching an alternative that is move overtly relativistic.

2 Preliminary Problematizations

Philosophers usually construct theories based on intuitions. A theory of realism is no different. It begins with a sorting task. A theory of realism is supposed to explain why some pictures are intuitively realistic *simpliciter*, or more realistic than others. Theories live and die by these cases. For example, Abell (2007) saddles Hyman

(2005) with the embarrassing implication that cubist paintings are realistic. Sometimes these intuitions are not shared. For example, Abell complains that Lopes (1995) is committed to the realism of diagrams with exploded perspective (like a schematic used to build an Ikea shelf), but Lopes is happy to treat such diagrams as realistic in their intended context of use (assembling furniture). Who is right? How do we decide?

It is easy to generate cases where intuitions are unclear or unstable. For example Michelangelo, deft with *disegno*, rendered bodies where every muscle can be discerned, even on babies. Giorgione, a master of *colorito*, paints anatomy with far less definition. Is one more true to nature than the other? Or, to take another Renaissance example, consider Benozzo Gozzoli's *Feast of Herod* (1461), a continuous narrative painting showing several consecutive episodes all at once. Is this a break of realism? Moments are condensed, which seems unrealistic, but we see more of the story, so it is more informative. Plus, every painting artificially freezes time, so is this any worse? Moving into the Baroque, what should we say about Goya's early work in comparison to his "black paintings". The former are rendered from observation, but the latter express feelings and anxieties more sincerely. Similarly, in twentieth century art, should we regard Georg Grosz as less of a realist than the Nazi artists he despised? His paintings are caricatures, but Nazi art is highly idealized and propagandistic. We might also ask about Tanguy versus De Chirico. Tanguy renders three-dimensional forms more convincingly, but his objects cannot be identified, whereas De Chirico's can with ease. Is one more of a realist? Or, to take a simpler case, is black and white cinema less realistic than color? Are 3D movies more realistic than both?

Things are just as unclear when we move beyond Western art. Consider erotic *shunga* prints from Edo and Meiji Japan. Male and female genitalia are anatomically oversized, but that device allows them to be rendered with more detail. Also, when one attends to sexual organs during an erotic encounter in real life, they become more salient, perhaps occupying more of the visual field. Is the graphic enlargement a distortion or a faithful representation of the effects of attention? We can also ask about Japanese prints more generally, are they realistic? Or, if such questions require comparisons, we can ask, are they more realistic than ancient Egyptian paintings? Ranking for realism seems difficult here.

There may, of course, be clear cases. Ingres painting are more realistic than Byzantine icons, for example. Ife bronzes are more realistic than Akan goldweights. But we might also wonder about the utility and stability of such comparisons. As we will see, the Byzantines seemed to regard their work as comparable in realism to classical statuary, and the Akan goldweights represent far more varied activities than Ife bronzes. Is there even any meaning to such cross-

cultural comparisons? I don't want to suggest that no such comparisons can be made. Perhaps a rough underpainting by Gentileschi is less realistic than the final product. But the idea that we might arrive at a general theory of realism, based on firm intuitions and capable of sorting the undecided cases seems optimistic. Hard cases are not fatal to the theorist of realism, but they provide a *prima facie* reason for wondering whether the messy *explanada* demand a tidy *explanans*, or whether, we should, instead, rethink our theoretical ambitions.

3 A Genealogy of Western Realisms

Efforts to explain historical realism often use examples from the Western cannon, sometimes contrasting styles that span large swaths of history: Leonardo and Lee Kranser, for instance. Such efforts imply that realism is a timeless feature of depiction. In reality, concepts of realism have changed over time. We can apply current concepts to the past, of course, but at the risk of anachronism. There is something hegemonic about asking how our concepts apply to the distant times. There is also a missed opportunity to understand why we have the concepts we do, and why we care so much about their scope of application. With this in mind, I offer an abbreviated history of Western realisms.

Let's begin with classical Greece, since it is often regarded as a source for much subsequent thinking about realism in art. The Greeks were certainly concerned with realism, but they had more than one conception, and there are reasons to wonder whether those really coincide with our own. One idea, sometimes captured by the word *mimesis*, can be extrapolated from the famous fable of the painter Zeuxis, whose grapes were so realistically rendered that birds tried to eat them (Pliny, *Natural History*, 35.65; Rackham 1961, 309). This story implies that realism involves illusion. Plato was famously anxious about the deceptive potential of art, and illusion is a repeated theme (along with the Zeuxis tale) through Western art history. But it is unlikely that this notion was really operative in ancient artistic practice. Greek statues, for instance, were oversized and garishly painted. The realism at work there involves something more like fidelity to nature (e.g. anatomy), but with an important qualification. Greeks have no interest in rendering nature as it was experienced. Their approach was always to idealize, where this involves a search for ideas in the Platonic sense: perfect forms. Such idealization may be regarded as the principle concept of realism operative in classical Greece.

Moving on to the Middle Ages, it is commonly observed that the Greco-Roman preoccupation with anatomical perfection is replaced by an approach to art that is far less concerned with imitating nature. Byzantine icons and statuary are, to modern eyes, startlingly abstract and inaccurate. Curiously, there is textual evidence that

Byzantine observers did not view their own art this way. They seem to have regarded their work as both lifelike and comparable to ancient art (Mango 1963; Grigg 1984). Spectators report that depictions of people seemed so real that they expected them to open their mouths and speak. One explanation is that these images were believed to be copied from portraits of sacred personages that were drawn from life (cf. Grigg 1987). Saint Luke, of Gospel fame, was reported to have produced hundreds of portraits, with divide guidance, and these dictated the style of those that followed. It is no wonder, then, that Byzantine viewers would be stirred by the artworks they encountered in churches. But, in calling these images realistic, we need not assume that they were attending to the same features that enchanted the Greeks. They embraced a kind of spiritual realism (D-Vasilescu 2010). Images were assigned a spiritual significance that imbued a sense of animacy. Outward appearance is of less import here, than capturing the spirit of the person portrayed. The use of familiar visual templates afforded mediated contact with the depicted individuals.

The Renaissance witnessed a return to classical ideals, and, one might think, a revival of classical conceptions of realism. This idea gets some support from the pages of Vasari. He repeatedly praises artists for creating lifelike works. Some paintings, he says, seem to breathe (Vasari 1991, 56, 280, 315, 325). He also makes repeated reference to the imitation of nature (19, 95, 277, 280). This phrase, which is so important to Vasari, might imply that Renaissance artists were preoccupied with reproducing the way things appear in the natural world. One can see the sequence of artists in his *Lives* as moving ever closer to this ideal. Newall (2011) notes the progression from Cimabue to Giotto, to Masaccio, and to Leonardo. There is some truth to this reading, but the story is more complicated. Vasari is not concerned with photographic verisimilitude. For example, he praises Raphael for triumphing over nature and effortless invention (Vasari 1991, 280). He later applauds Pontormo for producing a "wonderfully lifelike" portrait of Bronzino in his *Joseph and Jacob in Egypt* (1515), but the word "lifelike" must be taken with a grain of salt (Vasari 1991, 403). Pontormo is a pioneer of Mannerism known for elongated figures and vibrant colors. His faces are highly stylized with hollowed eyes, and he uses *cangiante* techniques, which increases saturation in shaded areas, rather than decreasing saturation. His Pontormo portrait is no exception. Vasari's narrative culminates with his mentor, Michelangelo, who he regards as the ultimate imitator of nature. But Michelangelo's figures have oversized proportions, with muscular delineation one would never experience in life. Vasari's emphasis on *disegno* and *maniera* is not, in the end, an injunction to recreate what we see. Rather, his favorite artists dramatize and distort. One can credit Masaccio with producing believable likenesses, and can revel in the naturalism of Leonardo's *sfumato*, but Vasari reserves highest praise for a

different breed of artist. This is not idealization, governed by classical strictures of formal perfection, but something more akin to exaggeration. I think of Vasari as advocating a heroic realism, not unlike what comicbook artists seek. He is also preoccupied with the performative. His artists are as heroic as the works they produce. It is telling that his favorite story about Zeuxis is not the grapes that attract birds, but another tale in which Zeuxis paints Helen by combing numerous models because no living person has all the right traits (Vasari 1991, 381). Michelangelo's superheroes exemplify this approach: the real becomes a Frankensteinian assemblage.

Moving into the seventeenth century, we find a confluence of trends that depart significantly from Renaissance aspirations. First, we begin to see artists who prefer working-class models to triumphal superheroes, painters such as Velazquez and Caravaggio. Caravaggio was regarded by many as vulgar, but his gritty chiaroscuro went viral, and informs much Baroque figurative painting. Meanwhile, in the Low Countries, there was a growing middle class and a Protestant ethos that eschewed lavish liturgical art. The result was a radical secularization of painting, and new genres took hold: still lifes, landscapes, and genre paintings. There were experiments with *trompe l'oeil*, but illusion is rarely a goal in art from this period. Still, we do get a realism that aligns more with what we see in the real world. This was fueled by the Reformation and facilitated by technologies like the camera obscura. One might describe this as an earthly realism, and it is ideologically distant from the heroic realism of Vasari.

Things change again in the eighteenth century. The center of gravity shifts from the Netherlands to France, where Enlightenment ideas were taking off. Within this new worldview, nature is something observed, but also controlled. At this stage of history, the control is discursive not physical, though the Industrial Revolution was brewing across the channel. Nature was to be analyzed and arranged: gardening became a fine art (with an emphasis on the orderly in France), and the *Encyclopédie* was written. The realism that emerges at this time emphasizes perfectibility. Diderot admonishes artists to improve on nature (Seznec 2007, 18). The aim was not Platonic or heroic ideals, but grounded in a new regard for human excellence. Pictures of the time are perfected in a variety of different ways: in Rococo aesthetics, there is an emphasis on beautification and the pursuit of sensory delight; in Neoclassical aesthetics, observation is combined with formal composition, and nature is seen through a historical lens; in history painting, grandiosity becomes an ideal. None of these trends concerns itself with the nature as it is given; they contrive to show that we can make things better. Thus each also becomes an opportunity to ostentatiously display human perfectibility. This in the century of Salon competitions and connoisseurship, the century in which aesthetics emerges as a field.

The nineteenth century saw a number of transitions in politics, economics, and culture. In the aftermath of the French revolution neoclassicism was still dominant, but a Romantic countercurrent emerged as well. Romantics were more fanciful (read, orientalist) in subject matter and more expressive in style, but they expressed a competing conception realism, linked, however loosely, to Rousseau's noble savage: they were interested in capturing our more natural state of being, untarnished by the constraints of modern civilization. They loosened brushstrokes to capture that untamed spirit, which they regarded our natural state of being.

Soon after, academic painting pushed in a very different direction: artists such as Gérôme began to copy from photographs. The camera obscura and other optical devices had been used by artists since the Renaissance, but photographs provided artists with a stable reference to render fine details and lighting with the mechanical precision of a lens. With their uniformly focused, monoscopic, rectangular format, photographs are by no means faithful to vision, and they coevolved with painting, incorporating many Western pictorial conventions (Snyner 1980). Nevertheless, realism began to mean "photographic" for many in the West, and photography was equated with truth.

Meanwhile the civil unrest of the 1848 revolution, mass poverty, and the industrial revolution set the stage for a third innovation: the naturalism of Courbet and Millet. Both began to paint the working poor and other ordinary people. Courbet rejected ornament, artifice, and imaginative invention: "painting… can only consist of the representation of real and existing things". (Nochlin 1966, 35). This movement was called realism, but it rejected the photographic methods of the academy. "Real" meant mundane and proletarian. Courbet aimed to "translate the customs, the ideas, the appearance of my epoch" (Nochlin 1966, 35). He painted from life in his studio, but his realist aspirations consisted more in subject matter. This gesture set the stage for the next revolution in French art. Young painters adopted Courbet's interest in ordinary life, but shifted focus to bourgeois and bohemian life, and they also took painting to the fields. Their realism was not photographic, but impressionist, capturing fleeting moments and the effects of light. Some heirs to this school, like the post-impressionist Seurat, were inspired by the new vision sciences. Realism took on the conflicting roles of capturing ordinary life and also shifting attention away from content and towards light, color, and form.

The shift towards form opened the floodgates to twentieth century modernisms. In one respect modern artists were opponents of realism. With the advent of photography, artists had no need to paint what could be captured mechanically. From another perspective, they simply replaced photographic realism with other forms. Abstraction was often seen a way to distill reality (Mondrian), or to get at the hidden essence of things (Hilma af Klint). There was also an interest

in capturing emotions (expressionism) and dynamic energy (futurism). It is also noteworthy that some cubists (like the early Duchamp) found inspiration in photographic experiments exploring simultaneity. Given that vision presents a coherent world only by assembling multiple saccades, the artist devotees of simultaneity were exploring an aspect of seeing, and doing so with scientific zeal. Modernist movements abandon traditional realisms while advancing new conceptions of the real.

With this brief chronology, it should be clear that realism is a moving target in Western art history. Those who seek a uniform analysis should specify which, if any, of these realisms they hope to capture. They should also ask themselves whether their preoccupation with realism is not itself a product of the modernist moment. The poles of the real and unreal that animate the debate in analytic aesthetics have as their paradigm cases the photographic and the abstract. That dichotomy is one of many in this history. If we fashion theories of realism to demarcate this divide, we may neglect and misclassify others.

4 Realism Across Cultures

Variation on conceptions of realism can also be found if we move beyond the West and consider attitudes towards images in other traditions. Much has been written about variation in pictorial styles across cultures, though it is not easy to find work directly bearing on realism. The principle exceptions are discussions of Chinese and Japanese art. Those will be my focus here, but I will begin with a few remarks on Sub-Saharan African cultures and Ancient Egypt.

There are many diverse artistic traditions in Sub-Saharan Africa, and these differ wildly in style. There has been some investigation of local attitudes, but it takes some extrapolation to apply to the present question. In one relevant study, Silver (1983) asked people (both carvers and non-carvers) in an Asante village in Ghana to assess photographs of sculptures from various parts of Africa and Oceania, including two Asante figures. They were asked to rank the photos in order of preference. Unsurprisingly, both groups included the two Asante works as most appealing. The third item in their top three was an Ife figure that Western art historians would describe as "naturalistic". Respondents described the statue as "a real person" (66). In the next tier they ranked works that were moderately naturalistic. Less naturalistic works got lower scores. One exception was a Dan mask, which got the lowest ranking in both groups despite its naturalism. Silver says they found it frightening. This study indicates that naturalism (as Western observers think of it) is a salient dimension to the Asante. That is reflected in their own art, and it would be interesting to poll individuals who produce less naturalistic carvings.

A further complication is that their first choice was an *akuaba* fertility figure with an enormous flat head and long neck. They regarded her as a "well-rounded representation of the contemporary Asante woman". This implies some sense of realism. If so, the Asante standard of realism may differ somewhat from those operative in the West.

Better known are studies by Hudson and Deregowski on picture perception in rural African cultures. Hudson (1962) found that Bantu laborers in South Africa did not recognize a common pictorial depth cue: objects at a distance look smaller, and we interpret them as further away. When presented with a picture of photograph of a hunting scene containing a distant elephant in the background, Hudson's participants interpreted it as a small elephant in the foreground. Deregowski conducted studies in rural Zambia using pictures of elephants with splayed legs (1969) or split in half so both sides of the body can be seen at once (1970). In Western conventions of realism, objects are presented from a single vantage point, and that means some parts and surfaces are occluded from view. The Zambia respondents showed no preference for Western single-viewpoint images over those that are split or splayed when asked which images correspond best to a three-dimensional model of an elephant. This introduces a competing conception of realism: instead of representing a fixed viewpoint, images may seek to present objects in their entirety by presenting parts that could never be seen all at once. Some cultures, like the Tsimshian and the Haida people in the Pacific Northwest, regularly include split-representations in their art. This work is inconclusive, but suggests culturally divergent strategies for capturing reality.

Ancient Egypt offers a related example. Egyptian paintings canonically depict the head and legs in profile and the eyes and torso frontally. This is an impossible position to occupy but each body part is presented at an orientation that facilitates recognition (Pinna, Deiana 2019). Brunner-Traut (1986) calls such paintings "aspective"; they are "composed from the individual views which… [are] related artistically according to the image of the whole… without sacrificing the truth they contain" (424). The Egyptians used strict canons of proportion rather than drawing from life. The result is a style that distills the essence of things, even if it isn't realistic in a photographic sense. Arnold (2013) calls such works "super-real" (13), "beyond-the-real" (4), and "more than just realistic" (15). This attitude may have been shared by Plato. He referred to Egyptian art as intrinsically right, correct, and identical in artistry to Greek art; Davis (1979) speculates that Plato regarded Egyptian art as capturing the formal essence of things. One might think of this as archetypal realism. There is little doubt that they aspired to represent things in the world faithfully – for example, the food painted on temple walls was meant to be reanimated after death and eaten – but their methods of doing so were based on enduring conventions rather than ephemeral observations.

Admittedly, Egypt broke form its rigid cannons periodically. Royal portraits from the Middle Kingdom show signs of anxiety and age, and portraits from the Amarna period have willowy, curvilinear anatomies. The styles adopted here are not literal but ideological. Portraits from the Middle Kingdom reflect pessimism and mistrust during a tumultuous time (Russmann 2001, 35 f., 104). Amarna portraits coincide with Akhenaten's imposition of a new religion and imply a break from binaries that helped him delineate a new conception of kinship (male/female, god/human, beautiful/grotesque, aloof/accessible, timeless/ephemeral). Archetypal realism remains, albeit with new archetypes.

Let's turn from Africa to East Asia, focusing on China and Japan. Here we have more to go on, because there are written records of attitudes towards realism in art. China has one of the longest histories of artistic production in the world, and, for much of that history, scholarly commentaries were written and circulated. No analysis was more influential than Hsieh He's Six Laws of painting, formulated in the sixth century CE. Of these laws, two were picked up by later artists and authors as particularly fundamental: formal likeness (*hsing-ssu*) and spirit resonance (*ch'i-yun*). The former refers roughly to how shapes and lines generate identifiable objects, and latter is sometimes glossed as the vitality with which those objects are imbued. Both were seen as essential. Thus, a T'ang Dynasty critic, Chang Yen-yuan (ca. 847), remarks, "contemporary painters are but roughly good at describing appearances, attaining formal likeness but without its spirit resonance; providing their colors but lacking in brush method" (Bush, Shih 2012, 55). By the Song dynasty, the blue/green color palette common in the T'ang had been replaced by the monochromes that remain familiar today. With monochromes, it is plausible to say that shape conveys formal likeness, while strokes carry much of the spirit resonance.

For novice viewers, both then and now, spirit resonance may go unnoticed. A Yüan Dynasty commentator, Tang Hou (active ca. 1320-30), comments, "When ordinary people discuss paintings, they are not aware of the inspired subtleties of brush technique and spirit resonance, but first point out the formal likeness" (Bush, Shih 2012, 260). For connoisseurs, in contrast, spirit resonance often overshadows formal likeness. Consider *Early Spring* (1072) by Guo Xi, one of the most famous paintings of the Song Dynasty; the undulating mountain and spiny trees do not look like anything one might encounter in life, yet the landscape is animated by rhythmic energy, conveying expressive meaning (Murashige 1995). Around this time, literati painting (*wenrenhua*) emerged as an alternative to court painting, and spirit resonance became associated with subjectivity. Literati downplayed likeness and let resonance reign supreme. The famed literati painter, Su Shi (1037-1101) made this analogy:

> Looking at [literati] painting is like judging the best horses of the empire: one sees how spirit (*i-ch'i*) has been brought out; but when it comes to artisan-painters, one usually just gets whip and skin, stable and fodder… (Bush, Shih 2012, 197)

Powers (1995, 101-2) expresses this by saying the literati transitioned from naturalism to naturalness (*tianran*), and from artfulness to genuineness (*zhen*). In this context, he quotes Tung Yu (active early twelfth century): "Those who give priority to similitude are talking about phony painting" (103).

How should we think of these concepts with respect to realism? Answers can be found, again, in the primary texts. In an illuminating passage, Ching Hao (ca. 870-930) instructs that "Lifelikeness means to achieve the form of the object but to leave out its spirit. Reality means that both spirit and substance are strong" (Bush, Shih 2012, 146). This may be taken to suggest that formal likeness emulates external forms, but it fails to animate a work with living energy. This idea is colorfully captured by Yang Wei-chen (1296-1370):

> Thus, when one judges the high or low quality of painting, there is either the "transmission of likeness", or the "transmission of spirit". And the latter is "spirit resonance [hence] life-movement" (*ch'i-yiln sheng-tung*). For example, a painted cat hung on a wall may stop the rats. (Bush, Shih 2012, 246)

It is tempting to compare this to the Zeuxis myths, where art becomes illusion, but that would be a mistake. The emphasis is not on optical equivalence, but on the sense of vitality in the work.

The concept of spirit resonance and the resulting conception of realism have no obvious analogue in Western art. It is bound up with the Chinese emphasis on brushwork, which is also the locus of artistic innovation, and a place where the dynamic activity of painting leaves a mark. It is also important to appreciate that the concept of formal likeness may be distinctively Chinese. Chinese painters do not try to reproduce nature exactly as it is itself, much less what it looks like from a particular point of view. Mountains, for example, are not depicted from a viewer's perspective, but from the impossible vantage point of a being who could see them in their entirety from an equal distance. There was no concern with fixed lighting sources, and there were conventions for partitioning nature into different planes: close, middle, and far. We get likeness without verisimilitude. In sum, traditional Chinese painting delivers two culturally-specific notions of realism, as well as a third emergent notion corresponding to their amalgam.

Let's shift now from China to Japan, which has a strikingly different aesthetic tradition. During the Heian period, there was an effort

to develop distinctively Japanese styles of picture making, called *yamato-e*. One feature that emerged over the ensuing centuries was a tendency to flatten the picture plane, in contrast to Chinese landscape, which emphasizes depth. Japanese painting makes less use of modeling, and surface textures are also reduced or heavily abstracted. Japanese art has been called abstract, exaggerated, and decorative (Lee 1962). These tendencies culminate with the Rinpa school, epitomized by the work of Ogata Korin (1658-1716). Here landscape is reduced to bold graphic forms. Japanese landscapes are generally colored, but the Chinese preference for monochromes influenced another tradition in Japanese art: Zen painting. Some C'han artists (Chinese Zen), such as Muqi, were more popular in Japan than in their native country, and they were actively collected. Japanese Zen art, however, often abandons the subtle shading in Muqi, and adopts a coarser, more rustic approach, leaving ample negative space (*ma*) to connote emptiness. This work does not seek verisimilitude, but there is an aspiration to spiritual truth, which might be regarded as another kind of realism.

Most interesting for the present context is the evolution of *yamato-e* during the Edo and Meiji period when color woodblock prints (*nishiki-e* or *ukiyo-e*) became hugely popular. These prints became more colorful and elaborate over time, with elaborate textiles, dynamic actions, and carefully rendered backgrounds. They are in many respects the opposite of Zen paintings, which emphasize spiritual resignation. *Ukiyo-e* themes were drawn from history, mythology, and contemporary life (e.g. travel destinations, sumo wrestlers, courtesans, kabuki actors, and, during the Meiji, military conflicts). There is clearly an aspiration to realism here. There is great attention to detail, and, unlike most Egyptian art, the portraits of actors and athletes were recognizable likenesses (Bickford 1987). But the likenesses here differ markedly from the realism of European painting. Shading of figures is absent, and figures are drawn in highly stylized ways, obeying a variety of pictorial conventions. For example, the fury of warriors is represented by depicting the pupils of the eyes moving in opposite directions, and hands are sometimes twisted impossibly backwards in moments of combat. Still, unlike Egyptian art, these conventions allow for open-ended variation, and much care is taken to present things in believable ways, such as sumptuous textiles and the transparency of water. Many prints are also highly narrative in content. Thus, *ukiyo-e* integrate the reductive tendencies of Rinpa with a flare for opulent detail, dynamism, story-telling, and invention. Japanese realism can be regarded as iconographic in that it deploys abstraction in the service identification.

These examples suggest that different artistic traditions are equally concerned with capturing aspect of reality, but they adopt different approaches to that end. European methods contrast with what

we find in Africa and East Asia. To call European painting more realistic seems misleading, since it overlooks the fact that there are different ends at work across cultures, and, as we saw, those ends varied in Europe as well. European painting is, by these other standards, less real. In contrast to Egyptian art, it tends to capture ephemera rather than enduring truths, and, unlike classical Chinese art, it neglects spirit resonance. It lacks the crisp linearity of woodblock printing and the reliance on stylized forms that facilitate identification because of their iconographic constancy. Rather than adopting the European standard, and measuring realism everywhere against it, one can posit multiple realisms.

5 Cultural Contact

Against this relativization of realism, one might object that European standards were regularly adopted during moments of cultural contact, and regarded as more real. Under Ptolemaic rule, Egypt sarcophagi began incorporating individualized Greco-Roman portraits of the deceased. In China, some Italian missionaries were hired as court painters – the most famous of these is Giuseppe Castiglione, who served three emperors in the Qing Dynasty. In Japan, European influence began with Dutch and Portuguese traders. Even during its centuries of isolation, there was a field of Dutch Studies (*rangaku*). Shiba Kōkan (1747-1818) was among the first to learn European techniques and describe them for others in Japan. In his treatise, *Seiyō-gadan* (*Dissertation on Western Painting*), Kōkan extols shading and exclaims "Only Western art techniques can capture reality" and "Japanese painting is mere child's play" (French 1974, 82). *Ukiyo-e* artists also exhibit European influence in ways that suggest an appreciation of Western realism; most notably, many adopt linear perspective. When Japan's borders were forced open in the Meiji period, European painting became immensely popular and was eagerly adopted, displacing traditional Japanese styles.

Still, we must be careful in drawing hasty conclusions here. Egyptian was under Greco-Roman rule when European styles impacted their art, and the "realistic" mummy portraits likely had foreign patrons. Furthermore, there is reason to believe these portraits were highly idealized, emphasizing wisdom, beauty, and youth (Riggs 2002, 91). What's more, even under Greco-Roman rule, most Egyptian art doggedly preserves traditional conventions.

In China, too, there was much resistance and resilience. A Qing Dynasty court artist, Tsou I-kuei, remarked,

> The Westerners are skilled in geometry, and consequently there is not the slightest mistake in their way of rendering light and shade

> [*yang-yin*] and distance (near and far)… But these painters have no brush-manner whatsoever; although they possess skill, they are simply artisans [*chiang*] and cannot consequently be classified as painters. (Sullivan 1989, 80)

It is important to recall the association between brushwork and spirit resonance. Tsou I-kuei applauds the methods operative in European realism, but seems to regard them as a parlor trick, and he criticizes the lack of vitality. It is noteworthy, too, that European methods did not take off in China until they came under Western domination, despite centuries of exposure. Even Castiglione was given training in Chinese methods and asked to collaborate with traditional Chinese painters, resulting in a hybrid style.

Later, when photography came to China, notions of realism evolved, but there was resistance at first (Gu 2013). In an oft-quoted article, a Scottish photographer who traveled to Hong Kong in the nineteenth century reports conversation with a local portrait photographer. The Chinese photographer is alleged to have said that portraits ought not "have shadows about their faces, because, you see, shadows form no part of the face. It isn't one's nose, or any other feature; therefore it should not be there. The camera, you see, is defective" (Thompson 1872a, 569). In a follow-up article, we learn that the Chinese photographer would powder sitters' faces white to minimize shadows (Thompson 1872b, 591). Moreover, traditional Chinese portraits were intended to capture the constancies in how a person looks over a lifetime, not their visage on a single occasion (Gu 2013, 126). Thus, while photography was embraced as an emblem of modernization, there were ways in which photographs were regarded as unrealistic.

As for Japan, Kōkan's efforts to popularize European methods largely failed. There was uptake of Dutch science, but the influence of European art was more selective. Indeed, Kōkan himself has been described as interpolating, rather than appropriating, European methods; his works are a "strange hybrid" (Lee 1983, 191). Likewise, perspective was adopted inconsistently, and often looks contrived and unnatural in Japanese prints. It is worth recalling an anecdote cited by Gombrich (1956) about the Japanese painter, Yoshio Markino, whose father was unable to understand perspective when he first encountered it; the lines of a foreshortened box made it look crooked to him (Markino 1913, 272). Beyond perspective, Japanese artists were slow adopters. Meiji period *ukiyo-e* artists such as Chikanobu, Kiyochika, Kyosai, and Yoshitoshi were well versed in Western styles but highly selective in what they appropriated. Ultimately, younger artists abandoned printmaking in favor of Western oil paining, but that transition was fueled by an ideological shift: there was keen interest in modernization, and the West represented modernity. Even so, there was a strong backlash against Western-style painting (*yōga*),

and a concerted effort emerged to update Japanese styles (*nihonga*). It is also noteworthy that Japanese *ukiyo-e* exerted an enormous influence on the West at the same historical moment, inspiring artists such as Manet, Degas, Lautrec, and Whistler, who were seeking out new forms of realism.

Let me end this cross-cultural exploration with another observation from Yoshio Markino. Markino moved to the West in 1893 and studied Western art, but he continued to revere Japanese aesthetics. In the same book from which Gombrich recounts the perspective anecdote, Markino describes the European approach to art as scientific. The Japanese approach, in contrast, draws on "human sense". Markino argues that both are necessary, and he ridicules Europeans for pushing the science too far:

> I must say [Western] art has got into the delusion by photography… The sense of our eyes is not as sharp as the machine… I have observed another disastrous delusion of some Western artists. They often go into the theory of perspective more "scientifically" than the reality. That is to say, they paint the objects out of the visible circle. The human eye cannot see more than 60 degrees, which I call "visible circle…" This is what I call the scientific theory, which represents the nature into falsehood. (Markino 1913, 61-2)

Here we see an artist steeped in two artistic traditions recognizing a conflict between photographic realism and the content of experience. He sees Japanese art as more truthful in this respect, and his contrast between science and sense implies two different ideas about what it means to paint realistically.

6 Philosophical Definitions of Realism

The foregoing is a small and speculative sampling of artistic traditions and their attendant notions of realism. The guiding hypothesis is that artists from different times and places had different aspirations with respect to the depiction of reality. Members of each tradition would have been able to evaluate images for their success in meeting those aspirations. An Ancient Egyptian might criticize an image for flouting anatomical canons, Vasari might complain about musculature being inadequately articulated, and Song Dynastic scholar might complain that a picture lacks spirit resonance. I am suggesting that these traditions are governed by different conceptions of realism, and this raises a question for philosophical theories: do efforts to analyze the concept of realism have the flexibility to capture such variation or do they end up saying more about contemporary Western ideas?

In seeking an answer, I will briefly describe some prevailing theories, leaving out many of their details for ease of exposition. As noted at the outset, I should make clear that many theories allow for variation in standards, and may therefore have resources to accommodate the cultural differences I've described. I want to suggest, however, that there is a tendency in these theories to treat "realism" as a monolithic concept. The relativism lies elsewhere, for example in the interests of individual judges. Some theories do better: they allow us to relative "realism" itself. These, however, still look for a common denominator, and, in so doing, tend to miss the mark in ways that distract from the actual sources of variation. Or so I shall argue.

In surveying theories of realism, I will restrict myself to proposals from analytic aesthetics. Interest in this topic owes much to Goodman's (1968) conventionalist theory, which has been used as a foil by just about every subsequent author. Goodman claims, provocatively, that realism has little do with resemblance between picture and world, and involves, instead, habituation in a symbol system. A person experienced with pictures of a certain type will be able to determine what they represent because they have learned the operative conventions. The degree of realism will be relative to the assessor's entrenchment in that system. Goodman's theory is attractive in the present context, because it acknowledges the importance of systems of representation (see also Goodman 1960; 1975). Curiously, however, his official account of realism neglects the specific aspirations of such systems and reduces realism to a single phenomenon. Goodman is right to invoke conventions, but, in that very gesture, he expunges the very differences that make conventions interesting. Indeed, by emphasizing habituation, he profoundly mislocates the basis of success in realistic representation: realism is not merely a matter of familiarity and practice, but about conformity to operative norms.

In the years since Goodman, many wage a different complaint: his refusal to concede that there is some visual process at play in judgments of realism. Theorists have tried to bring vision into the analysis in a range of different ways. Peacocke (1987) proposes that realism is a function of experienced similarities between pictures and the things they represent. He focuses on similarity of shape. "Similarity" is a vague concept, but it seems inapt when thinking about the aspirations of, say, icon painters, Egyptian carvers, and *ukiyo-e* printmakers. If they wanted to create images that were experienced as like seeing real entities in the world, then why did they fail so badly, and why didn't they correct their methods by observing more carefully?

Pushing even harder on the link to vision Newall (2011) relates realism to the number of features that are "non-veridically seen" in a picture (i.e., visually recognized and experienced without an object). The examples just mentioned, however, indicate that seeing such art is very different than seeing things in the world, and it doesn't aim to recre-

ate world-directed visual experience. Recognition may play a role, but much of what we recognize is the pictorial conventions, not the thing itself. Think, for example, of the split-representations used in the Pacific North West. We recognize the depicted animals, in part, because we recognize that these are images that obey rules of a certain type.

Such concerns are somewhat mitigated in McMahon's (2006) account. She says pictures strike us as realistic when we have internalized naturally generative second-order Gestalts. These are configurational properties of whole images that can be extrapolated from a set of examples and then reapplied. This allows McMahon to say we learn artistic styles and find pictures realistic where that stored visual knowledge can be used to discern the content of new cases. Still, I find the focus on Gestalt configurations limiting. Some conceptions of realism focus attention on small details: Consider Vasari and muscle delineation, or Chinese scholars and energetic brushwork.

Kulvicki (2006) shifts from visual processing to visual concepts. He says realistic pictures ascribe features that belong to our perceptual conceptions – "how we believe objects would look were we to see them". But do we really believe pictures capture the ways things look? Even Vasari wanted pictures to idealize and distort (recall his affection for Pontormo). And Japanese printmakers probably didn't have the false belief that warriors go cross-eyed when they fight. "Ascription" also feels wrong here. A Chinese landscape painting does not *ascribe* spirit resonance; it has or exhibits spirit resonance.

All these are plausible proposals for forms of art that aspire to be photographic – to capture the world as it might project through a lens from a fixed point of view. Even Kulvicki's move to visual concepts is best suited for traditions that regard realistic depiction and capturing appearances in this (literally) superficial sense. The focus on vision in these theories indicates that they are products of photographic artistic milieu. Ever since the camera obscura entered Western art, there has been a tendency to regard pictures as analogs of these devices that transmit light from objects to surfaces.

There is a second class of theories that place less emphasis on perceptual processing. These are theories that define realism in terms of information. One example is Hyman (2005). His analysis has three dimensions: accuracy, animation, and modality. Let's focus on modality, which he characterizes in terms of the range of questions one can ask. Realist picture systems allow us to ask about many features and are thus highly informative. This approach unwittingly discounts picture systems that restrict the range of contents, such as Chinese landscape painting. It would have been unacceptable to do a portrait in that style: a monochrome shaded with brushstrokes. *Ukiyo-e* art qualifies as more realistic than Chinese landscape painting because artists were encouraged to depict a wider range of subjects. One can also quibble with Hyman's emphasis on accurate information. Accu-

racy was more of a goal for Courbet and Dutch still-life painters than it was for Renaissance and Neoclassical painters, but it doesn't follow that their work is more realistic *tout court*.

Abell (2007) develops another information approach. Roughly, she says pictures are realistic to the extent that they present relevant information about how things look. Her key move is the appeal to relevance. Unlike Hyman who emphasizes the amount of information, Abell links realism to information that "warrants processing effort" (14). Stick figures, she says, fail this test, because all we learn from them is the platitude that people have four limbs. But many pictures are not meant to provide new information. Icons and Egyptian paintings, for example, present predictable contents in predictable ways. Likewise for Renaissance renditions of familiar themes, like the Madonna and child. These warrant processing when they are stylistically innovative or aesthetically compelling, not for the information they provide. Abell also remains focused on appearances, but there are forms of realism, such as expressionism, icon painting, and Chinese landscape, that capture things that lie beneath the surface.

The information theory developed by Lopes (1995) is, perhaps, better suited to the cultural diversity I have been emphasizing here. Lopes defines realism as a function of appropriate systemic informativeness. Like some others, Lopes prefers talk about realistic systems rather than realistic works, and a system is realistic, for him, when it "conveys more or less appropriate information in the context in which it is used". Lopes uses this to accommodate relativism about realism:

> [P]ictorial realism reflects… informativeness within a context of use… In Orthodox iconography, pictures are used to convey information about the relative theological importance of depicted figures whose size corresponds not to location in a projected space but to location in a divine hierarchy. Since Haida [split-representation] pictures of animals serve an heraldic function and must be readily identifiable, they belong to a system which conveys essential species-specific features. (282)

These conclusions look promising, but it is not entirely clear how they are derived. What does "appropriate" mean for Lopes? It seems to relate to goals of communication or use. For example, he says technical drawings are realistic when used for building things because they are appropriate to that end. So defined, it seems there are cases where appropriate informativeness does not track our intuitions about realism. (I say "our" intuitions because these may derive from prevailing concepts of realist depiction). Compare emojis to the emoticons generated using standard characters on a keyboard. An emoji smiley strikes us a more realistic that a colon and parenthesis, but both are equally suited to conveying an emotional reaction. Or consider a

subway map showing all stations with no regard to actual distances, turns or cardinal points. This is perfectly suited to its purpose, but not a paragon of realism. It's also important to remember that "appropriate" can have many meanings in communication: useful, polite, even morally proper. When adults judge that *hentai manga* (pornographic comics) are inappropriate for children, they are not suggesting they are unrealistic – quite the contrary! Without more analysis, Lopes cannot guarantee that that appropriateness delivers the desired relativism about realism.

Theories with a visual focus seem biased towards the more retinal realisms that have cropped up in Western art history. Theories that focus on information imply that pictures are principally communicative or didactic. Whatever their individual merits, all of these theories aim to provide a unified framework for thinking about realism. Some, like Goodman, McMahon, and Lopes, place emphasis on adaptability to different cultural contexts, but these efforts provide little opportunity to spell out the cultural differences in question. Entrenchment, learned Gestalts, and appropriateness provide flexibility, but they misidentify what realist systems share in common.

7 Relativizing Realism

Where does this leave us? One option is to abandon "realism" as a topic for philosophical analysis. We might make progress if we dropped the ambitious project of trying to find a theoretical framework flexible enough to accommodate all cases. Instead, we could analyze each species of realism separately: *mimetic*, spiritual, heroic, earthly, perfectible, untamed, expressive, photographic, simultaneous, archetypal, resonant, iconographic and so on. Each demands more detail than I have offered here, but there is no barrier to arriving at good accounts of the aspirations of different artistic traditions. Indeed, much art history aims to do exactly that, and we often have written testimonials and manifestos to help get things right.

This suggestion implies that the term "realism "is open-endedly ambiguous: no single analysis will do, because it means many things. Such a position casts doubt on the project of defining the term, which has been a popular pastime in analytic aesthetics. Or at least it suggests that such efforts may be driven by intuitions about the kinds of realism that are operative in our own time and place. From this perspective, analyses of realism look either futile or parochial.

Against this indictment, one might levy two objections. First, there has been much discussion in the cited literature of "revelatory realism" (e.g. Lopes 1995): someone confronted with an unfamiliar pictorial system may regard it as realistic. Recall Shiba Kōkan saying "Only Western art techniques can capture reality". Second, in this

remark, Kōkan also implies that artistic systems can be compared with regard to their realism. The first point suggests that we have a concept of realism that transcends mere acquaintance with the local meaning of that word. The second point suggests that there is a notion of realism that spans across artistic traditions. Both points indicate that there may be a notion of realism covering all traditions after all. Can't we analyze that overarching notion?

Three points in response. First, with respect to revelatory realism, another interpretation is available. When Kōkan saw Dutch art, he learned about things pictures can do – e.g. they can be modeled in ways that make objects look three-dimensional. Rather than answering to the Japanese conception of realism, Dutch art introduced a new concept of realism, which Kōkan found exciting. One can drop "realism" in his remark and say, "Only Western techniques capture three-dimensionality". This brings us to the second point. In making this declaration, isn't Kōkan implying that three-dimensionality is a better fulfillment of some goal inherent in Japanese art? Yes and no. Yes in so far as such art aims to capture features of the world we inhabit, but no in that Japanese art intentionally abandoned shading with the development of *yamoto-e*. Kōkan is suggesting that Japanese artists adjust their aspirations and aim for an aspect of reality they had hitherto elected to ignore. This brings us, finally, to the question of whether such revelations and comparisons allow an overarching notion of realism. On this, I offer a final thought for future reflection.

In discussing Kōkan, I suggested that Japanese and Dutch artists are both interested in capturing reality. The same can be said of Zeuxis, Guo Xi, Courbet, and the tomb painters of Egypt. At this level of abstraction, there may indeed be a concept that covers many art-making traditions. Representational art tries to capture reality. To do so, each system must specify what *aspects* of reality they wish to capture, and a *manner* conducive to that end. Relativism crops up for both the aspects in question and the manner. Different concepts of realism identify target aspects to represent and preferred ways of doing so. The word "capture" also points to another dimension of relativity. For some culture, capturing might require depiction, in others, symbolic representation (as with abstract art that represents metaphysical truths), instantiation (as with spirit resonance), expression (as with Goya's black paintings), or evocation (as with surrealists who try to capture the uncanny quality of dreams).

All this suggests that there may indeed be a commonality across pictorial systems that admits of philosophical analysis. I offer the following MCA (manners-capture-aspects) analysis:

> (MCA) An artwork or style is **realistic** to the extent that it deploys a *manner* designated as suitable for *capturing*, in some designated sense, designated *aspects* of reality.

Thus, for a late tenth century Chinese monumental landscape painter, realism might be measured by assessing an artist's success in depicting the magisterial qualities of mountains, along with the inherent character of trees, water and fog, in relation to the human realm, while simultaneously instantiating spirit resonance and achieving all this by means of diluted ink and calligraphic brushwork. The term "depict" here can be analyzed so as to reflect the aim of representing formal likeness – depiction may involve translating visual form onto a surface – by the modifier "magisterial" is important too, since the landscape artist is supposed to capture the stately grandeur of mountains, not how they would actually appear when standing at their base (e.g. not foreshortened). The MCA analysis allows each tradition to rank realism locally: some works succeed better in realizing the desired aspects (majesty), manners (consistent brushwork), and means of capturing (likeness and instantiation).

The MCA analysis can also help in articulating replies to the objections involving revelation and comparison. It draws attention to three different ways exposure to unfamiliar art might transform prevailing practices: unfamiliar art can reveal new manners, new aspects of reality, or new approaches to capturing. Casiglione's shading was a new manner, Courbet's worldliness was a new aspect, and Käthe Kollwitz expressionists works exemplify new modes of capturing: they are evocative not just descriptive.

Notice that the MCA analysis does not do much explanatory work on its own. It can be applied only by specifying the operative M, C, and A, which is to say, by describing the operative notion of realism. One must also determine who does the designation (the artist, the school, the judge, etc.). These are all placeholders that must be filled in. We can say of a work that it is realistic in some senses and not others. Each form of realism is unified by the shared desire to capture reality, but that aim gets cashed out in different ways (I leave it to another occasion to analyze what "reality" means here). The MCA analysis avoids parochialism by retreating to a level of abstraction that is applicable to many artistic traditions.

The utility of the MCA further borne out by examining artistic movements and styles within a culture. In introducing a new style, an artist may specify aspects of reality that warrant aesthetic attention and a manner of capturing them. Italian Futurists wanted to capture dynamism and whereas Italian Metaphysical Artists were interested in the dreamlike menace of deserted or claustrophobic spaces. German Expressionists were interested in primordial feelings whereas German New Objectivists want to capture the sordid, dispassionate vulgarity of contemporary life. Many artists introduce their own representational aims. For example, the Nigerian artist, Toyin Ojih Odutol is interested in surface patterns, such as textiles and the topography of skin. There is no effort to be more real than the compe-

tition, but rather to present aspects of reality that others may have neglected. No universal standards of realism are introduced thereby; rather standards are localized to the aims and manners advanced by individual artists or art collectives. The puzzle cases with which we began are pseudoproblems. To take one example, we cannot decide between de Chirico and Tanguy, because each introduces a different conception of the real.

It may be instructive to compare this view to an approach to realism developed by Elgin (2019) in the philosophy of science. Two incompatible theories, she says, may both get things right, because theories can set out their own internal criterion of truth. When we say two competing theories are both true, we mean T1 is true, and T2 is true, not that there is some shared feature "truth" that they both enjoy. A particle theory and a wave theory introduce different ontologies and different modes of observation, and each get confirmed by the standards they lay out when measured against the world. Likewise, the MCA analysis allows that there are different ways of getting reality right, different ways to capture reality.

As compared to other theories, the commonality adduced on the MCA analysis does not guarantee much overlap in other respects. There is no appeal to perceptual processes or informational goals. "Capturing reality" places few constraints and allows enormous diversity. MCA is also (virtuously) circular: it defines realism as capturing reality. To escape the circle, "reality" must be replaced by specifying the actual aspirations of a pictorial system. Thus, we are led back to the conclusion that one cannot define realism without defining realisms. MCA facilitates the characterization of realisms by sharpening focus on the features that must be investigated in describing distinct realist practices: aspects, manners, and the way the latter capture the former. It is here where philosophy meets art history, and our analytic projects serve as little more than a schema for framing the art-making practices that vary across time and place.

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On the Narrative Potential of Depiction

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Abstract The aim of this article is to defend the narrative potential of depiction against different strands of skepticism that proceed from the lack of temporal order in a single static image: such images, it has been argued, cannot represent the temporal components of narratives – i.e. action(s) and/or causal relations between temporally ordered actions or events. Contemporary philosophers of depiction have strongly challenged the strand of skepticism that focuses on the representation of action(s), but the strand which focuses on the representation of causal relations may seem to be intractable. Yet, I will argue, it rests on a rather partial conception of causation that unduly directs attention to the dimension of time rather than to the dimension of space – the uncontested domain of depiction.

Keywords Narration. Depiction. Causation. Pictorial narratives. Narrative images. Narrative media.

Summary 1 Introduction. – 2 Two Strands of Skepticism. – 3 Facing Skepticism (I): Depicting Action. – 3.1 On the Representation of Action. – 3.2 On the Representation of Causal Relations. – 4 Facing Skepticism (II): Depicting the Narrative Connection. – 4.1 Causation and Time. – 4.2 Causation and Perception. – 4.3 The Challenge of Social Causation.

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1 Introduction

The aim of this article is to defend the narrative potential of depiction against two strands of skepticism that proceed from the lack of temporal order in the "monophase" image.[1] I will thus not be concerned with two, relatively uncontroversial, modes of pictorial narration: the narration through a *series* of images, as can be the case in triptychs or comic strips; and the narration through "polyphase" images, which depict temporally distinct events in different parts of pictorial space.

A note is merited on the theoretical framework of my analysis. Skepticism about the narrative potential of depiction commonly departs from a rather narrow – and distinctively Platonic – conception of depiction, according to which it is delimited to how things look: anything that exceeds the domain of visual properties is considered to be mere implication or the recipient's own imaginative construct. As this is not the place to argue against this conception, in my analysis I will just operate with the understanding of the medium that contemporary philosophers of depiction widely endorse. From this standpoint, pictures represent the objects, scenes and happenings that can be identified in their design by a suitable spectator, i.e. a spectator that possesses appropriate recognitional capacities as well as the kinds of knowledge that are instrumental to the function of representation *in any medium*, in the domain of art and beyond: common knowledge of the world and of human affairs; knowledge specifically about the historical, socio-cultural and artistic context in which the representation was produced, including knowledge of the norms and conventions that pertain to the medium. I will also assume with C. Abell (2005) and D. Lopes (2005, 140) that, as in much linguistic communication, pictorial interpretation attends to norms of pragmatic inference as well as contextual relevance. As will be confirmed further on, this is rather important when we scrutinize depiction's narrative potential; as G. Currie notes (2010, 12-13):

> The distinction [between the explicit content of narrative and that which is implicit] needs careful handling; indeed, it can mislead us badly. It suggests a division between content that is unambiguous – written into the text, visible on the stage or screen, etc. – and content which is a matter of interpretation. In fact, it is all a matter of interpretation […] [I]f it is written into the story that Watson, the narrator, declares 'by this time I had had breakfast', what

[1] "Monophase" and "polyphase" are terms commonly used in narratology in order to distinguish between types of pictorial storytelling: unlike the polyphase image, the monophase image depicts a *single scene*, which can involve different *but synchronous* happenings or events. For the use of these terms in narratology, see, e.g., Wolf 2003; Ryan 2014; Ranta 2017.

> is explicit? That at some point in his life Watson had had breakfast? That would be to adopt a very restricted sense of 'what is made explicit'.

In line with Currie (2010, 13), I take a picture's *explicit* content to extend to what the picture is "naturally interpretable" as conveying, by a recipient that meets the conditions and attends to the norms of interpretation that have been specified above.

Admittedly, even if one shares this conception of depiction, the defence of its narrative potential is a challenge. Depiction may have a wider representational scope than is acknowledged in narratology but, being static and non-discursive, it is by no means evident how it can support especially the *temporal* components of narratives.[2]

2 Two Strands of Skepticism

The earliest structured depreciation of depiction's narrative potential is expressed in G.E. Lessing's *Laocoön* ([1766] 1853). Defending the division between the arts of space and the arts of time, Lessing described painting as being essentially bounded to space at the exclusion of time and thus of action: painting's representational means are shapes and colours located in space, so painting is deemed appropriate to the representation "of objects whose wholes or parts exist near one another"; these objects "are called bodies. Consequently bodies, with their visible properties, are the peculiar objects of painting" (Lessing [1766] 1853, 101). Being essentially bounded to space, and thus to the appearance of the objects it represents, painting, according to Lessing, is not suited to the representation of *actions* that are the brute materials of stories: it is the art of *instantaneous appearance*, it can only represent "a single instant" (102), be it of objects in motion or at rest.

Contemporary narrative theory supports a skeptical stance on depiction that differs from Lessing's in both focus and strength. On

2 There are numberless accounts of narratives and some raise conditions that only discursive media can meet. The topic of this article merits a focus on the domain of transmedial narratology. According to Ryan (2007), the conception of narrative that is merited in this domain involves – apart from the temporal dimension – the representation of characters and the representation of their relevant mental states (Ryan 2007, 29; also Ryan 2004). These functions can be supported depictively. Given that characters in narratives are commonly *cultural stereotypes* (see e.g. Culler 1975, 230-7), depiction, as literature often does, can specify character by means of appearance and dress (see also Lopes 2005, 80). Further, depiction has the powerful tool of expression that can allow the connection of depicted events to the internal states of depicted subjects. It is thus the temporal dimension of a narrative that can seem to transcend the capacities of a static medium.

the one hand, some contemporary accounts of narratives acknowledge *events* rather than actions as central elements of narratives and pictures can certainly represent events.[3] On the other hand, most contemporary accounts of narratives acknowledge that the representation of any number of actions or events – even in temporal order – does not suffice for narrative representation (see e.g. Carroll 2010, 121-2): the representational function that is rather acknowledged as being a *sine qua non* of narrativehood is the representation of *causal relations* – or "narrative connections", in N. Carroll's terms – between *temporally ordered* events or actions.[4] It is this twofold function that depiction (i.e. the still monophase image) has been deemed unable to support to any degree. For instance, M.L. Ryan argues that, lacking words and a temporal dimension, monophase images just cannot "express causality": being "limited to the representation of visual properties", they need to be excluded from the domain of narratives (Ryan 2014, § 3.3.1).

Such skepticism has lineage in pictorial theory: it has been expressed, for instance, by Susan Sontag (1979), Stephanie Ross (1982) and Linda Nochlin (1991), as part of their wider concern with the cognitive value of (realist) images – specifically, with their capacity to afford us moral understanding. This kind of understanding, it is conceded, presupposes narrative representation, i.e. the representational medium needs to convey "a sense of events, causally linked, unfolding in time", (Ross 1982, 11; also Sontag 1979, 23) but this is precisely what depiction cannot afford us: the image, it is argued, can only present us with a "disjointed temporal fragment", which thus becomes "the basic unit of perceived experience" (Nochlin 1991, 31). From this perspective, any correlation with *a story* that may be part of our experience can only come about *via allusion* or *implication* and always it will be the work of the recipient rather than the image, which by itself is *narratively mute*: the image, it is conceded, can illustrate a pre-existing narrative, but it cannot itself be narrative – it cannot guide *by design* the retrieval of the temporal and causal relations of represented events, as narrative representation demands.

Is either strand of skepticism justified?

3 Some events are anyway static (e.g. resting under a tree) but depiction can also represent dynamic events, as will be argued further on.

4 See e.g. Bal 1985; Carroll 2010; Richardson 1997.

3 Facing Skepticism (I): Depicting Action

Given that depiction is a visual form of representation – one that activates and relies on processes of visual recognition, – the skeptic proceeds from the information that the pictorial design provides to the content of the perceptual experience that the design can support, assuming a *strict* correspondence between them. It is under this assumption that Lessing took the pictorial perceptual act to be stranded in the *instant*; and it is under this assumption that Nochlin took the "basic unit of perceived experience" in response to the image to be the temporal fragment that the design presents. Any sense of procession or temporality that may be part of pictorial experience is thus deemed to be a *product of our imagination* and not part of *what we perceive* on the grounds of the image. As Lessing ([1766] 1853, 17) notes, "The longer we gaze [at the image], the more must our imagination add; and the more our imagination adds, the more we must believe we see". From this perspective, in responding to the image, *we can imagine* but *we cannot perceive* any component of narrative that has a temporal dimension.

The conception of perception that underlies the skeptic's reasoning is rather simplistic. Perception for the skeptic is mere *sensing* – a straightforward causal process in the course of which the subject is a passive recipient of stimulation from her environment. This conception has been heavily challenged in both Philosophy and Psychology of Perception. It is now widely acknowledged that, even though there may be a part of perception that is cognitively impenetrable, perception is insulated neither from memory nor from cognition: the representational content of perception can thus be conjointly determined by both bottom-up and top-down processes, so it can exceed the information provided by a given pattern of stimulation.[5]

Operating with this wider conception of perception, philosophers of depiction have argued for the temporal dimension of perception and thus for our capacity to perceive time-extended objects (such as actions) in an image, even when we are exposed to just one of their temporal parts. Commenting on Henri Cartier-Bresson's *Behind Saint-Lazare Station* (1932), B. Nanay (2009, 122) notes:[6]

> When one sees a tomato we do not say that one sees one part of it (the front) and imagines another (the back). One sees the entire tomato […] But if this is true for the spatial dimension of perception, what reason do we have to suppose that things are different when it comes to the temporal dimension? Rather than saying that

5 For an introduction to the relevant issues, but also to the relevant debates, see, e.g., Bar, Bubic 2013; Zeimbekis, Raftopoulos 2015; Silins 2016.

6 See also Gombrich 1982a; Lopes 2005, 166-8.

> we see the man in the air and imagine him landing in the puddle, we should rather say that we see him jumping (although we only set eyes on one temporal part of this action).

Still: even if a skeptic were to endorse this more nuanced understanding of perception, as she should, further concerns would prevent an unqualified endorsement of depiction's capacity to represent the temporal components of narratives – actions and causal relations between temporally ordered actions or events.

3.1 On the Representation of Action

The actions that are commonly regarded in narratology as proper narrative material are not mundane or routine actions, such as jumping, that could be easily recognized in an image by means of contextual cues: it is significant actions that manifest one's character – one's values, life-goals and desires – that, since Aristotle, are thought to be proper to narratives (e.g. "not baking bread but stealing a loaf" is true narrative material, as Ryan 2014 [§ 3.3.1] notes). This is admittedly a qualitative rather than a logical requirement of narration that we may well choose to ignore, but this would not be a fair rebuttal of skepticism: it is precisely depiction's capacity to represent the significant actions of poetry that Lessing undermined and it is on such actions that also Sontag, Ross and Nochlin focus, given their concern for a picture's moral import. And from their shared perspective, the static image can present neither what guides a depicted movement nor its temporal unfolding, so it just cannot convey an evaluatively significant action unambiguously: any movement that can be captured depictively will be compatible with different action-patterns.

Consider, for instance, an example that Ross (1982) provides along these lines. Suppose, she says, that we see a man in a picture with a raised arm in front of a child: does the picture give us adequate information on the basis of which a morally significant action can be recognized? The man may indeed be about to hit the child or they may be practicing judo or the man may be dancing in front of the child: the presented instant is consistent with too many actions and so can only serve as fertile ground for our imaginative projections.

To affirm depiction's capacity to represent actions even of the sort that the skeptic regards as proper to narratives – actions that are evaluatively significant – we need to affirm its capacity to provide the sort of information that could allow us to perceptually proceed from indeterminate movement to determinate action, in the lack of temporal procession. In a quick reference to the Renaissance conception of 'istoria' in painting, Dominic Lopes (2005, 167) targets the issue:

> Wittgenstein said that 'the human body is the best picture of the human soul'. He is thinking not only of movements but of expressive gestures and postures. Since emotions are not mere reactions to happenings, but also motivate actions, expression is a route to understanding events as actions. Pictures that depict gestures and facial expressions reveal the mental states of depicted figures and thereby represent their actions as actions – the raising of an arm is made intelligible as action by the expression of fear with which it is done.

This aspect of depiction, its capacity to convey the emotions of its subjects through their bodily manifestations, has been well rehearsed in the theories of the visual arts at least since the Renaissance, when it was highlighted as a precious device for the depiction of determinate actions. Consider, for instance, George Cruikshank's engraving *February, – Cutting Weather – Squally* (1839).[7] We would all agree, I presume, that the work represents an evaluatively significant action quite explicitly, despite the fact that it captures a single instance of that action (as in Ross's example): the emotions facially expressed by the two principal figures – the anger of the adult and the desperation of the child – leave no space for the recognition of any action other than beating.

So we have good reasons to deny that the "basic unit of perceived experience" in response to a still image is the temporal fragment; and we have good reasons to deny that depiction is not suited to the representation of action – even of evaluatively significant action. If we acknowledge, on the one hand, that perception has a temporal dimension that allows its content to extend beyond the presented instant; and, on the other hand, depiction's power to convey the inner states of its subjects – i.e. the information that is needed for us to perceptually proceed from indeterminate movement to determinate action – it follows that temporally extended action (routine or significant) falls within the limits of depiction.

3.2 On the Representation of Causal Relations

Contemporary skeptics do not merely doubt, as Lessing, that pictures can represent action(s); what they predominantly doubt is that they can allow us to retrieve *causal connections* between *temporally ordered* events or actions. So, even if a contemporary skeptic were to acknowledge that the image can represent time-extended action, it would not follow for her that it can narrate – i.e. that it can convey an action as well as *what preceded or what followed that action by way of causal determination*.

7 George Cruikshank, *February, – Cutting Weather – Squally*. 1839. Held by the British Library, London. https://www.flickr.com/photos/britishlibrary/12459406524.

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To appreciate the force of this objection, we should properly delimit its scope. The skeptic would need to concede that, once we recognize in a picture a given action scene, relevant prior knowledge of the world can and is *expected* to inform our interpretation but it can also inform the content of pictorial experience – granting the latter's permeability to thought (Wollheim 1998, 224). Such knowledge can include likely causal connections to past events or actions, thus allowing us some degree of narrative engagement, as Nanay (2009) has argued. Consider for instance Francisco Goya's painting *The Third of May 1808* (1814).[8] In the image we can recognize the military execution of civilians; as history instructs, such an act of violence commonly follows for reasons of retaliation or to deter resistance or as a punishment for one's actions or beliefs, which have been considered by an authority (often enforced, always ruthless) as against its interests. This is all a matter of collective knowledge that *we are relied upon* to activate in our appreciative response. Thus, for the competent spectator, the very recognition of the action scene depicted in Goya's painting extends (in her interpretation and experience) an *abstract causal nexus* that connects it, however abstractly, to the past – and gives the picture, we should stress, its evaluative punch.

The skeptic perhaps would not deny this; but she would still insist, and rightly so, that Goya's painting *does not thereby 'tell' the story* of that dreadful night: it simply conveys no information that would allow us to get a grounded sense of the specific events *that led to* the execution or of the specific repercussions *that followed* the execution. The picture is silent in that regard and so can only serve as fertile ground for our imaginative engagement. But then *it is us* who fill-in the details of the missing temporal-cum-causal structure – it is us, rather than the picture, that *tell* the story.

This strand of skepticism seems intractable. Yet, it rests on a rather partial conception of causation that unduly directs attention to the dimension of time rather than to the dimension of space – the uncontested domain of depiction.

4 Facing Skepticism (II): Depicting the Narrative Connection

A specific conception of causation seems to ground the depreciation of depiction's narrative potential: pertinent aspects of this concep-

8 Francisco de Goya y Lucientes. *The Third of May 1808 in Madrid, or "the Executions"*. 1814. Museo del Prado, Madrid. https://www.museodelprado.es/en/the-collection/art-work/the-3rd-of-may-1808-in-madrid-or-the-executions/5e177409-2993-4240-97fb-847a02c6496c.

tion concern causation's relation to time and causation's relation to perception. Both aspects are quite crucial when it comes to a medium that is both static and visual.

4.1 Causation and Time

In the skeptic's reasoning, the narrative potential of a medium is identified with its capacity for sequentiality: that is, the skeptic regards sequential structure as essential to the representation of causal connections, as if causally related events could only be temporally *discrete* (as is indeed the case in the strong paradigm of linear narrative media). The skeptic's reasoning is not without theoretical support: it reflects the sequential conception of causation that has its roots in the work of David Hume. In the *Treatise of Human Nature* Hume argued that an event deemed as cause has to occur prior to the effect event, thus asserting an internal link between causation and temporal order (Book I, part III, sect. XIV, 170); but he also made the stronger claim that the two *cannot in any case be co-temporary* (Book I, part III, sect. II, 76). If Hume were right in both these claims, it would indeed follow that the representation of causal connections between temporally ordered events demands a sequential structure and so that a medium which is limited to simultaneity lacks a narrative potential.

Hume's sequential conception of causation, however, was rather partial, as Kant noted in the *Critique of Pure Reason* (Book II.3, "Second Analogy"), citing what seemed to be a clear case of a cause being *simultaneous* with its effect: an iron ball impressing a hollow on a cushion. In such a case, Kant argues,

> [t]he time between the causality of the cause and its immediate effect may be [a] vanishing [quantity], and they may thus be simultaneous but the relation of the one to the other will always remain determinable in time [...] I still distinguish the two through the time-relation of their dynamical connection. (Book II.3, "Second Analogy", A 203, B 248-9)

That is, we "reckon with temporal order", as Kant notes, by taking the cushion's state as the dynamical outcome of a certain process, despite the fact that we have not witnessed that process in its temporal unfolding.[9]

Embracing Kant's insight, contemporary philosophical accounts of causation minimally acknowledge that causation can be *staggered* and

9 See discussion in Fogelin 1992, 111.

thus active in synchronous rather than just sequential events.[10] Under this more precise view of causation, successive or sequential ordering is not necessary to the representation of causal connections *tout court*. A medium that lacks a sequential structure, could still have, in principle, the capacity to convey causal connections between *temporally overlapping* events (and, following Kant, to thereby "allow us to reckon with [the] temporal order" of their dynamical connection), even if it lacks the capacity to represent causal relations between *temporally discrete* events. The skeptic's reasoning rightly tracks the limits of the narrative potential of depiction but *it does not disprove* this potential. It then follows that, to affirm the narrative potential of depiction, we need to evidence its capacity to convey the causal relations that may hold between temporally overlapping events, thus guiding our narrative engagement in a determinate and prescribed manner.

4.2 Causation and Perception

One of the skeptic's convictions about depiction might seem to undercut the noted project from the outset. According to Ryan (2014, § 3.2), for instance:

> Only words can say 'the king died and then the queen died of grief'[11] because only language is able to make relations of causality *explicit*. In a [static image], causal relations between events must be left to the spectator's interpretation, and without a voice-over narration, we can never be completely sure that it was grief and not illness that killed the queen.

Let us note first that the causal relation that Ryan regards as being *explicitly* conveyed through language is still a matter of interpretation – a cause is asserted in Forster's description but not a *causal relation* between the described events: the narrator's statement could be ironic; or the Queen's grief could have been for some other loss or happening. So explicitness is not tied to completeness or to unambiguousness or to the sheer lack of an interpretative process: as Currie has argued, it is rather tied to the capacity of a medium to convey by design a specific thought in the mind of the recipient, in a manner that is relatively direct and/or unwavering, *given* stereotypical knowledge of the world and *given* the norms of pragmatic in-

10 See e.g. Brandt 1980; Huemer, Kovitz 2003; Tooley 1987. A matter of debate, irrelevant to our purposes, is whether temporal overlap entails absolute temporal coincidence under a sound metaphysics of time.

11 This is E.M. Forster's much quoted example of a minimal narrative.

ference and contextual relevance. Still, the gist of Ryan's remark is clear: causal relations *can be told* but *they cannot be shown*, even if we were to allow that both 'telling' and 'showing' are subject to standard norms of interpretation.

Ryan's reasoning rests on a latent hypothesis about causation that again reflects Hume. According to this hypothesis, we can perceive the spatial or temporal relations of objects or events but we cannot further perceive their causal relations; and if causal relations cannot be perceived, they cannot be depicted. That is, there could be no principled way of marking a surface so as to allow a spectator to perceive a determinate causal relation between depicted objects or events: any causal relation that would be part of the spectator's experience would thus be her own imaginative construct, rather than a product of the picture's design.

The hypothesis that underlies Ryan's objection has been discredited in both philosophy and psychology, at least from a phenomenal perspective: a long body of research foregrounds causal perception as a distinct path of causal learning, confirming Michotte's (1963) seminal study on the experience of causation.[12] Causal perception – or phenomenal causation – can be minimally understood as the "relatively automatic, relatively irresistible perception of certain sequences of events as involving causation" (Danks 2009, 447). As the relevant research indicates, in both the physical and the social realm this perceptual response is elicited by particular cues, subject to contextual as well as attentional factors; such cues include, for instance, the spatial properties of objects, their temporal and spatial relations, their respective dynamic properties, or various asymmetries in force.[13] In their majority, studies on causal perception focus on events that include moving targets and are experienced in sequential order, but they further indicate that we can have a direct impression of causality even in the lack of actual movement or of an experienced temporal sequence. If this is the case in face-to-face seeing, we have no reason to assume that things are different when it comes to pictorial seeing. Indeed, it has already been acknowledged that we can have a direct impression of causality in response to simple graphic designs, as can be illustrated in the following images (extracted from Massironi 2002, 205-8 **[fig. 1]**).

The two patterns function, in R. Arnheim's (1974) terms, as *diagrams of forces*: the formal dynamics of the design trigger an *auto-*

12 See e.g. Wolff 2008; Danks 2009; Hecht, Kerzel 2010; White 2014.

13 For our purposes it does not matter whether such perception is a mere impression or rather an indirect access to a real dynamic event through observable force properties: a directed visual impression is all that is required for the representation of a causal relation. See Curry (2010) for a relevant perspective in relation to literary narratives.

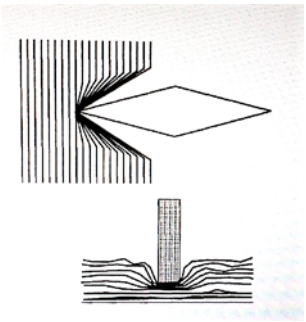

Figure 1 Manfredo Massironi, Two representations of causal relationships: texture deformed by a diamond and texture deformed by a rectangle. In Massironi 2002, 207

matic impression of causality, i.e. they allow us to see each shape (the rhomboid / the rectangle) as responsible for deforming the texture of the lines. So Ryan's general claim regarding depiction's representational scope is unwarranted: a static monophase image can convey explicitly *at least* instances of physical causation between temporally overlapping events, recruiting the dynamics of the design in order to elicit a patterned perceptual response: in order to elicit, that is, a *direct* impression of a causal relation.

4.3 The Challenge of Social Causation

A qualitative criterion of narrative representation again undermines depiction's narrative potential. Narratives represent characters in interaction: the causal relations proper to narratives are thus far more complex than instances of physical causation, as they are tied to human agency. Ryan's depreciation of pictorial narratives seems to retain its force, even if the wider claim she makes about depiction is unwarranted. But we have good reasons to resist this negative stance, even with regard to instances of social causation.

On the one hand, as cognitivist and reception theories of narratives acknowledge (and as Ryan's own example makes evident), narratives "draw on an immense accumulation of frames and scripts that arise from the experience of life itself" (Abbott 2014, § 3.3.4): that is, they are designed from within a shared space of knowledge and experience, including such that is relevant to causal relations in the domain of human agency. And when they are thus designed, the recipient's retrieval of intended causal relations can be fairly direct or unwavering, despite some incompleteness and even in the absence of causal clauses, as can be the case in both literature and film. Given the earlier remarks on explicitness, that should be enough for us to regard the causal relations thus retrieved as part of a narrative's *explicit* content – and this applies to pictorial narratives as much as

it applies to narratives in any medium. In Goya's *The Third of May 1808* (1814), for instance, we can regard as part of the image's explicit content that what makes the onlookers hide their eyes is their certainty of an imminent execution, foreshadowed by the corpses at the lower part of the painting, rather than the mere threat of gunpoint right in front of them. It is only implicit, however, that they will be next. Although I have no space to expand on this point, it is important to acknowledge the role that *empathy* plays in this case – and thus again the importance of bodily expression: empathy can allow us to follow through the experience of depicted subjects from a first-person perspective that activates our own life experience in the retrieval of causal connections.[14]

On the other hand, and importantly, apart from enlisting the spectator's causal scripts, depiction can recruit the dynamics of the design in order to direct the retrieval of causal connections, even with regard to instances of social causation. As the history and theory of visual art instructs, specific principles of composition are historically and canonically tied to the representation of causal connections in narrative images and the function of these principles is precisely to *direct* the spectator's recognitional response. The relevant principles concern (a) the strategic use of directionality; and (b) visual techniques of focalization.

A principle of the former type can be traced in Alberti's treatise *On Painting* [1435] (1991). For Alberti the great work of the painter is *istoria* and istoria can only be conveyed through composition: all the bodies in istoria, he instructs, must conform in function (appearance, posture and facial expression) to the subject of the istoria, but they also "should move in relation to one another […] in accordance with the action […] Everything the people in the painting do among themselves […] must fit together to represent and explain the istoria" (77-8) – and explanation obviously requires that causal connections between their respective states are clearly conveyed. Alberti's insight is articulated more succinctly in contemporary visual semiotics. According to Kress, van Leeuwen's (2006) influential semiotic analysis of visual media, the signification of causal connections consistently attends to the codes of a vector-based semantics applicable to the doings of depicted subjects: that is, the direction of the gaze of depicted subjects or the direction of their movement or the direction of their gestures or posture, form oblique lines – or "vectors", in Arnheim's (1974) terms – and these lines are strategically and persistently employed by image makers (at least in the Western tradition) to perceptually connect depicted subjects to salient parts of their environment: parts towards which they act or which act upon them.

14 I owe this point to Fotini Vassiliou.

We can witness the operation of vectors in Cruikshank's engraving, discussed earlier: the directionalities of gaze and movement connect depicted subjects to those parts of their environment that are salient to their expressed state. These connections support the recognition of the depicted action; they indicate the agent and the patient of that action among the three subjects centrally depicted; and they further indicate the cause of the boy's dread or of the alarm or amusement of the subjects in the periphery and so on. If we were to change the directionalities of movement or gaze further to the left or to the right, all such connections would break: the connections that are part of pictorial experience, including all causal connections, are thus *a product of the picture's design* rather than the recipient's imaginative construct.

Further principles of composition, auxiliary to the above, can be traced again in the early modern treatises on painting: under the influence of the classical rhetorical tradition, their authors thematise the explanatory significance of focalization devices in the representation of istoria. For Alberti [1435] (1991), for instance, the project of explanation merits that there is "someone in the istoria who tells the spectators what is going on, and either beckons them with his hand to look [...] or points to some danger or remarkable thing in the picture" (77-8). For Lomazzo (1584), on the other hand, the main character in istoria "is the principal cause and the principal subject from which all the other parts stem" and so "the main figures must be placed in the middle and all the other parts must be placed around them". While for Armenini (1586) "the characters that serve as the ground for the entire work" should shine above all others, i.e. "should be composed with colors that are naturally more beautiful, more attractive and brighter", while the rest of the figures "should dim little by little" and they should be "of a lesser size in accordance with the configuration of the pictorial plane".[15] Such compositional techniques aim to manipulate the recipient's gaze and thought: that is, they aim to focus her attention on aspects of content that are explanatorily salient or to guide her to approach the depicted istoria from a definite angle or viewpoint. This insight is reflected in contemporary narrative theory: for instance, M. Bal (1997, 144-6) highlights focalization as the formal semiotic device that can mediate the extraction of causal relations in a static relief.[16]

From the perspective of semiotic analysis, note, the formal devices that can allow the retrieval of causal relations in an image are structural units of a historically and socially developed visual lan-

15 Giovan Paolo Lomazzo, *Trattato dell'arte della pittura* (1584); Giovan Battista Armenini, *De' veri precetti della pittura* (1586), as quoted in Pericolo 2011, 97-8.

16 For the wider narrative significance of focalization in a still image, see Speidel 2013.

guage – they are *signs*; and the ability to respond appropriately to these signs is deemed part of a culturally embedded visual literacy. But perhaps we should resist the thought that the operation of these devices – canonical as it may be – just rests on *learned* signifying norms, as the idea of 'visual language' or 'visual literacy' may suggest. On the one hand, these devices can be witnessed even in the complex scenes of cave-paintings and it is doubtful that there was already in place a developed 'visual language' like ours that their makers could exploit (Dobrez 2013, § 21). On the other hand, these devices manage to convey directionality, to create assymetries in force, to direct attention – i.e. they manage to create precisely that 'pattern of forces' that is deemed to be operative in causal perception. So it is perhaps a merited hypothesis that the formal devices that are (historically and canonically) recruited to the indication of causal connections rest upon our perceptual inclinations and are not just learned or culturally specific depictive codes. Whatever the case might be, when an artist recruits these devices but also takes care to arrange the overall composition according to shared causal scripts, it is fair to say that his or her image is *naturally interpretable* by a suitable spectator as representing causal connections – and so that such connections are part of the image's *explicit* content.

This is the case, for instance, in Haynes King's painting *Jealousy and Flirtation* (1874) that Gombrich (1982b) cites as a clear case of pictorial narration.[17] The mode of presentation of the depicted subjects conforms to traditional focalization techniques, while the directionalities of their gaze and bodies, seen in relation to their overall expression, indicate particular transactional and reactional processes: considered conjointly – and given common knowledge of the world – the choices of composition convey rather clearly that the one woman is emotionally affected by the other woman's open flirtation with the young workman. A causal connection is thus retrievable from the exposition: the state of the one woman is explained by the attitude of the other woman, to whom her gaze is directed – an attitude understood to have preceded and inflicted that state. To the extent that salient character traits and dispositions of the dominant subjects are also conveyed quite clearly – through dress, posture, expression – given operative cultural stereotypes, a suitable spectator can retrieve the elements of a minimal story, in a manner that is relatively direct and unwavering.

A final note is merited on the vexed issue of temporal order. In § 2 I conceded with the skeptic that pictures lack a temporal order but it should be clear now that this claim demands revision: pictures in-

17 Haynes King, *Jealousy and Flirtation*. 1874. Victoria & Albert Museum, London. https://collections.vam.ac.uk/item/O17367/jealousy-and-flirtation-oil-painting-king-haynes/.

deed lack the capacity to convey what specific events *preceded* or *followed* those depicted but they do not lack the capacity to convey the temporal order of *depicted* events. As Kant suggests, when a causal relation is ascribed to simultaneous events, we "still distinguish the two through the time-relation of their dynamical connection" – that is "we reckon" with temporal order in taking one of these events as the dynamical outcome of a certain process that we have not witnessed in its unfolding (Book II.3, "Second Analogy", A 203/B248-9). Kant's insight is corroborated by a number of studies on the relation between the experience of time and phenomenal causation: as Buehner (2014, 2) notes in a relevant overview,

> there is now a clear recognition that Time and Causality mutually constrain each other in human experience. Not only do temporal parameters influence our causal experience, but the construal of causal relations in the mind also affects the way we perceive and experience time.

From this perspective, a picture's capacity to convey causal connections between events can be said to impose a temporal order on those events in our experience – even if the picture cannot track this order by means of temporal unfolding.[18] The reverse, note, can be observed in linear narrative media: whereas in depiction it is the causal connections that we can extract that convey temporal order, in linear narrative media (certainly in film but also in literature) it is often temporal order that indicates causal connections – even if only by the widespread application of the "*post hoc, ergo propter hoc*" fallacy that, as R. Barthes (1975, 10) pointed out, rules over narration. The internal link between time and causation can thus be instrumental in the development of narrative structure both in linear media and in depiction. Of course, the former can further exploit devices that the latter lacks – i.e. words. My aim was not to persuade that depiction can achieve what other media can achieve, in the way that they can achieve it.

18 There is in such a case the *double temporality* that e.g. Rimmon-Kenan (2006) regards as essential to narratives.

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The Treachery of Images: Why Images Do not Exist and There are Only Flat Objects

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Abstract Do images exist? In this paper I argue that the notion of an image is ontologically empty – i.e., images are no more than a cultural invention akin to epicycles in astronomy. There are only flat objects engaged in various causal roles. In this paper I will defend the thesis that in visual culture, in the neurosciences, and in philosophy of mind, there is no convincing evidence in favor of their existence. Moreover, I will outline a series of arguments aiming at showing that images do not exist. I will discuss briefly discuss why many authors – from the iconic turn to the neurosciences – use the notion of image as though it were something real. I will conclude suggesting to drop the subject-object divide and to consider a completely flat ontology made only of (relative) objects.

Keywords Images. Philosophy of Mind. Mind-Object Identity. Pictures. Body.

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1 Have You Ever Seen an Image?

> What seemed for so long self-evident,
> [...] suddenly strikes us as peculiar.
> (Belting 1988, ix)

The notion of image seems rather straightforward – an image is something we see. We are allegedly surrounded by images of all shapes. We live in a world overcrowded with images, or so we are told. And yet, consider whether that is really the case. Are we surrounded by images or are we surrounded by objects that we have learnt to call images because of traditions and cultural habits? I will claim that the latter case is the correct one, and that the notion of image is an empty notion with no real ontological weight; for instance as it is the case with the notion of center of mass.

In recent times, images have received a lot of consideration in many fields (from media studies to visual cultural studies as well as in analytic philosophy and cognate scientific disciplines like neurosciences, psychology, media studies and visual culture (Mitchell 2015) and it is of course at the center of the *Bildwissenschaft*. In fact, the notion of image plays a fundamental role in many areas where it is used to explain what the content of one's visual experience is and how we do interact visually with the world. In media studies, images have had such a prominent role that scholars have coined the term 'iconic' or 'pictorial turn'. In the neurosciences and in psychology the quest for mental images has been raging for years (Kosslyn 1981; Kosslyn, Thompson, Ganis 2006; Mitchell 1984; Pylyshyn 2002; Tye 1988).

The crux of the matter is whether images are real – do they exist outside of scholarly papers and commonsensical beliefs? Undoubtedly the notion of images has been so ubiquitous that, as it always happens, their extended usage has given credibility to their existence (Belting 2005, 2011; Freedberg 1989; Freedberg, Gallese 2007; Gallese 2018). Yet, are we surrounded by images or by objects that we have learnt to call images because of traditions and cultural habits? I will claim that the latter case is true, and that the notion of image is an empty notion with no ontological weight. In this regard, images might today have a role akin to that of spirits in the past. Provocatively, there is ground to suspect that the contemporary belief in images is an updated version of animism.

First and foremost, we need to distinguish between images and pictures, whereas by 'image' I will refer to the alleged object of one's experience and by 'picture' I will refer to an object that is used by human beings in virtue of having a visual likeness with something else a picture or (if it is not predominantly flat) or a sculpture (Goodman 1974; Newall 2011).

A caveat, here by likeness I do not refer to any phenomenological notion. Two objects are alike relative to a sensor modality – in this case vision – if they elicit the same causal response, at least to some extent. Likeness comes in degree. For instance, when a I see a picture of my child, I react with an emotional response that is to some extent alike what I feel when I see my child. By the same token, a face recognition program can react to various faces and by doing so it shows that they have something in common. Of course, here I will not defend a complete account of likeness, but it is enough to point out that I will adopt a causal account of likeness – two objects are alike to the extent that there is something that might be caused by both. Two keys are like if they unlock the same lock. It is, if you like, an Eleatic criterion of likeness (Kim 1998; Manzotti 2009; Merricks 2001; Shoemaker 1980); something not entirely dissimilar from the David Freedberg's response (Freedberg 1989) and reminiscent of Hyman's aspect (Hyman 2006).

Going back to the mentioned issue of the ambiguity of the word 'image', which refers both to the external physical object and to the alleged visual experience, I will move from Belting's formulation (Belting 2011, 2):

> The English language distinction between 'image' and 'picture' is pertinent, but only in the sense that it clarifies the distinction between the 'image' that is the subject of our quest and the 'picture' in which that image may reside. At a fundamental level, the question of what an image is requires a two-fold answer. We must address the image not only as a product of a given medium, be it photography, painting, or video, but also as a product of ourselves, for we generate images of our own (dreams, imagining, personal perceptions) that we play out against other images in the visible world.

In Belting's words, the image is indeed different from the picture. While he does not commit to a psychological or dualist account of the image, he considers an image as a real entity; something that "resides" in the picture and that is both a "product of a given medium" and "a product of ourselves". For him, images "do not exist only on the wall (or on the TV screen), nor do they exist only in our heads" (Belting 2005, 4). In fact, Belting argues "against the rigid dualism that so often claims to distinguish between 'internal' and 'external' representation, or 'endogenous' and 'exogenous' representation to use the terminology current in neurobiological research" (Belting 2005, 4).

Belting's suggestion is all well and good, if only he had a sound theory of images from the neurosciences. Unfortunately, there is no working theory of images in neurosciences and, aside from cognitive accounts of visual processing (Hubel 1988; Marr 1982; O'Regan, Noë 2001; Pearson et al. 2015; Reuter-Lorenz et al. 2010), there is no con-

vincing account of images in the head. There is not even consensus as to whether mental imagery requires consciousness (Nanay 2020). In fact, there is no empirical evidence of the existence of images inside the brain as it should be expected given that images are not defined as something physical – e.g., "the intangible nature of the mental image" (Belting 2005, 4).

Notwithstanding such a conspicuous absence of a sound physicalist account, many neuroscientists use the notion as though it was established. It is not so. Even the alleged reconstruction of internal mental imagery by means of machine learning and statistical correlation, while technically impressive – these techniques promise to show on a computer screen what one is imaging or seeing – should be considered more properly correlation-based tools to reconstruct the relation between external stimuli and internal neural activity (Miyawaki et al. 2008; Shen et al. 2019). There is no need to introduce anything like an intermediate image (Manzotti, Chella 2018). Consider how these techniques work in the case of standard perception: there are external physical events impinging on the sensory organs and there is the ensuing and correlated neural activity in various cortical areas. The algorithm stores a database of the external stimuli and the resulting cortical activity. Afterwards, when the subject imagines something, the cortical activity is mapped against the original external stimuli and the proper combination of world events is mapped on a computer-generated picture. At the end of the day, there is no need to suppose the existence of an image at any point of such an, admittedly, very complex causal chain of events. Everything is just an object – the external world, the chemical reaction inside sensory organs, the neural activity in the brain, the electric activity in the recording instruments, and the final computer-controlled display. They are all objects, physical objects. There are no images anywhere along the chain and there is no need to suppose the existence of any.

We can therefore comfortably quote Bernard Stiegler's words to the effect that "There have never existed physical images (*images-object*) without the participation of mental images, since an image by definition is one that is seen (is in fact *one* when it is seen)" (Stiegler 2002, 145). Yet, based on such implication, I reach a conclusion opposite to that of many authors – e.g. Belting or Stiegler himself: I maintain that, since there are no mental images, there are no images too – neuroscientists and media scholars have neither need of nor evidence for the existence of images. Or at least, this is what I will try to further substantivate.

2 Flat Objects or Pictures, No Presence of Absences

We are surrounded by flat physical objects with various colors, often with the capabilities of changing their colors in a fast and dynamic way (as with computer and phone screens and display). All of them are just physical objects. They are not images. Frescos, tempera, oil painting, and printed pictures are objects too; objects that can be physically weighted, handled, shattered to pieces, and touched. Is this fact already not somewhat suspicious? Can we touch an image? It does not seem right. An image can be seen, not touched. Objects can be touched too.

Yet, we call certain objects images. This is surely only a matter of habit. It is not ontologically committing. When an object is sufficiently flat and the distribution of colors on its surface is more conspicuous than its shape, weight, and size, we have get used to call it an image, as though its physical thickness might be overlooked, and the flat object were nothing but an infinitely thin layer of colors. This is of course an idealization of something that, no matter how thin, as in the case of film, it is still a flat object. A film, for instance, is 0.14mm thick. Computer screens, LCD screens, and OLED phone screens are of course, much thicker although we tend to dismiss their physical thickness and consider only the superficial layer of microscopic colored lights. Such a layer, though, is yet another flat object made of a mosaic of microscopic light emitter diodes.

So, this is to say that wherever we look, we do not see literally images. We see flat objects we conventionally call images because we overlook their thickness, and we deal with them as though they were flat surfaces floating in space or surfaces over imposed to an object. We open a book, and we see very flat and thin objects, like pictures on a page. A printed 'image' is a very thin layer of ink deposited onto a thin foil of paper.

One might rebuke that there is a bit of playing with words here. We may see a photograph of a beautiful pair of running shoes in a magazine. The object is a magazine, it is not an 'image'. Yet, there are no actual running shoes in the magazine, only an image of them. In that sense, images do exist. This is, of course, a case of Belting's presence in the absence – i.e., an image is the presence of an absence by means of another presence that of the other medium (a notion recently defended by Noë 2012). It needs the presence of the medium. But the medium is such only because, as I've argued above, the medium which is an object affects an observer in some way that is alike to that of another object. The presence is a causal presence and not an iconic presence in the sense that, over above the object we call medium, there is an icon or an image. All the causal power is drained by the object called medium which is, Eleatically speaking, all there is. Existence is causal relevance.

Just to be clear about what I mean, consider Belting's account of the relation between image and its medium (Belting 2011, 6, emphasis in the original):

> The distinction between image and medium becomes equally apparent when we consider the inherent nature of images as the *presence of an absence*. The image is present in our gaze, certainly. But that presence, or visibility, relies on the medium in which the image appears, whether on a monitor or embodied in an old statue. In their own right, images testify to the *absence* of that which they make present. By virtue of the media in which they are produced, they already *own* the very presence that they are meant to transmit. The stone or bronze or photograph now owns the only *presence* that is possible, which is in face the *absence* of the real object. In this lies the paradox of images – in the fact that they are or mean the presence of an absence – and this paradox is in part a result of our capacity to distinguish image and medium. We are willing to credit images with the representation of absence, because they are present by virtue of their chosen medium. They need a presence as a medium in order to symbolize the absence of what they represent. The body analogy here comes into play again. The relation between absence, understood as invisibility, and presence, understood as visibility, is in the final instance a body experience. Memory is a body experience, as it generates images of absent events or people remembered from another time or place. We tend to *imagine* as present what in fact has long been absent, and we impute the same ability to the pictures (such as photographs of the dead) that we fabricate.

Here the confusion is between medium and object, rather than between medium and image. Why does a certain object behave in such a way that is considered to be an image? Because there are two objects, the object which is absent and the object which is present (the medium) and they happen to have the same causal properties. They are two keys, undoubtedly not identical, which nonetheless unlock the same lock. The lock is kindly offered by the body of a beholder. Belting explanations is based on a dualistic conceptual framework that, regardless of its commitment to full-fledged dualism of substances, assumes the existence of intermediate entities. While it is a perfectly legitimate linguistic attitude, there is no need to take it seriously.

The case of memory and dreams is justified because they assume that in such cases we see images rather than things. So using memory and dreams to endorse the ontological weight of images is question begging. Media scholars need images because their conceptual framework is based on the notion of images.

Very often, optical inventions – such as media and computer screens or displays – have fooled us into believing that we were seeing images (Crary 1992). When we watch the silver screen at the movies, we see an object (the flat screen) over which shadows and lights are projected. It is not 'an image'. It is a flat and usually white object over which we play smart light games. Do we see an image? Why should we say so? We see lights and shadows and colors over a flat homogeneous object. The distribution of colors and lights and shadows is such as in everyday life is produced by not so flat objects. Yet, no matter how those colors and shadows are produced, they are physical phenomena. So, I see the same physical distribution of shadows on a screen as it would be produced by George Clooney's face. What I see, though, is the physical distribution of shadows, and that is an object that might be instantiated either by a human face, or by lights projected by a film projector, or by an array of lights in a computer screen.

The fact that different objects may lead to the same behavior depends on the proper physical system. For instance, a painting of a beautiful body will have no resemblance to the body if one is congenitally blind. As in the hilarious illustration *The Innocent eye test* (Mark Tansey 1980), a cow would not react to a painting that, relative to a human being, would indeed be alike two cows having sexual intercourse. The point is that likeness is in the eye of the beholder or, to put it less chauvinistically, is relative to the observer.

However, being a picture (let alone an image) is more a matter of being in the proper relation with another organism that is fooled by the picture and may mistake it for another object or circumstance. Yet, aside from such an aspect, pictures are just objects, mostly flat, and occasionally less flat as is the case with bass reliefs and statues.

3 Mental Images: A Series of Arguments Against Them

Having, perhaps too briefly, addressed the issue of physical images (or pictures) and showed that they are nothing but objects, let's consider for a moment the notion of mental images. If there are no images in the physical world, from where did we get the idea that we see the world by means of them? By means of something that is neither to be seen nor to have any causal role? The answer to such a question is of course beyond the limits of this paper, however it is possible to mention two factors – one of historical nature and another one of more philosophical nature - that are likely to have had a key role in endorsing the widespread belief into the existence of images.

The first is the very well-known influence of the invention of perspective. Ever since Brunelleschi and Alberti's invention, people have conceived vision as a process by means of which the external world

is projected inside the retina following the converging rays of the inverted visual pyramid. What we see is then something that travels from the external world and that shrinks until it goes through the pupil and that has been presented as the section of the optical pyramid. The section, which has been conveniently represented as a bidimensional immaterial picture is the ancestor of the notion of image – i.e., something that is in the physical world but that is in the process of becoming like a two-dimensional image. The orthogonal section of the visual pyramid was later revisited as the occlusion or contour shape by many visual culture scholars or psychologist of perception (Gibson 1979; Hyman 2006; Marr 1982). The merging between perspective theory, the invention of the camera, the study of the eye, the study of perception, and the neurosciences, completed the process (Gross 1998; Lindberg 1976). It is all well-known, but it is worth to remember.

The second factor is the ever-assumed separation between the subject and the object. Such a separation is not monopoly of the dualism of substances, of course. Neurosciences are not immune. In fact, the current physicalist dominant view – the brain here and the world there – is a form of dualism (Koch 2012; Manzotti, Moderato 2010; Rockwell 2005; Uttal 2001). Even embodied cognitive scientists or enactivists distinguish the world one perceives from the world as it is. Once the separation between subject and object is assumed, there is the need for something to (re)present the world in the subject which cannot be the object since we have assumed it is different. The image is then, in the empire of the mind, is the alleged mandatory herald of the world (small pun inspired by a couple of authors, Jaynes, Mcmuffin, David Lynch). More prosaically, if the subject is separate from the mind, it cannot be aware of anything which is not part of itself. So, as Cartesian philosophers considered the existence of ideas or impressions, by the same token, neuroscientists seek neural representations and mental images. Is this mandatory? Of course not. It is e necessary step only if one assumes the separation between the object and the subject which has been questioned by various recent ontological framework. In the last section I will try to upturn this assumption upside down.

I will now address a series of arguments that show that, even if the subject and the object were separate, the notion of images is empirically unsound and logically inconsistent.

3.1 Images Do not Do What They are Required to Do

The first point I want to make is to show that images betray their very purpose – being a way (or a means) to see something else. They very idea that we see objects by means of images gives rise to a dilemma. If images were invisible, how could we see them? And if they

were not, how could we see anything else, and why should we use them to see something else.

Likewise, if the world is visible (by any means), images would be no longer needed. We would see the world as such. Is it not the meaning of being visible? But if the world were not visible, we would see only images and not the world. Images, as Kant's phenomenon, defeat their own purpose.

Elaborating the dilemma further, if images were something we could see, we could not see anything else. They would cover the world of objects with a veil of appearance. Suppose I look at an apple. Do I see the apple or an image of the apple? If the latter were the case, I should draw the conclusion that only images are visibile. Clearly, they would occlude the world. And thus, the dilemma will ensue. Either images are objects in the world, or they are not. Both options are self-contradictory.

In fact, on the one hand, if images were objects, then they could not be seen because they would require an image to be seen. So, we would have something akin to infinite regress. On the other hand, if images were not objects, we would be stuck in a Cartesian/Kant idealistic/mental world and we would have to provide a feasible ontology for images. While this idea is popular today (Hoffman 2019) and it has been popularized even more in many fictionary works as in the *Matrix* movie (1999), it is a cover of traditional dualism. The world we see is just a world of images that prevent us from accessing the real world as in Magritte's *The Human Condition*. So, either images are visible or they are not. Either way, they would prevent us from doing the very thing they are supposed to exist for: allowing us to see the world.

The argument holds also if one considers images to be a neural creation. For instance, suppose that we see images generated by the brain. What are such images? Are they physical objects or processes inside the brain? If images where physical processes, they would be objects like everything else and then, if we could see objects by means of images, why should they be visible? They would require other images generated in some further brain area. Once again, the issue of infinite regress will kick in. Moroevoer, If we could see a neural process, why should we not see an apple?

In this regard, Alva Noë stated that "When we see in pictures, we really do see models, if my proposal is on the right track. But here the models are very much on the world side of the mind/world divide" (Noë 2012, 110). Fair point, yet why should we not be able to see an image inside the brain if it were a physical object? We can see pictures after all! One may counterargue that we do not see images inside a computer. In fact we do not see any image *inside* the computer, but we see pictures on the screen of the computer (or better we see the screen of the computer becoming a picture). If a 'pictorial' file

was never converted physically to a colored flat physical object – be it a print or an LCD screen, it would not be an image. It would be a physical recipe to produce an image. Recipes are not food. They are a tool to cook and create food. Likewise, we do not experience recipes, we experience the world. We see something. What do we see? Surely not mental images, but the world.

3.2 Images are not Empirically Sound

Take all the findings of the neurosciences, is there any trace of the existence of an image? No. All available evidence refers to three things: neural activities in the CNS, the external stimuli, and the resulting behavioral output (either as verbal reports or as body movements and physiological reactions). This is all the neurosciences are about.

Of course, one may point out that in the future we will find something completely unexpected, like Aladin's jenny. This might well be. However, one thing is to say that we have evidence of, say, the existence of aliens and another one is to say that we know for sure they exist. Moreover, from an ontological angle, the existence of aliens is a lot less problematic than the existence of images. To the best of our knowledge, aliens do not require any ad hoc ontological addition to the physical world.

I do not want to repeat the argument presented in the first section of this article, but there is no empirical evidence of the existence of any image. Everything science and empirical evidence has shown is flat objects with different colors or flat objects illuminated by multiple colors in various configurations.

To appeal to the existence of images inside brains or inside computers is not any better, actually it is probably worse. In fact, flat objects at least are loosely reminiscent of the section of the visual pyramid, but the structures in brains and computers are nothing like that.

Consider a cell phone, which is a miniaturized and pocketable computer equipped with cameras and a display. When you point at an object, the device modifies a certain number of electronic tensions inside tiny circuits. Because of the overall organization of the device, such tensions may be used to easily modify the light emitted by the display so that the phone and the photographed object produce a similar response in a standard human viewer. All of that is fantastic. However, do we need, besides the electronic machinery, the lens, the external object, and the viewer's body, anything else? No, we do not. Such a description is causally closed. All causal powers have been drained by the elements just sketched. Adding an image, anywhere along the change, would be causally overdoing.

In other words, the physical world is causally closed and self-sufficient and the existence of images would causally overdetermine

what has happened. One cannot claim that the appearance of certain colors on the screen has been caused by the *image stored inside the phone*, since if that were the case, there would have been two causes, each completely sufficient, to determine the colors on the screen: the electronic tensions inside the phone and the image. They cannot be the cause of the resulting change of colors on the screen. One of them must be, at best, epiphenomenal, which means that it does not make any difference. In short, it does not exist. Since the electronic tensions are surely there since they can be measured and detected irrespective of our ontological commitments, so much the worse for the image.

In passim, let me note that the expression "colors on the screen" is as misleading as the expression "the image on the screen". There is nothing *on* the screen. There is just the screen with its changing color. The fact that the outermost layers of the screen is very thin may suggest that its thinness is zero and there is an image on the screen. This idea would be naïve of course. The outermost layer of the screen is indeed a very thin object in its own respect. One may even argue that it is the actual screen and that all the electronics underneath is just some additional circuit to power and control the colored outermost layer.

It is useful to address quickly the habit that many neuroscientists have of speaking freely about neural patterns and the like as they were a sort of proto-images inside the nervous system or the brain. They are not. They are a figure of speech. If one looks inside the brain, as we did with the phone, one will find neither images nor pictures. As it ought to be expected, one will find neurons and glia and blood cells but no images. Are such biological structures busy concocting images? At the best of our knowledge, they are not. Biological cells inside the brain are busy controlling the body movements. Neurons are not flashing images inside the head. They have neither the means nor any interesting in doing so.

Then, why do neuroscientists feel the need to speak of images inside the head? It is difficult to say. Probably, as aforementioned, neurosciences still endorse dualistic picture of the mind ever since the classic mind-brain identity theory failed (Bennett, Hacker 2003; Feigl 1958; Fink 2016; Koch 2012; Polger 2011; Smart 1959; Tononi, Koch 2008). So, although nothing in the neuroscientific evidence supports the existence of images in the head (where? In V1? V2? In a special integrative area that nobody has even pointed out), neuroscientists often talk as though inside the brain a visual mental/virtual world is constantly up and running. For many neuroscientists, it is quite mundane to state that, thanks to "fMRI and neuropsychological evidence, [the pictorial theory of mental images] gained widespread acceptance" and that while "the debate over the format of mental images is not entirely over, the way to resolve it […] is to learn even more

about how the brain realizes and processes mental images". (Boone, Piccinini 2015). Consider this passage by two neuroscientists (Laureys, Tononi 2009, italics mine):

> From the internal standpoint, consciousness consists of a multiplicity of mental images of objects and events, *located and occurring inside or outside the organism*, […]. *Those images* are automatically related to *mental images* of the organism in which they occur […] *By 'image' we mean a mental pattern* in any of the sensory modalities, for example sound images, tactile images, or images of pain or well-being conveyed by somatic sensation. We do not regard *the issue of generating mental images* as an insurmountable problem in consciousness research. We believe that *mental images correspond to neural patterns* and acknowledge that further understanding of the relationship between neural and mental descriptions is required.

I quoted the passage at length because it is exemplify nicely the dominant view in the neurosciences; a view that has been summarized by Alva Noë "to see, it is widely supposed, is to have picture-like representations of the world in consciousness; seeing is having a kind of mental picture" (Noë 2012, 82). Possibly, the only evolution from the pictorial theory of mental images popular in the seventies (Kosslyn 1980; Lennie, Krauskopf, Sclar 1990; Tootell, Silverman 1982) has been the shift from a bidimensional and literally pictorial notion of mental images to a four-dimensional mental world. According to such a view, the world we see is a virtual reality 3D-4D fiction generated inside the brain. Unfortunately, nobody knows what that world should be made of and the appeal to mental images is question begging.

Many neuroscientists believe that we do not see the world as it is, rather that we see the mental images which are internally generated (Crick 1994; Eagleman 2015; Koch 2004; Michel et al. 2019; Seth 2016), and as a result, most scholars outside of neurosciences believe it to be the case. Of course, here I cannot enter into the debate about consciousness, I need only to point out that, given views as those expressed by Laurey and Tononi's quoted text, it is easy to fall into the mistaken impression that mental images are akin to mental or neural patterns. This is not a minor point, and it is far from obvious that being neural is either sufficient or identical to be mental. Actually, there is no evidence of any kind of constitutive relations between the two mental and the neural. Moreover, using the notion of pattern as an explanation of the notion of images is rather suspicious. A pattern is a causally-relevant functional configuration. It is not, to any extent, akin to what we mean by 'image'. An image may be used to produce a pattern and viceversa, but they are not the same. The fact that, in many circumstances, we use pictures to depict patterns

is a misleading source of confusion that should be avoided. Students end up believing that patterns and geometrical entities are bidimensional shapes. They are not. We use figures to speak of patterns and abstract entities – e.g., sets or numbers. While this confusion was acceptable in the infancy of geometry, today it should be discouraged. A triangle is not a shape, and a pattern is not a bidimensional picture, although they can be communicated to the amateur using such objects.

And, of course, as in the case of the phone, one may argue that in the brain too events run the risk of being overdetermined. In fact, once we have the neural activity there is no space left for images. If what I do were determined both by the neural activity and an image, my behavior would be overdetermined. All causal powers are drained by the neurons and what they do. From a causal perspective, so much the worse for images.

The bottom-line is that today there is no evidence of any image in the brain. We may use the notion of images as a convenient placeholder to refer to some intermediate stage in the complex chain of processes that goes from the external world to one's behavior, but there is no need to commit to their existence, at least from a neurological perspective. Everything we know from the available neurological findings does not require any image.

4 How is a World Without Images?

The short answer is that it is just like our own, so it might be that it is the very world we live in. A world without images is a world of objects with causal properties. Do we really need anything else? Occasionally, in such a world, different objects that have similar causal powers have different physical structures. The object A might be round, and the object B might be flat and thin. Yet, in the proper geometrical circumstance, A and B may impinge in the same way on some further structure, for instance an eye. In such a case, people have the habit to call B an 'image' or a 'picture' of A. No big deal. Here, 'similar causal powers' means to be able to cause, everything being the same, the same effect. This is a relative and Eleatic notion of similarity.

However, as we did in the previous section, if there were no images, it might be objected that we could not see anything. Most models of visual experience are based on the notion of images. Images are assumed to be what allows us to see the world. Many scholars and laymen assume that visual perception is the experience of images that are somewhat connected with the external world, which is what those images *are about*. Such a view is the likely hunch behind the notion of a medium (or media), as something that is *in the middle* between the subject and the object.

Above, I have argued at length about why the invention of images, once the separation between subject and object is accepted, is not a solution but it leads to a series of Magrittesque dilemmas. Sadly, the subject-object dichotomy resuscitates the traditional issues of the noumenon/phenomenon dichotomy with the usual bag of problems (from infinite regress to ontological prodigality).

So, how can my eliminativist proposal of getting rid of images tackle with the fact that we experience the world visually? My main reply is that we do not experience (nor see) any image, rather we use the notion of images to explain our phenomenology (and epistemology). So, images are not a datum – i.e., something we must start from – they are a hypothesis that must be backed up by adequate either empirical evidence or analytical arguments. They both lack. Images are not the explanandum. They are a possible explanation not what must be explained. In this regard I totally disagree with Noë's phenomenological insight and pretheoretical intuition that

> [w]hen you look at a photograph of Hillary Clinton, say, you see her. After all, there she is, in the picture. This is not to deny that you also see the picture itself, that is, the physical piece of paper […] But it is to deny that that is all that you see. Every picture has a double aspect: it is there for you, as a tangible, physical thing, and as a presentation of (in our example) Hillary Clinton. Suppose you were to say: "Well, I see a bit of paper with smudges of color on it and I interpret this as representing something I independently know to be Hillary". if you were to say this you would be utterly untrue to the character of your visual experience. You would be misdescribing what you see. So, Hillary confronts you when you see her picture. Hillary shows up for you, in your experience of the picture. She is present for you, visually, in the picture. full stop. This is phenomenological bedrock. (Noë 2012, 83)

Then I must clearly have a different phenomenology than Noë, since I do not see Hillary Clinton and I feel no embarassment in putting the picture of Hillary Clinton in my bathroom when I am shaving as it would be were Hillary next to me. I am perfectly aware that what I hold in my hands is only a bit of paper with smudges of color that I am quite good at interpreting as something that may tell me something about Hillary Clinton. But not necessarily so since it might be, for instance, the output of a DeepFake algorithm which is just producing one faked woman after the next and one might happen to be randomly but canningly similar to Hillary Clinton. Or I might be the victim of a conspiracy a là Matrix and there might have never been any Hillary Clinton. So it is all a fake. Clearly, as Noë himself admits, a photo is a manifactured object designed to be causally efficacious with my visual system and my cognitive processes "[Pictures]

are made for us, that is to say, they are made with our particular perceptual and cognitive capacities in mind. They […] have been selected for to be straightforwardly accessible to us just on the basis of our normal perceptual and cognitive capacities" (Noë 2012, 103).

So, what do I see when I watch the colored picture? I see a picture that looks a bit like a woman. Likeness, as I argued in the above, might be explained as a causal properties. So, a photograph is a bit femalish, while a Wax statue at Madame Tussauds's is even more femalish, and a read doll animated with Microsoft recent patented algorithm to mimic a specific person might be even more femalish and so forth, up to the android in *Black Mirror*'s "Be right back" episode. But all such objects are not objects plus an image. They are just objects. So, sorry, but for me it is not a phenomenological bedrock that Hillary Clinton is present in the picture (a presence that is, of course, the role we have attributed to images).

Back to the main problem, if images do not provide a successful explanation, there is no need to buy them. They can be dumped. My point, in brief, is that we do not experience images, we do not experience "the presence in absence", we perceive objects that happens to share causal properties with other objects. What we believe is not a presence in absence, rather is a presence of a presence. However, since we have assumed in subject-object dichotomy, we believe that what we perceive is an image. This is not a phenomenological fact, let alone a "bedrock", this is a belief, a wrong belief.

5 The Mind-object Identity Does not Images

Can we do without images? Yes, I believe we can if we move from a different premise. In this final section, I sketch a possible alternative framework that I have defended in much greater detail elsewhere (Manzotti 2016; 2018a; 2018b; 2019; Manzotti et al. 2020), which aims to provide a different starting point. This hypothesis is the mind-object identity that considers the possibility that the subject and the object are indeed identical; more precisely that the subject *is* the object as it exists relative to our body.

To cut a long story short, there is no need of a separation between the subject and the object unless we suppose so. When we experience an object, we must be something. What are we? Neuroscientists suggests we are neural processes or the properties they instantiate. Cartesian dualists assumes we are the ideas or impressions caused by such object. The mind-object identity suggests that we are the external objects themselves as they take place relative to our body (or a part of our body). So, when we perceive an apple, the hypothesis is that we are the apple as the apple takes place relative to the ongoing causal intercourse between the world and our body. Suppose

that the causal intercourse takes place by means of optical means. The apple that takes place and that is causally efficacious is a "visual" apple in the sense that it is an object whose causal properties are endowed by means of optical causal processes. Such an object is the visual apple – i.e., the apple that exists relative to a pair of human eyes and the ensuing cortical structures. It is an apple that does not include many of the properties that we might be tempted to include in a standard apple (weight, taste, smell). But it is a perfectly red, round, and shiny apple and relative to an eye it does not miss any property. So, the idea is that rather than assuming that the apple exists absolutely and that senses grasps only partial projections or aspects of it, we may consider the existence of umpteen relative apples, each relative to a different portion of our body (or to further bodies as those of animals and other people or even objects). Each relative apple (a visual apple, a tactile apple, a tasty apple) exists relative to the right causal circumstance.

Please beware of the fact that such an apple is not a mental or a phenomenal apple. It is neither objective or subjective. It is not created inside the head of the beholder. It is the external cause of one's cortical activity. I want you to pay attention to the fact that in such an account there is need to appeal neither to images nor of to mental properties. Everything is utterly physical. The causal apple that is impinging on my retina by means of light rays bouncing on its surface is completely physical. The different and yet as much physical apple that may impinge on my olfactory sensors inside my nose would be a different one. There is no causal overdetermination in such an account. What is then the visual experience of the apple? It is simply the apple taking place relatively to a visual apparatus and thereby having causal efficacy. That is why this hypothesis is called the 'Mind-Object Identity Hypothesis', since it is based to the identity between our experience and the external object as it takes place relative to our body (or a part of it).

Once the separation between subject and object is set aside, a different account of visual experience and of pictures becomes available. If we deny the subject-object divide, images are no longer required. The act of perception is indeed the certification of an identity between us and the external world relatively to some part of our body. Other sensor modalities will certify the identity between us and other parts of our body (a tactile apple, a smelly apple, a tasty apple, and so forth).

Ontologically speaking, the notion of image has never been a good solution, it has always been the problem.

In fact, the introduction of images, whatever they are, does not address the problem of our relationship with them. If images were indeed between us and the world, how could we access them? Suppose they were visual structures somewhat instantiated by the activity in

our brain, how could we see then? We would need another intermediate image to project the image of an object. And so on, *ad infinitum*. The only solution is to adopt some form of identity. For instance, in Cartesian dualism, there is no relation between the subject and its ideas – the subject is *his* ideas. Descartes does not need intentionality, In this regard, he stated that if two subjects had exactly the same ideas, they would be the same subject. There is no residual haecceity insofar as the subject is one with his ideas (Descartes 1642). So, identity between the subject and what the subject finds in his experience (both conscious and pictorial) is indeed an unavoidable step. Of course, one might appeal to intentionality, but I will not even take into consideration such an ontological expensive addition here. Intentionality is a left over of a dualist-friendly bygone age.

What do we see when we see a picture then? If we do not see an image, what do we see? We see an object that shares some causal properties with another object.

What about images and pictures, how does this theory address their case? The basic idea is that we always see objects as they take place relative to our body. It is a completely flat ontology that requires only one kind of entities: (relative) objects. When we see a picture of something, we see an object that shares with its subject, which is just yet another object, the ability to impinge causally on our body in the same way. For contingent and historical reasons, such objects have been manufactured using the former object as their blueprint (as it happens with photographs or with 3D printers). This contingent relation has often been mistaken for some kind of constitutive historical relation by causal theories of perception or representation (Arstila, Pihlainen 2009; Ayer, Cohen 1977; Grice, Whilte 1961; Hyman 1992; Watling 1950).

I see a picture of my mother in Italy while I am in New York. What do I see? I see an object, the flat object covered with colored inks I call a photograph. Do I see my mother too? No. I see an object that shares with my mother certain properties. The photograph is just a bit like my mother. They have something in common. Since I am who I am with my past experience and my memory, such an object is enough to make me recollect my mother and think of her. The object may also trigger a memory of my mother and various emotions that are associated with my childhood, a bit like Proust's madeleine. Do I see an image of my mother? No. There is no image of my mother. There is just an object who resembles to my mother from a certain angle and, given certain causal circumstances largely fixed by my body and my neural structures, produces the same effect my mother would were she in the right place in front of me. In my brain there are neural locks that can be unlocked both by my mother and by the photograph. It might be interesting here to consider the connection between this eliminativist approach and various theories of objec-

tive similarity (Hyman 2006) but I will postpone such a comparison to another opportunity.

Or consider smell. Last night I was running by the sea, after a big storm, close to a small hill. It's early spring and I smelled a combination of grass and mud that made me think of my birthplace, a village in the Apennine mountain in Italy. Was that an aromatic image of my birthplace? Of course not. My birthplace and that small hill by the sea happened to share the same combinations of smells. There was no aromatic image of my birthplace in the hill by the sea. There was just a hill very wet after any days of rain.

It is important to stress that the proposed approach is based neither on an objective nor on a subjective account of similarity. Rather it is based on the notion of relative existence which is neither objective nor subjective. Such a notion of similarity is the kind of casual likeness I mentioned at the very onset of this paper. Two objects are alike to the extent that, everything being the same, they would cause the same effect.

The notion of "relative" is here to be intended like to the notion of relative velocity in physics. Relative velocity is neither subjective not objective. It is just relative. Yet relative velocity cannot be established in isolation. Ask to a physicist what the velocity of a body is. There is no valid answer. Velocity exists only relative to a given frame of reference, which is a formal way to refer to another object. The earth has a relative velocity of 67 km per sec relative to the sun and a whopping speed of 220 km per sec relative to the center of the galaxy. Relative to my laptop the earth is perfectly still. At any time, the earth (and any other object) has multiple velocities, each relative to a proper object. Every object has umpteen relative velocities. Likewise, the causal properties of objects exist only relative to other objects. Relative existence is a rather straightforward notion that should be more popular.

We can borrow the notion of relative existence for all properties – i.e., all causal aspects – of an object. So, it might happen that two objects share the same causal property relative to a given system (for instance a human body with its sensory organs and neural structures). If those two objects instantiate the same relative property, one of them will be a picture of the other one. Usually, we use the word 'picture' only when this property is instantiated relative to a subset of the human body which includes the visual apparatus and the connected neural structures. Yet, this may be a narrow definition and different subjects (for instance, congenitally blind subjects) may have no problem in including a more liberal definition of picture which includes sculptures, action figures, bass reliefs, and so forth. Or you may consider cases such as the fragrance of the hill or Madame Tussaud's statues.

When there are two objects sharing a causal property, why should one of them be deemed a picture of the other rather than vicever-

sa? I have addressed this issue in the above but it is better to elaborate it a bit more. The short answer is contingent and practical reasons. There are many rules of thumbs. For instance, the object that existed earlier is usually considered to be the original. Alternatively, the original is the object that was causally antecedent or the object that was used to manufacture the other. Or there might be other arbitrary, conventional, or historical reasons. I am not interested here to provide a comprehensive list, which will always be incomplete given the inventiveness of humans. The traditional contrast between the relation of similarity, which is symmetrical, and the relation of representation, which is asymmetrical, is here immaterial. We choose one object as the picture of the other because of arbitrary reasons. Circumstances being different, it might be the other way round. If 3D printers were cheaper than inkjet printers, we might 'take' three-dimensional sculptures of bidimensional photographs. As it turned out so far, it was cheaper to realize frescos, drawings, paintings, and photographs than realized three dimensional structures representing bidimensional sketches. Practical constraints have biased our conceptual framework and pushed us towards a 'pictorial' turn.

To recap, the notion of images was the offshoot of the assumption of the separation between the subject and the object. Once such a separation was assumed, something was needed to bridge the gap and to be the object of the subject's visual experience. This need led many authors to consider the existence of a fictitious entity, the image, which was conceived as the intermediate entity that is perceived by means of various vehicles and mediums. In turn, this led to a proliferation of theories that addressed the relationship between such a fictitious entity and physical objects (for instance, flat objects often called pictures). Here I propose

1. to consider a more parsimonious assumption – the subject is identical with the (relative) object – called the mind-object identity, and
2. to get rid of the notion of images in favor of a flat ontology where there are only objects engaged in various causal roles. The proposed ontological revision does not conflict with visual culture or media studies, but it may provide a neutral and more parsimonious ontology.

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Motoric Understanding and Aesthetic Appreciation

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Abstract Standard philosophical studies on picture perception usually investigated the peculiar nature of pictorial experience and the way aesthetic appreciation can be generated during this experience. Recently, however, the philosophical literature has also focused on a new aspect of picture perception: the possible involvement that the visual states related to action processing may actually play in pictorial experience. But this role has been studied only in relation to the understanding of the nature of pictorial experience, qua visual experience. This paper offers some preliminar speculation, which may guide future research, on the role of action in aesthetic appreciation of pictures.

Keywords Action. Vision. Picture perception. Aesthetic appreciation. Visual neuroscience.

Summary 1 Introduction. – 2 Aesthetic Appreciation of Pictures. – 3 Action and Ordinary Pictorial Experience. – 4 Motoric Aesthetic Appreciation. – 5 Conclusion.

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1 Introduction

The main aim of the investigation in the philosophical literature on picture perception is twofold. On the one hand, a big effort has been devoted to the understanding of the nature of pictorial experience, which is taken to be a special kind of visual experience. On the other, philosophers have also investigated the way aesthetic appreciation can be generated during pictorial experience.

Recently, the philosophical literature has also focused on a new and usually neglected aspect of picture perception: the possible role that the visual states related to action processing may actually play in generating correct pictorial experience. That said, this role has been studied only in relation to the former of the previous investigations, namely, the one related to the understanding of the nature of pictorial experience, *qua* visual experience.

This paper wants to focus on the potential role of action for what concerns the second investigation, and explore the possible routes related to the following speculation, which grounds on the idea of an alleged role for action in aesthetic appreciation: that the visual states related to action processing may also play a role in allowing the spectator to enter aesthetic appreciation. The paper proposes, thus, a *manifesto* of this neglected role (within the philosophical literature), and the possible ways of spelling out this role. This manifesto is based on recent empirical evidence from neuroaesthetics, the field of neuroscience involved in the study of aesthetic appreciation.

The idea is, then, that not only are these states crucial in our best explanation of how pictorial experience, in quality of a peculiar visual experience, can be actually reached, or is correctly generated. They may also be crucial, in principle, for the way pictures are a source of aesthetic appreciation.

The main reason for such a speculation is the following. The philosophical literature has suggested that an important perceptual aspect of aesthetic appreciation is given by the fact that the viewer visually represents the surface as the vehicle, or the bearer, of the marks from which the pictorial space emerges, i.e. of the pictorial content.

Then, the speculation of the present paper is drawn on the basis of the evidence that it is possible for the spectator to represent the gesture related to the action that the artist has performed in order to realize the marks on the surface that generate the pictorial space.

The core idea is, then, that this representation may lead the viewer to perceive how, due to the motor expertise of the artist, the marks are realized on, and emerge from, the surface upon which the pictorial object is encoded. The paper speculates that, since part of aesthetic appreciation is taken to depend on recognizing that the pictorial space emerges from a surface, this could be an important perceptual-motor aspect at the basis of the aesthetic appreciation of a pictorial

content. If so, the paper suggests, then this idea, coming from experimental results, is a very significant source of evidence that should be more analysed by philosophers interested in aesthetic appreciation.

The paper proceeds as follows. I first describe the standard story on aesthetic appreciation of pictures, starting from usual accounts of the peculiar nature of pictorial experience (§ 2). Then, I discuss what has been recently described as the crucial role of the visual states related to action processing in generating pictorial experience (§ 3). Then, I suggest that the visual states related to action processing are not only crucial when it comes to the generation of appropriate pictorial experience, but can also play a role in aesthetic appreciation of pictorial objects (§ 4). Then, I offer concluding remarks on the speculation presented in this paper (§ 5).

2 Aesthetic Appreciation of Pictures

Contemporary accounts of picture perception are interested in understanding which kind of perceptual state we are in when in front of a picture.

According to these accounts, during picture perception we see two important aspects of the perceptual object: the depicted object, i.e. what is usually defined the pictorial content, and the picture's surface, i.e. the vehicle of the pictorial content (Wollheim 1980; Nanay 2011; 2015a; 2016; 2017). And several arguments have been proposed to suggest that we visually represent them simultaneously.[1] On the one hand, simultaneous representation is needed as, in order to appreciate a pictorial content, we must, of course, visually represent the pictorial space. But in order to do so, we must also correctly visually represent (in general) the surface (a notion that is not trivial).[2] Indeed, when this is not possible, we fall into the illusion of presence of the depicted object, as in the case of *trompe l'oeils* illusory paintings (Ferretti 2020a; 2020c; 2021b).

However, visual representations can be either conscious or unconscious. In this respect, it has been proposed that while we must visually represent both the surface and the depicted object simultaneously, we cannot consciously visually represent both of them, or we would enter an odd visual experience.[3] For this reason, it has been suggested that the best story on simultaneity is that we simultaneous-

1 Nanay 2011; 2015a; 2017; Ferretti 2016c; 2017a; 2017b; 2018a; 2018b; 2019; 2020a; 2020c; 2021b; Ferretti, Marchi 2020.

2 See Nanay 2017; Ferretti 2019; 2020a; 2021b; Ferretti, Marchi 2020.

3 I cannot focus on this point here, see Hopkins 2012; see also Nanay 2017; Ferretti 2020a; 2021b; Ferretti, Marchi 2020.

ly consciously see (or visually represent) the depicted object while unconsciously seeing (or visually representing) the surface.[4] That means, *ipso facto*, that in order to consciously appreciate a pictorial content, me must visually represent, unconsciously, the surface (Ferretti 2021b).

But the literature on picture perception is not only interested in explaining how we can enter correct pictorial experience. Another desideratum is that of understanding what happens during aesthetic appreciation of pictures (for a recent review, see Nanay 2016; 2017; Ferretti, Marchi 2020).

In this framework, *aesthetic appreciation* seemed to be based on the fact that we can, at once, visually represent, consciously, both the depicted object and the surface. So, differently from cases of usual picture perception without aesthetic appreciation, in which we consciously see the surface while unconsciously seeing the depicted object, when we are aesthetically appreciating a picture, we are exercising our *conscious* vision on both the depicted object and the surface (for a recent review, see Nanay 2017).

However, as the reader can easily realize, this has been judged as a problematic claim: simultaneous consciousness of both the depicted object and the surface would lead to an odd visual experience (Ferretti, Marchi 2020). But aesthetic pictorial experience is not odd. How can we overcome this impasse? An analysis of the relations between visual consciousness and visual attention (which can be focal or distributed), and of the way they are at work when we are in front of a depicted object, has suggested that there is still a way for being committed to the claim that pictorial aesthetic appreciation requires simultaneous consciousness: in case of aesthetic appreciation, we consciously attend to both these two components of the picture, but our visual attention is distributed along the picture. This solves the problem of a potential odd pictorial experience during simultaneous consciousness, as distributed attention permits to avoid this problematic scenario (for technical details, see Ferretti, Marchi 2020).

This explanation is crucial because a peculiar perceptual feature of aesthetic appreciation of pictures seems to be that we can perceptually, consciously realize, how the pictorial content is nothing but what emerges from the marks visually detected upon the surface, which is the material bearer of the pictorial space and which is, indeed, visually recognized as such, i.e. as the vehicle of the pictorial object, during aesthetic appreciation.[5]

4 For a recent review of the positions on this claim see Ferretti 2020a; 2021b; Ferretti, Marchi 2020; see also Nanay 2011; 2015a; 2017.

5 For a complete review of this idea, usually related to the notion of *inflection*, or inflected *seeing-in*, see Nanay 2005; 2011; 2015a; 2016; 2017; Ferretti 2016a; 2016b; 2017a;

That said, however, this notion has been one of the most debated, for different reasons, in the literature on picture perception.[6]

This is not the venue to discuss this debate. Here, I will simply maintain the basic idea that an important representational component of aesthetic appreciation of pictures is that the surface is visually represented as the bearer of the pictorial content (as recently discussed, Nanay 2017; Ferretti, Marchi 2020).

In this respect, in this paper, I will assume the following notions. That during usual picture perception we do not need to visually represent the vehicle as such. We just need that our visual system tracks the presence of the surface – otherwise we'd enter the illusion of presence of the pictorial object (Ferretti 2018a; 2018b; 2019; 2020a; 2021b) (cf. § 3). Indeed, we do not need to consciously visually represent the surface as the bearer of the pictorial content. Conversely, this seems to be crucial for aesthetic appreciation, in which not only do we need to visually track the presence of the surface, this being responsible for allowing us to enter proper pictorial experience (Ferretti 2016b; 2018; 2020a; 2021b), but also to consciously attend to the surface as such, the design as design, that is, to recognize it as the vehicle of the pictorial content, a surface from which the marks can be visually encoded as being at the basis of the pictorial space (Nanay 2017; Ferretti, Marchi 2020).

So far so good. Now, it has been recently suggested that also action plays a crucial role in order for the subject in front of the picture to reach a proper pictorial experience (Ferretti 2021b). I will discuss this notion in the next section. This will be an interesting starting point for the manifesto offered in this paper, as it will permit to suggest that action can be crucial also in order for a spectator to reach *aesthetic pictorial* appreciation. The reader may understand how this follows from a simple line of reasoning.

If action is needed to achieve correct pictorial experience, then we might speculate that it could also have a somewhat role in reaching a peculiar form of pictorial experience: *aesthetic pictorial* appreciation. And if *aesthetic pictorial* appreciation is based upon the idea that the spectator can visually represent both the surface and the depicted object, as to visually represent the former as the bearer of the latter, then, there is room to suppose that action can play a somewhat role in the visual representation of the surface as the bearer of the pictorial content. How? Part of the aesthetic appreciation may be given by the fact that the spectator realizes that the pic-

2017b; 2018a; 2018b; 2019; Ferretti, Marchi 2020; Hopkins 2010; 2012; Kulvicki 2006; Lopes 2005; Voltolini 2013.

6 Nanay 2010; 2011; 2015a; 2016; 2017; Lopes 2005; Hopkins 2010; Voltolini 2013; Ferretti 2016c; 2018; Kulvicki 2006.

torial space is something emerging from the marks of the depicted surface, a depiction that has been realized by means of specific motor acts of the painter. The visual representation of these motor acts might be, or so the speculation guiding this manifesto goes, (at least partially) responsible for the aesthetic appreciation of the pictorial content as the result of a sort of human *poietic* expertise.

Before moving on to an examination of this new claim within the philosophical literature, based on the focus on recent empirical evidence from neuroaesthetics, I need to say something on the relation between action and usual pictorial experience.

3 Action and Ordinary Pictorial Experience

The role of the visual states related to action in pictorial experience has been hugely neglected in the previous literature up to now and only recently analysed (Ferretti 2021b). Two ideas have been proposed.

First, in order to enter ordinary pictorial experience, that is, an experience of a pictorial object confined within the pictorial space, our visual system must represent the presence of a surface, that is, of an object we can interact with, and this representation allows us to avoid having the impression of the presence for motoric interactability with the objects in the pictorial space. This means that what is called *vision-for-action* has to be properly attuned to the surface (Ferretti 2021b). When it is not the case, we enter illusions such as those encountered during *trompe l'oeil* experience, in which the pictorial object looks like a present object offering motor interaction (Ferretti 2016c; 2018b; 2020a). In these cases, we have what is called a breakdown of usual pictorial experience and its typical visual characteristics (Ferretti 2021b).

Second, with pictorial objects we do not visually experience spatial shifts as we move with respect to them, and this happens because our visual system compensates for the pictorial space, as it is attuned to the spatial shifts offered by the surface, whose presence is correctly tracked, as soon as we move. This means that what is called *sensorimotor understanding* has to be properly attuned to the surface (Ferretti 2021b). When we cannot track the surface successfully, our visual system will be capable of deriving spatial shifts with respect to the pictorial space, as it happens with *anamorphic* paintings and *trompe l'oeils* (Ferretti 2020b). Even in these cases, we have a partial or complete breakdown of usual pictorial experience and its typical visual characteristics (Ferretti 2021b).

Therefore, it has been suggested, action plays a significant role in generating proper pictorial experience, as when these visual processes related to action are not correctly in play (upon the surface), we cannot reach a correct pictorial experience (i.e., an experience of

what should be represented as a pictorial space) and enter the illusion of being in front of a present object, offering several spatial, motor and action cues that are not normally obtained in case of standard pictures and pictorial experience thereof (for a recent review see Ferretti 2020a, 2020c, 2021b).

However, those accounts on the role of action in pictorial perception are on the side of the action processing pertaining to what the subject could do with respect to the potential motor interaction with the surface, or, in illusory cases, with what is depicted. That is, we are talking about the visual representations related to action with respect to the surface, or, in illusory cases, with the pictorial object, or the pictorial space. Let us go more slowly on this.

In usual picture perception, when we have proper pictorial experience, the *conscious* visual representations related to action with respect to the pictorial object (the way to interact with it), or the pictorial space are, so to speak, silenced. Of course, we can imagine what we could do with respect to the depicted object, or how our perspective would change as we move, were the depicted object a real object. However, this would not count as pictorial experience, i.e. as an experience of a pictorial object with respect to these motor aspects. Indeed, vision related to action processing for detecting presence for interaction is not at work with pictorial objects, as it is attuned to the surface, which is a present object our visual system for action can track – in this respect, however, our *un*conscious motor representations at the brain level can be activated with respect to pictorial action possibilities, that is, by the geometrical characteristics of the objects that, were the object real, would permit us to represent how to interact with the object (for a technical review, see Ferretti 2016a; see also Zipoli Caiani 2013; 2016). So, we cannot consciously represent the object as offering any suitable possibility for motor interaction (for more details, see Ferretti 2018; 2021b).

Precisely for this reason, if the accounts mentioned above are right, that is, precisely because our visual system for action can track the presence of a surface, our visual brain is not using those motor processes upon the depicted object (which otherwise would be illusory seen as a present object), so as that we can enter pictorial experience.

So, pictorial experience is peculiar also because the visual states related to the detection of presence for action are attuned only to the surface and, for these reason, silenced with respect to the pictorial space – though, as said, there can be automatic and subpersonal visuomotor responses, at the brain level, with respect to the pictorial space (cf. § 4). This is what happens in order to enter usual pictorial experience (Ferretti 2021b).

However, when we are not in front of an illusion as those above mentioned, we can perceive how the pictorial space emerges from the marks upon the surface: the marks are visually encoded as the

components of the pictorial space that have been realized across the surface, which is the bearer of the pictorial content.

And, as we have seen, recognizing and appreciating the surface as the bearer, the vehicle, of the pictorial content, that is, of the pictorial meaning, is crucial for us to enter *pictorial aesthetic appreciation*.

Arguably, one may speculate that we are thus appreciating how the marks have been made by the artist, and this is part of this aesthetic appreciation.

If so, this opens to another crucial role for action not only in order to enter pictorial experience, but also to enter aesthetic appreciation.

Indeed, we might speculate that there is a part of action processing that is not involved in what the subject could do with the surface, or, in illusory cases, with the pictorial objects. Rather, action processing can guide the spectator to properly visually represent, by means of very specific visuomotor representations, what has been done by the artist. This could lead, as anticipated, to a kind of aesthetic appreciation depending on the spectator being capable of appreciating that the pictorial content is something emerging from the marks on the surface generated by means of specific motor acts of the artist. The visual representation of these motor acts might be, in turn, responsible for the appreciation of a pictorial meaning as the result of a human *poietic* expertise.

This speculation is the protagonist of the present manifesto and is analysed in the next section. In this respect, there is plenty of evidence showing that the visuomotor system of the spectator can effectively represent the action not related to the surface of the pictorial object (i.e. the action that could be performed upon the surface), but related to the movements that have been executed, and are indeed needed to realize the marks upon the surface that, in turn, let the pictorial content to emerge. This can be a strong representational component of *aesthetic appreciation of pictures*.

But, if aesthetic appreciation is related to visually representing how the pictorial content is (in some cases, nothing but) what results from marks on the surface, then, understanding, perceptually, but also motorically, how these marks have been realized, by the artist, and which actions have shaped them in order to lead to appreciate what is represented in the pictorial space, can be seen, *ipso facto* and *a fortiori*, as a crucial component of *pictorial aesthetic appreciation*.

Interestingly, if so, that is, if *aesthetic appreciation* turns out to be not only given by a visual recognition given by visual attention to both the surface and the depicted object (Ferretti, Marchi 2020; but see also Nanay 2016; 2017), but also by building a visuomotor representation of the gestures that have been employed in order to realize the marks at the basis of the painting, then, it is possible to talk about what I will call here *Motoric Aesthetic Appreciation* of pictures.

The reader should note that, while the notion that motoric representations may be involved in aesthetic appreciation of pictorial contents has been at the center of neuroaesthetics, a proper conceptual and theoretical treatment of the implications of these studies for our best philosophical accounts of aesthetic appreciation of pictures has not been offered yet. This paper wants to propose a manifesto whose aim is to solicit the philosophical literature to fill this gap. For this reason, the reader should see this attempt not as offering a theory of *Motoric Aesthetic Appreciation* of pictures, but rather as a manifesto of the way such a peculiar aspect of *Aesthetic Appreciation* of pictures should be investigated.

In order to do so, the next section discusses the relevant sets of experimental results philosophers should consider if they want to explore the idea of a *Motoric Aesthetic Appreciation* of pictures.

4 Motoric Aesthetic Appreciation

Philosophical discussion and/of experimental results from visual and motor neuroscience suggested that vision and action are deeply related in several manners.[7] And this is true even for visual processing related to pictorial experience (Ferretti 2016c; 2018a; 2020b; 2021b).

Now, the field of neuroaesthetics has recently offered experimental results that can tell us something important about aesthetic appreciation (Di Dio, Gallese 2009; Jacobsen et al. 2006; Freedberg, Gallese 2007).

Aesthetic appreciation can of course be, in many respects, driven by an emotional experience. It is not by chance that several correlates of emotional states are found to be activated during the appreciation of visual arts (Di Dio, Gallese 2009; Jacobsen et al. 2006; Freedberg, Gallese 2007). This is perfectly in line with philosophical accounts suggesting that pictorial objects can foster emotional responses (Ferretti 2017a) and specific feelings (Kemp 2020). And both of these responses can be related, one might also suppose, to action and motoric processing.

Indeed, in the case of emotions in pictorial experience, it has been suggested, on the basis of the philosophical analysis of several experimental results, that the areas of the brain involved in visual recognition and vision-for-action are anatomo-functionally connected to emotional areas, which feed the visual areas infusing emotional charge to the visual content. The activity of these areas can be appreciated, for example, with respect to pleasant or unpleasant emotion-

7 Clark 2001; 2007; Briscoe, Grush 2015; Ferretti, Zipoli Caiani 2019; Ferretti 2016b; 2020b; 2021a; 2021b; 2021c; Zipoli Caiani, Ferretti 2017.

al responses during the recognition of pictorial contents. There are, however, also different cases concerning simple depicted objects recalling emotionally aversive motor situations (a broken object whose manipulation could be risky), or depicted people or human interactions displaying an emotional content (Ferretti 2017a, esp. Sect. 5.1).

In this respect, for example, it has been noted that pictorial objects can evoke motor responses directly related to the emotional sensation fostered by the depicted scene, this leading the spectator to represent, from a motor point of view, for example, the object as dangerous. And this can be related to a sensation of pain concerning the potential motor response (Ferretti 2017a, 609). Thus, as the reader can appreciate, there are emotional responses, with respect to motor interaction, even in the case of the perception of depicted objects.

Accordingly, a few lines above (§ 3) I have also already specified that the literature has suggested that though our *un*conscious motor representations can be activated with respect to pictorial action possibilities, that is, by the geometrical characteristics of the objects that, were the object real, would permit us to represent how to interact with the object, we cannot consciously represent the object as offering any suitable possibility for motor interaction (for a technical review, see Ferretti 2016a; 2018b). In accordance with this, pictorial objects can elicit in the spectator an emotional response related to the representation of action possibilities (Ferretti 2017a, 609) and this counts as a response even if this representation is unconscious.

But these are all examples of emotional responses concerning the action recalled by the object in the pictorial space.

There is the need for a small and final clarification here. I said you can have motoric responses about action possibilities from the subpersonal (and unconscious) point of view with respect to the pictorial space. That is, your visuomotor system can give raise to the simulation of a motor action that concerns the geometrical arrangement of the pictorial object, as the shape of the object recalls its action properties, those upon which you may act if the object were real. This is why it has been suggested that our visual brain can attribute action properties also to depicted objects. This is an automatic, subpersonal and unconscious visuomotor response (see Ferretti 2016a; 2018b) and can be related to emotional encoding of the pictorial content (Ferretti 2017a). However, at the personal (conscious) level, you do not consciously perceive any possibility of action as, indeed, depicted objects are two-dimensional objects you recognize to be confined within the pictorial space, and not actually present for motor interaction. This personal component of vision-for-action is silenced in picture perception, with respect to the pictorial space (Ferretti 2020a; 2020c; 2021b), cf. § 3. These two ideas are perfectly compatible (2021b). In particular, in usual picture perception, the visual system can *un*consciously track the presence of a surface for

motor interaction, thanks to a high-level computational mechanism called *response selection* for *action planning* related to *vision-for-action*, while (and because of this former perceptual fact) at the conscious level the subject realizes that the object is pictorial and no *vision-for-action* can be consciously exercised on the pictorial space (thus, vision-for-action is, as said above, silenced). However, there is a low-level, subpersonal, computational motor component, the one related to *motor programming*, which cannot distinguish between real and pictorial objects, and thus automatically responds with respect to the geometrical arrangement of the pictorial object that concerns shape aspects that would be relevant if the object were real, but this seems to have no role in our high-level elaboration of the pictorial content (furthermore, this mechanism also responds to the action possibilities of the surface). Summing up, *automatic visuomotor responses* for *motor programming*, which can be activated in relation to the pictorial space, are just a small component of *vision-for-action*, especially because there is a more crucial component, which is the one related to the detection of presence for actual motor interaction, which is the one that actually allows the spectator to visually recognize, even if at the *un*conscious level, the actual presence for interaction of the surface, as well as, at the conscious level, the pictoriality of the depicted object. So, recognition of actual presence for motor interaction and mere visuomotor ascription of action properties are two different processes of vision-for-action, and only the former is crucial for detecting pictoriality. For a complete review of these aspects, which I cannot explain in full details here, see (Ferretti 2016a; 2016c; 2018b; 2020a; 2020c; 2021).

This also further clarifies the nature of the unconscious emotional responses concerning the action recalled by the object in the pictorial space. Now, what about the perception of the action made by the painter? And what about the possibility for the spectator of representing it?

A response comes from a review of results, in the field of neuroaesthetics, by Freedberg and Gallese (2007), in which the analysis of the brain resonance to pieces of visual art led the authors to suppose that

> even the artist's gestures in producing the art work induce the empathetic engagement of the observer, by activating simulation of the motor program that corresponds to the gesture implied by the trace. The marks on the painting or sculpture are the visible traces of goal-directed movements; hence, they are capable of activating the relevant motor areas in the observer's brain. Despite the absence of published experiments on this issue, the mirror-neuron research offers sufficient empirical evidence to suggest that this is indeed the case. Several studies show that motor simulation can be induced in the brain when what is observed is the

> static graphic artifact that is produced by the action, such as a letter or a stroke. (202)

The authors quote a very informative study by Knoblich et al. (2002), in which, after observation of graphic trajectories made by other subjects, participants seem to be able to simulate the action used in order to generate such graphic trajectories. This perceptual-motor fact has been tested by making participants observing the strokes made by other subjects and, on the basis of the observation, checking the predictions made by the participants about the action related gesture concerning the strokes observed in different tasks.

Of course, in line with what we know about motor expertise (Ferretti 2016b; 2020b; Ferretti, Zipoli Caiani forthcoming), "The more the actions that one observes resemble the way one would carry them out oneself, the more accurate the simulation" (Knoblich et al. 2002, 1027). Accordingly, "authorship effects not only are interesting in themselves but also provide a way to address the issue of whether the action system contributes to action perception" (1044). This is in line with the idea that: "action perception is often accompanied by action simulation" (1030).

And this could tell us something about how art experts and artists may be more exposed to aesthetic judgment, a judgment that not only depends on skills such as proper attention distribution (Vogt, Magnussen 2007; see also Ferretti, Marchi 2020; Nanay 2015b), but also, arguably, on motor expertise.

Evidence such as this, Freedberg and Gallese suggest, "shows that our brains can reconstruct actions by merely observing the static graphic outcome of an agent's past action. This reconstruction process during observation is an embodied simulation mechanism that relies on the activation of the same motor centers required to produce the graphic sign. We predict that similar results will be obtained using, as stimuli, art works that are characterized by the particular gestural traces of the artist, as in Fontana and Pollock" (Freedberg, Gallese 2007, 202).

This evidence is in line with those results showing (see the discussion by Di Dio, Gallese 2009 of these results) a crucial involvement in aesthetic representations of several activations of brain areas such as the parietal cortex (Kawabata, Zeki 2004; Cela-Conde et al. 2009; Cupchik et al. 2009), and related premotor areas (Jacobsen et al. 2006), which are very crucial areas involved in both spatial encoding and awareness, as well as in motor representations concerning both once own actions and the simulation of others actions.[8] All

8 Gallese 2005; 2007; Fogassi, Luppino 2005; Fadiga et al. 2000; for a philosophical analysis, see Ferretti 2016b; 2017a; 2018b.

these studies analyse, in different manners, the relation between motor, spatial and emotional encoding during aesthetic appreciation.

The reader should note that, while several philosophical accounts have previously stressed the role of brain motor areas not only in the visual encoding of the presence of the surface, but also in the motor resonance concerning the motor act recalled by the kind of depicted objects the visual system is computing (Ferretti 2016a; 2018b), these new sets of evidence stress something deeper. They are about motoric responses, in the spectator, concerning the action performed by the artist.

But this also opens to a new view of aesthetic representations. Indeed, aside from a purely cognitive view of aesthetic appreciation, the idea is that "a crucial element of aesthetic experience of artworks consists of the activation of the embodied simulation of actions, emotions, and corporeal sensations, and that these mechanisms are universal" (Di Dio, Gallese 2009, 683). Thus, it is suggested the importance of "the empathic nature of the relationship automatically established between artworks and beholders" (Di Dio, Gallese 2009, 683). As the authors suggest, all these sets of evidence lead to a new view of aesthetic appreciation, which is embodied, and which "consists of two components: firstly, the relationship between embodied simulation-driven empathic feelings in the observer and the representational content (the actions, intentions, objects, emotions and sensations portrayed in a given painting or sculpture); secondly, the relationship between embodied simulation-driven empathic feelings in the observer and the visible traces of the artist's creative gestures (i.e. vigorous modelling in clay or paint, brushwork and signs of the movement of the artist's hand)" (683).

Note that the basic assumptions in these studies (cf. the reviews by Di Dio, Gallese 2009; Freedberg, Gallese 2007) is that the motor mechanisms at the basis of the productions of one's own actions also are at the basis of the simulation of the same observed actions when produced by others, as the investigation on mirror mechanisms suggests (see, for example, Gallese 2005; 2007).

This is very interesting also because it suggests that there is a motoric expertise, related to aesthetic appreciation, which the spectator has to share with the painter, as for the former to have a specific motoric understanding of the motor performance, behind the gesture, of the latter. This recalls the idea that, during what is called correct picture perception, a spectator understands the painter's intention and, thus, can correctly see what is actually represented in the pictorial space, as to have a correct representation of the depicted object (Wollheim 1998).

These results constitute the basis for the manifesto presented here. They permit to explore the idea that there is an important role for action not only in usual pictorial experience, but also in aesthetic appre-

ciation, as it seems very likely, from these results, that the visual states related to action processing also play a role in allowing the spectator to enter aesthetic appreciation thanks to motoric processing.

But then, these states must figure not only in our best explanation of how pictorial experience, in quality of a peculiar visual experience, can be actually reached, or is correctly generated (as recently suggested, Ferretti 2021b). They appear to be crucial also for the way pictures are a source of aesthetic appreciation.

Indeed, coupling these results with the famous claim in the philosophical literature above reported, namely that during aesthetic appreciation the viewer visually represents the surface as the vehicle, or the bearer, of the marks from which the pictorial space emerges, i.e. of the pictorial content, leads us to appreciate the main idea proposed within the present manifesto: that there are motor representations related not to the viewer's own potential action with respect to the picture, but which allow the spectator to encode the act of painting of the artist, which may lead the viewer to perceive how, due to the motor expertise of the painter, the marks are realized on, as well as emerge from, the surface upon which the pictorial object is visually represented. More specifically, the spectator can motorically represent the gesture related to the action that the artist has performed in order to generate the marks on the surface the pictorial space results from. And this could arguably happen to be an important perceptual-motor aspect at the basis of the aesthetic appreciation of a pictorial content.

There is a final worry I need to address here. Note that, in line with critics moved to these ideas, in particular to Freeedberg and Gallese (2007) by Casati and Pignocchi (2007), I am not suggesting here that these brain responses are *constitutive* of aesthetic experiences, but just that action mechanisms and motor representations can play an important role in allowing us to represent the gesture of the painter, and this could be a crucial aspect of aesthetic appreciation, as defined here.

In particular, I am not simply saying that motor responses are at the basis of aesthetic appreciation without any further argument. The one offered here is a two-step argument. If, according to philosophers, the perception of the surface as the bearer, the vehicle, of the pictorial content emerging from the marks made by the artist is at the basis of aesthetic appreciation, and if motoric responses are at the basis of the perceptual understanding of the surface as being something motorically marked by the artist, upon whose action depends the visually encoded content (again, across the surface) generating the pictorial space, then, motoric responses can play a crucial role in aesthetic appreciation. This claim is more philosophically elaborated, while less demanding, than the claim that the mere activation of the mirror system for the action behind the encoded marks

is *constitutive* of aesthetic experience, which is the one specifically opposed by Casati and Pignocchi.

5 Conclusion

Aesthetic pictorial appreciation, the philosophical literature suggests, requires that the spectator can visually represent both the surface and the depicted object, as to visually represent the former as the material bearer of the latter.

This paper suggests that a further good philosophical idea to investigate is that of postulating that at the basis of *aesthetic pictorial* appreciation there is the plethora of representational mechanisms by means of which the spectator realizes, both perceptually and motorically (as these are visuomotor processes), that the pictorial space is something emerging from the marks of the depicted surface, produced by means of specific of skillful motor acts of the painter. The visual representation of these motor acts constitutes the basis for the appreciation of the pictorial content as the result of a sort of human *poietic* expertise in the artistic manipulation of the surface as a material design.

Motor representations, thus, play a crucial role in, and are important representational components of *aesthetic* appreciation of pictures, in which the surface is visually represented as the concrete bearer of the visual significance of a pictorial space. Indeed, motor representations – related not to the spectator's own potential action concerning the picture, but to the act of painting of the artist – permit us to understand how what is visually elaborated on the surface is the result of an ensemble of marks made by the motor acts of the painter on such surface. And motorically representing these acts allow us to enter *aesthetic pictorial* appreciation. Or, we might say, *Aesthetic Appreciation* of pictures is *Motoric Aesthetic Appreciation*.

The conclusion of the analysis of the empirical results above discussed is that the motor mechanisms related to action processing have a special role in order for the spectator to achieve both *correct pictorial experience* and *aesthetic pictorial* appreciation.

A final clarification on the purpose of this paper is needed. As the reader can realize, I have not been offering any strict philosophical argument to defend the thesis I propose here as following from the evidence discussed. But remember that the present paper, *qua* manifesto, simply wants to flag some important and fruitful routes for the philosophical literature, whose specific theoretical pathways, however, should be analysed under a more specific philosophical scrutiny.

In this respect, there are many ways in which the thesis proposed in this paper might be spelled out and defended, especially with respect to the specific interpretation we decide to offer in order to describe the experimental results that are significant for such a thesis.

The scope of the present paper was precisely to suggest that we have enough empirical evidence to suppose that motor processing plays an important role in aesthetic appreciation. But this is a very general thesis. I have suggested some more specific ways of looking at this thesis, and with respect to the literature on picture perception, on the basis of the experimental results we can dispose of. Like several sets of evidence used to defend a philosophical claim, however, also those will need an initial conceptual clarification and a philosophical analysis. This indeed will be important if we want to explicitly show how the experimental results from neuroaesthetics can be precisely used in order to defend a specific philosophical claim, and not a very general idea, with respect to the many others we could cash out from them, and in relation to the general thesis flagged in this paper.

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Perceiving Images and Styles

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Abstract Marks individually or in combination constitute images that represent objects. How do those images represent those objects? Marks vary in style, both between and within images. Images also vary in style. How do those styles relate to each other and to the objects that those images represent? Referencing a diverse range of images, we answer the first question with a response-dependence theory of image representation derived from Mark Johnston, differentiating Lockean primary qualities of marks from secondary qualities of images. We answer the second question with a perceptual theory of style derived from Paul Grice, differentiating physical style from image style, and representing conventionally from representing conversationally.

Keywords Image. Implicature. Representation. Response-dependence. Style.

Summary 1 Representation as Response. – 2 Representational Style as Conversation. – 3 Principles and Maxims.

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Slash a pencil across a sheet of paper and a graphite streak is left by the tip. The streak may represent a tire skid from a bicycle tire on a driveway or the water edge along a river bank or a distant desert horizon. Then it is both a specific, singular graphite streak and an image of something else – something represented by the streak that can be drawn repeatedly and be represented by other, different graphite streaks or marks altogether. The graphite streak *qua* physical mark is easy to understand: it is simply itself. The object that it represents – tire skid, water edge, horizon – presents a puzzle. How does a mark represent what it represents? Now vary the streak. Press down more lightly or heavily on the pencil, or make the streak choppy rather than straight or dotted rather than continuous. The mark may still represent a tire skid, and so would still be a specific, singular representation of something repeatedly representable by other marks. Yet now it represents the tire skid differently. How does the style of a mark relate to what the mark represents?

Referencing a diverse range of images – fine-art paintings to comics – we propose a unified response-dependence theory of image representation and implicature theory of its relation to image style.

1 Representation as Response

According to Charles Sanders Peirce ([1867] 1984, 56), the key to representation is resemblance. The graphite streak represents the bicycle tire skid because in some ways it looks like it. Peirce calls such resemblance-based images 'likenesses' or 'icons'. According to Ernst Gombrich (1960), however, the graphite streak need not resemble a tire skid, because the artist and perceiver agree in a game of visual make-believe that it is a tire skid, and Kendall Walton (1990) maintains that all fictional representation, or mimesis, involves make-believe. Peirce calls such things as Gombrich's and Walton's sanctioned non-resemblance-based images 'symbols'. Walton himself calls all marks, represented via resemblance or not, 'props'. If the symbol game or prop make-believe expands to include other graphite streaks made by other artists and perceived as tire skids by other perceivers, then Nelson Goodman (1976) calls them 'customs' and argues that tire-skid customs explain the streak's ability to represent a tire skid.

Whether likenesses or icons, symbols or props, or customs, images are often images of something.[1] They are representational. As rep-

1 Images representing nothing are sometimes called 'abstract'. But 'abstract' denotes at least two different kinds. An 'abstract painting' often denotes a painting without a specific represented object, such as Jackson Pollock's action paintings and Mark Rothko's field paintings. 'Abstract' also often denotes representational style, where degrees of 'abstraction' refer to how images alter what they represent. Though all images, even pho-

resentational, we maintain, images can be explained with the notion of response-dependence. Mark Johnston (1989) coined the term 'response-dependence' to generalize John Locke's (1689/1979, II.8) analysis of secondary qualities, while 'response-independence' generalizes Locke's analysis of primary qualities.[2] According to Locke, an object is solid if and only if its physical (Locke's "corpuscular") composition makes it solid. Being solid is a primary quality. Because it is instantiated by an object individually, or response-independently, being solid is a monadic property. Something is or is not solid *simpliciter*. Conversely, according to Locke, an object is red if and only if a suitable subject under suitable conditions would respond to the object as being red. Being red is a secondary quality. Because it is instantiated by an object relative to a subject, or response-dependently, being red is a dyadic property. Something is or is not red *relative to a responder*. Elsewhere one of us (Goldberg 2015, ch. 7) proposed a response-dependence analysis of meaning in a language. Both of us (Goldberg, Gavaler 2021, ch. 2) then proposed a response-dependence analysis of diegeses – stories communicated by marks arranged as words. We now extend this response-dependence analysis to images. Though words are also a kind of image, we focus on images without direct linguistic meaning. Indeed, elsewhere (Goldberg 2015, ch. 7; Goldberg, Gavaler 2021, ch. 2) we did apply this analysis to words, and offer the present analysis as complimentary with it.

Physical marks *qua* physical rather than representational, we maintain, are response-independent like Lockean primary qualities. Conversely, images, and so physical marks *qua* representational, are response-dependent like Lockean secondary qualities. An object is a physical mark *qua* physical if and only if its physical (molecular, atomic, sub-atomic, etc.) composition makes it a physical mark. Because it is instantiated by an object individually, or response-independently, being a physical mark is a monadic property. Something is or is not a physical mark *simpliciter*. Conversely, a physical mark is an image of something if and only if a suitable subject under suitable conditions would respond to the mark as representing that thing. Because it is instantiated by a physical mark relative to a subject, or response-dependently, being an image is a dyadic property. Something is or is not an image *relative to a responder*.[3]

tographic ones, alter, 'abstraction' in this sense refers to variations on apparently unmediated optic experience. We reserve 'abstract' as describing representational style.

2 Other response-dependence theorists include David Wiggins (1998), Crispin Wright (1999), Philip Pettit (2002), Nathaniel Goldberg (2015), and Nathaniel Goldberg and Chris Gavaler (2021).

3 Because we have understood images as representational, our analysis might seem circular or trivial. There are three reasons that this is neither. First, we follow Locke and Johnston in identifying a property of an object with a response of a subject to it.

Our analysis nevertheless differs from Locke's and Johnston's. For them, a suitable subject under suitable conditions is a normal human being under normal conditions. A color-blind responder, a non-color-blind responder in the presence of a black light, and any other non-standard subject or condition are not reliable determiners of something's being red. What an object's color is is anthropocentric – centered on paradigmatic human perceivers and conditions. Though there are outliers, there is often near-unanimity that a certain object is a certain color. For ours, the subject is whoever perceives the mark and the conditions are under whatever conditions that they perceive it. (Nor is this circular or trivial, for the same three reasons as above.) Thus suitability is satisfied by any specific perceiver under specific conditions rather than any normal human being under normal conditions, and so is particularized. What an image represents is idioentric – centered on individual perceivers and conditions. Though there often is agreement, disagreement is common too. The same graphite streak can represent a tire skid, water edge, and horizon to different perceivers. It can even represent all three to the same perceiver at different times, as Gombrich's example of the rabbit/duck optical illusion discussed below demonstrates.[4]

Idiocentrism does not imply anarchy. Perceivers often perceive the same mark similarly. They may even perceive the mark as its creator does, though this is not guaranteed. There is reason to privilege how the creator perceives it, and our response-dependence analysis can accommodate that by regarding the creator not as a creator *per se* but as an important responder. The bodily index or action residue of the creator, while likely resulting from creative intentions, accounts for the marks and not necessarily any image that the creator perceives while creating them. The creator's responses to the physical marks rather than their intent itself makes it an image representing something.

Recall our example of the graphite streak and tire skid. On our analysis:

Locke's, Johnston's, and our claims are informative. Second, response-dependence claims hold of only some properties. Locke's analysis of being a color and ours of being an image contrasts with his analysis of being solid and ours of being a physical mark, respectively. Each of the former, therefore, as distinct from each of the latter, respectively, is a substantive claim. And third, we follow Johnston (1989, 174; 1993, 105-6) particularly in understanding all response-dependence biconditionals as aiming at conceptual elucidation rather than reduction or elimination. Rather than a vice, it is a virtue of such analyses that being red is identified with being responded to as red and that being an image, or representation, is identified with being responded to as an image, or representation, respectively.

4 See Goldberg (2015, ch. 3) on anthropocentrism and idiocentrism.

(1) The graphite streak, though *representing* a tire skid, is a physical mark.
(2) The tire skid, *as represented by* the graphite streak, is an image.

(1) and (2) involve the same physical mark. In (1), the mark is instantiating a response-independent property. It is only a mark. In (2), the mark is instantiating a response-dependent property. It represents a tire skid relative to a responder – i.e., a perceiver. Other examples illustrate this further.

Chuck Close's 1985 *Fanny/Fingerpainting* is composed of Close's fingerprints applied to in gray oil paint to canvas. Most perceive the 8.5-by-7 work as a photorealistic image representing the artist's grandmother-in-law, Fanny Lieber. Overlapping clusters of fingerprints are perceived as representing darker areas of her face. Marks themselves – whether Close's fingerprints or, to use other examples, Vincent Van Gogh's impasto brush strokes, George Seurat's pointillistic dabs, or Kara Walker's black paper cut-outs – instantiate response-independent properties. The image of Fanny Lieber, as well as of the field in Van Gogh's 1888 *View of Arles with Irises*, the public park scene in Seurat's 1886 *A Sunday Afternoon on the Island of La Grande Jatte*, and the sequence of silhouettes in Walker's 1994 *Gone: An Historical Romance of a Civil War as it Occurred b'tween the Dusky Thighs of One Young Negress and Her Heart*, respectively – instantiate response-dependent properties. This is so even though perceivers may perceive Close's fingerprints – as well as Van Gogh's strokes, Seurat's dabs, and Walker's cut-outs – differently.

The mark/image distinction is not uncommon. Some have analyzed it similarly to how we have, though no one has offered a response-independence/response-dependence analysis in full or in conjunction with our implicature analysis of style, which follows. Thierry Groensteen acknowledges that drawings in comics "obey criteria that are just as much visual as narrative", or, as we would put it, just as much physical (or response-independent) as representational (or response-dependent). Groensteen also claims that these "two orders of preoccupation sometimes superimpose themselves to the point of indistinction" (2007, 4), though we disagree. An object's physical and representational properties, while simultaneously comprised of and produced by the same marks (in the latter case, relative to a perceiver), are always distinct. Neil Cohn poses a question distinguishing mark from image: "what aspects of the *visual surface* allow for inferences to be generated in the *situation model*?" (2019, 4). Cohn however avoids answering by later claiming that "the *graphic structure* depicts the surface form of the visual utterance (lines, shapes). This representation links to the meanings of the unfurling actions and events of" a comic strip (2019, 7). By calling "lines, shapes" a "rep-

resentation", Cohn does not address how those lines and shapes can represent anything. Switching the order of their members, John Willats comes closer to our analysis when distinguishing representational primitives, "the smallest units of meaning available in a representation", which would be response-dependent, from physical marks, "the actual physical features on the picture surface used to represent the primitives" (2006, 8), which would be response-independent. Similarly, Richard Wollheim describes the seeing-in experience of images, which is constituted both by the configurational fold, in which the image's marks are grasped, and by the recognitional fold, in which the image's subject is grasped: "the two aspects are indistinguishable but also inseparable" (1987, 46). Yet a perceiver may attend to marks – noting the length and thickness of individual lines, for instance – without perceiving those properties representationally, and so marks are always distinguishable and separable. The graphite streak and the tire skid are not identical. One instantiates a response-independent and the other a response-dependent property.

2 Representational Style as Conversation

An image represents what it does by a perceiver's perceiving its physical marks as in some way related to the represented object. The nature of the relation may be understood from a range of theoretical angles. Though resemblance may be the most common, we do not privilege it. Wollheim's seeing-in, for example, is equally applicable.[5]

Unless an image is a perfect replica, it must, according to Gombrich, "involve some degree of 'abstraction'" (1963, 1). For a physical mark to

5 The term and its meaning, however, vary. Stuart Medley contrasts 'abstraction' with 'realism' (2010, 67), noting how "most comics artists tend to draw and ink their worlds" (56) with "some degree of abstraction away from realism, clear outlines, flat colours, reliance on closure, a tendency towards caricature" (68). Medley also observes 'distillation', meaning "*some removal of realistic detail*" (2010, 53). Itamar Berger's study concludes that the styles of artists who demonstrated higher degrees of "abstraction" drew "fewer, longer, and more complex-shape strokes … instead of many short simple ones" (2013, 9). Similarly, Pascal Lefévre describes a drawing's degree not of 'abstraction' but of 'deformation' as measured against "normal proportions". Referring to a line as a 'factor' of graphic style, he asks: "What kind of lines dominate the image (rectangular or rather rounded lines; clear, crisp lines or rather vague, 'hesitant' lines)?" (2016, 75). Even an image that represents an object as a set of highly realistic lines involves abstraction. As Bilge Sayim and Patrick Cavanagh explain, "In the real world, there are no lines around objects", but "lines trigger a neural response that … lets lines stand in for solid edges" (2011, 1). Douglas Wolk calls an artist's line not an 'abstraction' or 'deformation' but "an interpolation, something the cartoonist adds to his or her idea of the shape of bodies in space" (2007, 123). Nonetheless, similar to Lefévre's 'deformation', Wolk continues: "every object's form is subject to interpretive distortion.… A consistent, aestheticized distortion, combined with the line that establishes that distortion, adds up to an artist's visual style".

be an abstraction, it must abstract from the object it is perceived to represent. No physical mark (excluding perfect replicas) when perceived as an image ever completely corresponds with what it represents. Nonetheless physical marks can be rendered in different ways from one another and still be perceived as representing the same object. Those different ways amount to different styles. And style conveys information. Will Eisner argues that "art style tells the story" through its "emotional charge", producing a "psychic transmission" that expresses "mood", "ambience", and "language value" (2008, 149, 153). John Henry Pratt claims that artistic styles "create a mood, give the emotional context of a scene or story, increase or decrease the drama of a moment, and so on" (2009, 110).

But Eisner and Pratt describe the effects of style, not the marks possessing the styles that produce those effects. Focusing on marks, does style apply to (1) or (2), above? Were style only physical properties of marks, then it would divide into the kind of optical illusion Gombrich applies to the mark/image relation:

> is it possible to 'see' both the plane surface and [represented object] at the same time? If we have been right so far, the demand is for the impossible. To understand the [represented object] is for a moment to disregard the plane surface. We cannot have it both ways. (1961, 279)

Gombrich offers the analogy of a rabbit/duck optical illusion: "instead of playing 'rabbit or duck'", perceivers of an image play "the game of 'canvas or nature'" (1961, 29).

The example is imperfect because rabbit and duck are each "nature", while marks comprising both are "canvas". Imagine instead Picasso's 1945 eleven-lithograph series *The Bull*.

Each image varies in style, requiring a perceiver to differentiate between response-independent properties of the marks and response-dependent properties of the image representing the bull. "Style", Barbara Postema argues, "in effect ceases to be style, since it is no longer a superficial surface matter" (2013, 122). Though an apparent property of the physical marks on the surface of the canvas, style ceases being response-independent.

Style then comes in two kinds. There are *physical* styles, or physical properties of physical marks. In the case of our graphite streak, one physical style is shape. Like their marks, physical styles are response-independent. A physical style is a physical property if and only if its composition makes it that property. Something is or is not a physical style *simpliciter*. Conversely, there are *representational* styles, or representational properties of images. In the case of our graphite streak, the physical style of shape may resemble the representational style of shape. The shape of how the marks are drawn may look like the

shape of the perceived tire skid. Like their images, representational styles are response-dependent. A representational style is a representational property if and only if a suitable subject under suitable conditions would respond to physical style as representing that property. Something is or is not a representational style *relative to a responder* – again, a perceiver.

Thus on our analysis:

(1) The shape of the graphite streak, though *representing* the shape of the tire skid, is a physical style.
(2) The shape of the tire skid, *as represented by* the shape of the graphite streak, is a representational style.

(1) and (2) involve the same physical style. In (1), the style is instantiating a response-independent property. It is only physical. In (2), the style is instantiating a response-dependent property. It represents the shape of the tire skid relative to a responder.

How does a perceiver perceive a physical style as a particular representational style, especially insofar as it abstracts from the represented object? Physical properties cannot be entirely separated from the physical marks instantiating them. Graphite streaks are either more or less straight and cannot be neither. Nonetheless, insofar as we can speak of what graphite streaks of different shape – or other physical styles – share, we can speak of a physical mark independent of its physical style. That allows us to anticipate an answer to our second opening question: How does a (representational) style of an image relate to what it represents? A representational style of physical marks, we maintain, relates to the resulting image either conventionally or conversationally. Hence, while an *image* represents what it does response-dependently, the representational *style* of the response-dependent image can be either conventional or conversational.

Physical marks, recall, may represent an object according to or not according to resemblance. The same is so of their physical style. Consider two cases of perceiving a graphite streak as a tire skid. First, the shape of the graphite streak, part of its physical style, is more curved than straight. Since the shape of a tire skid can also be more curved than straight, relative to the perceiver the physical style can *conventionally* represent the shape of the tire skid. The representational style can be inferred more or less from the physical style directly. Second, the shape of the graphite streak is instead composed of small overlapping circles. Since the shape of an actual tire skid would not be composed of small overlapping circles, relative to the perceiver the physical style does not conventionally represent the tire skid. It either represents nothing – it is a kind of artistic flourish with no representational content – or represents something nonconventionally. In the context of the "conversation" that the image

is part of, the perceiver perceives the physical style as representing the tire skid produced perhaps by the tire's quivering halts. Relative to the perceiver, the physical style *conversationally* represents the shape of the tire skid as such even though no actual physical property of a tire skid resembles small overlapping circles. The representational style can only be inferred in conversational context and not from the physical style directly.

The distinction between conventional and conversational representation roughly mirrors Paul Grice's (1975) distinction between conventional and conversational implicature. According to Grice, language users convey the meaning of words in two ways: conventionally when communicated by the words themselves, and conversationally when communicated by those words in conversational context. According to us, perceivers perceive the representational style of a physical style in one of two ways: as representing conventionally and as representing conversationally.[6] Though he speaks of 'conventional' and 'conversational', we suspect that Grice's distinction is degreed. We intend ours to be, since inferring more or less directly or indirectly is degreed.

Discerning whether a physical style represents conventionally or conversationally is not always straightforward. The same physical style may be perceived as different representational styles by different perceivers.

Childe Hassam's 1917 *Flags in the Rain* includes U.S. flags displayed on New York streets. Though physically the stripes are gray and orange, a viewer may perceive their color properties conversationally – within the conversation of images of flags generally and the U.S. flag specifically – as representing white and red. Perceivers may instead perceive those properties conventionally: because of the rain, distance, or movement of the fabric, the red and white stripes looked orange and gray to Hassam and so he produced that effect.

Viewers of *Flags in the Rain* likely perceive it as a representation of reality – our reality. Images can also represent other realities – fictional ones. A visual work of fiction (such as many comics, but also the oil paintings of Lynette Yiadom-Boakye) leaves unclear whether physical styles represent conventionally or represent conversationally via context through an inferred break from appearances in the fictional reality. With caricatures of real-world people, physical styles represent exaggerated details conventionally when outside the range of anatomical possibility and conver-

6 Elsewhere (Gavaler, Goldberg 2019, ch. 7) we speak not of 'perceiving a representational style' conventionally or conversationally but of a 'depiction' as being conventional or conversational. Catharine Abell (2005, 2009) speaks of conventional or conversational 'implicatures of depictions'.

sationally when inside that range. To identify plausible exaggerations, perceivers need to reference the subject's actual face, which is impossible if the subject is fictional. If the fictional world allows anatomical possibilities impossible in the actual world, then representational style is ambiguous – it could be conventional or conversational – since it could depict details that may or may not be instantiated by the objects represented.

Roy T. Cook's "panel transparency principle" apparently entails that fictional comics images represent only conventionally: "Characters, events, and locations within a fictional world described by a comic appear, within the fictional world, as they are depicted in typical panels within that comic" (2012, 134). This assumes that the images have the "special causal and structural relationship with the reality that they represent" that W.J.T. Mitchell dismisses for photographs. Though cartoon objects are impossible in our reality, their transparently drawn properties may represent properties conventionally in their cartoon reality. A drawing of Charlie Brown may have a round head roughly half his height because in his cartoon world Charlie Brown has a round head roughly half his height.

Cook's conclusion follows only if the image represents a world with different natural laws from ours. Fictional worlds with greater similarity to ours pose a different problem. Consider Julie Maroh's use of color in her 2010 *Blue is the Warmest Color*.

While Maroh paints a full range of realistic watercolors for events in the graphic novel's current time period, past events are gray except for isolated blue objects of emotional interest to the main character. Grays and blue then should be perceived as representing conversationally.

In fine arts, Matisse's 1905 *Woman with a Hat* marked the start of Fauvism, which featured what would likely be perceived as a nontransparent and so conversational representation of color following what Joseoph Witek terms a cartoon ethos of representing reality through "an associative or emotive logic" rather than realistic observation (2012, 30). Associative and emotive logic depend on conversational context.

Works of visual nonfiction pose a further problem for transparency because images can never be understood absent representational style. That is because, to recur to Gombrich, they "involve some degree of 'abstraction'" (1963, 1). Drawings, especially highly abstract and cartoonish ones, do not represent their subjects through exact similarity. Rather than being transparent in Cook's sense, images in nonfiction images are unambiguous representations of reality rendered in particular physical styles perceived as particular representational ones. And no representational style duplicates reality transparently or perfectly. When Alison Bechdel draws her and her family's mouths as single dots in her 2006 *Fun Home*, a viewer like-

ly does not perceive the actual individuals conventionally as having such impossibly proportioned mouths. Bechdel's physical style likely is perceived as a representational style in the conversational context of the images that those and other marks are perceived as being. Nor do perceivers conversationally perceive Art Spiegelman and his family as having the heads of mice as they appear to in *Maus* even if conventionally they would perceive them as such.

Sometimes an object can make use of one physical style perceived as a representational style conventionally and another physical style perceived as a representational style conversationally.

In Kehinde Wiley's 2018 portrait of Barack Obama, most perceive the central object as a seated figure, whose style is perceived conventionally as representing Barack Obama. Yet most also perceive the wallpaper-like array of partially overlapping objects surrounding it not conventionally but instead conversationally as foliage – since conventionally the representational style defies norms of realism.

Cook later revised his views on comics transparency: "our access to the physical appearance of drawn characters in general is indirect, partial, inferential, and imperfect" (2015, 25). While his earlier view seemed to be that fictional comics images represent only conventionally, now it seemed to be that they do so only conversationally – since indirectness, partiality, inference, and imperfection are perceived correctly only within conversational context of images. We think that Cook should accept the disjunction of his views. A physical style can be perceived as a representational style conventionally or conversationally.

3 Principles and Maxims

Since some physical styles are perceived as representing conventionally and others conversationally, under what conditions does each occur? We alluded to the answer above, though recurring to Grice makes it explicit. Grice claims that communication by means of words requires that speakers generally follow the Cooperative Principle: "Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged". When speakers apparently violate ("flout") the principle by not using words conventionally (such as asking someone what time it is by asking whether they *know* what time it is), they often are using them conversationally. We claim that communication by means of images requires that perceivers follow an analogous perceptual principle based on the assumption that the images are meant to communicate representational content: "Make your contribution such as is required to perceive marks as representing something, at the stage at which it occurs, by the accepted purpose or direction

of the image exchange in which you are engaged". When perceivers apparently flout the principle by not perceiving physical properties conventionally (such as tire skids being represented as small overlapping circles), they often instead perceive them conversationally. Grice provides four subsidiary maxims for his principle. Each suggests an analogous perceptual maxim. While a perceiver often flouts more than one simultaneously, we introduce each individually.

Grice's Quantity maxim states: "Make your contributions as, but only as, informative as possible".

Marisa Acocella Marchetto's 2006 graphic memoir *CancerVixen* represents the author with loosely hand-drawn outlines and blocks of solid color. A viewer of the actual Marchetto would perceive a range of additional details regarding her anatomy and clothing, including depth, shadows, and fabric folds. Perceiving the physical style of the shapes and colors as representational style conventionally flouts Quantity's perceptual analogue: the perception of Marchetto is not as "informative as possible". The paucity of detail is perceived instead as representing Marchetto conversationally. Images can also be perceived as overspecified when an artist employs a physical style conventionally perceived as interpolating or inventing details.

When drawing "Stepfatherly Counsel" from her 2001 graphic memoir collection *A Child's Life* (53), Phoebe Gloeckner draws her stepfather's sweater with meticulous precision, apparently creating individual threads of fabric. The patterned weave of the couch is similarly precise. Is such precision depicting Gloeckner's photographic memory or a conglomerate pattern of events? If the second, then not only is the sweater and couch fabric overspecified, but the figures are too. Gloeckner must draw them in postures of some kind, but not necessarily as they were ever actually seated in the autobiographical moment represented. Flouting Quanity when perceiving the image conventionally, perceivers likely perceive Gloeckner's representational style conversationally.

Grice's second maxim, Quality, states: "Try to make your contribution true".

Regarding her 2002 graphic memoir *One! Hundred! Demons!*, Lynda Barry asks: "Is it autobiography if parts of it are not true?" (2017, 7). The parts that apparently "are not true" include Barry's cartoons of her mother rendered in a physical style that if perceived as a representational style conventionally would have anatomically impossible traits (2017, 95). Perceiving the physical style as a representational style conventionally flouts Qaulity's perceptual analogue: "Try to make your perception true". Henri Matisse's 1905 *Woman with a Hat* includes bright unblended swaths of green, yellow, and purple representing the colors of the figure's face and clothes despite also contradicting them. Since Matisse was painting from a model (his wife, who by one account was dressed in black), perceiving his

physical style involving color conventionally as a representational style contradicts the model's actual appearance. Only perceiving it conversationally avoids flouting the perceptual analogue of Quality.

Grice's Manner maxim states: "Be perspicuous by avoiding obscurity and ambiguity and striving for brevity and order". At a midpoint between Close and Matisse's portraits, Miriam Libicki captions a cartoonish illustration of herself: "You are unlikely to recognize Miriam Libicki on the street, with these drawings to go on" (2016, 48), though her realistic watercolor self-portraits elsewhere in the same collection represent her primarily through similarities (2016, 6, 32, 64, 65, 71, 76, 89). Still, her simplified line-drawing appears as if it could be roughly accurate in terms of line shape, though reduced in detail and so flouting Quantity as discussed above. If so, might not the image still be adequate to recognize her? Perceiving the physical style of various sets of marks all as Libicki's contradictory self-portraits flouts the perceptual analogue of Manner by not "avoiding obscurity and ambiguity". Which of the contradictory details are most accurate and which least? The perceiver cannot know. Libicki later explains that she varies physical styles to vary their perceived representational styles depending on her desired degree of subjectivity:

> I found that [naturalistic watercolors] communicated verisimilitude, and was suited to more journalistic pieces (and to more lyrical open-endedness as opposed to rhetoric). Cartooniness, on the other hand, is more immersive (if it's done well), because the reader has to collaborate by translating the "shorthand" of simplified designs back into their real-life referents. Photo-real paintings don't "put pictures in your head" because the picture is already there on paper. I think working in nonfiction means I get to decide whether something is better depicted "subjectively" or "objectively" or a point in between. (2020)

A perceiver having to "collaborate by translating … back into their real-life referent" involves response-dependence. Conversely, "the 'shorthand' of simplified designs" is a kind representational style, and subjectively/objectively parallels conversationally/conventionally.

Though Grice's maxims provide insight into why responders perceive styles as they do, there is no uniform response to physical styles across different works resulting in a consistent set of representational styles, conventionally or conversationally. Scott McCloud asserts that "all lines carry with them an expressive potential" (1993, 124), but what is expressed is perceived not only individually, but also case by case, by each individual. Simon Grennan is impressively precise when measuring physical styles, observing that the line Mike Mignola uses in *The Right Hand of Doom* "is invariably 5 pixels wide, including the line that outlines panels, speech balloons,

thought bubbles and narration" (2017, 185), but the representational style that one likely perceives is not correlated with any clear or consistent property. Thin straight lines may suggest a range of representations, even within a single image. Concerning Barry's "Red Comb", Hillary Chute observes: "The frame is shaded with thin black horizontal lines behind the leaves; this darkening effect appears to indicate evening, or night – or, an alternate temporality, a recollected event" (2011, 284).

Catherine Khordoc observes that in Albert Uderzo's *Asterix* "the line of certain [speech] balloons is jagged, suggesting a tone of voice which is not steady and calm, but rather, shocked or angry" (2001, 163). But perceivers do not always perceive the jaggedness of lines as shock or anger. Identically jagged lines in another image might cause different perceivers or even the same perceiver to perceive alertness or playfulness. Reviewing David Beauchard's graphic memoir *Epileptic*, Andrew Wilson describes the artist's "quivering, quavering world", claiming that "the tension between David's self and reality charges his sinuous, nervy line" (2005), but the causality is reversed: the physical style creates that representational style. Stephen Tabachnick cites Wilson's description of *Epileptic*'s world, attributing the adjectives to the artist's style: "Beauchard's 'quivering, quavering' drawing line … captures his shaky psychological world" (2011, 105). The interchangeability reveals how represented objects influence interpretations of representational styles, and vice versa, suggesting that no generalized theory of style can emerge.

Thus, while an image represents what it does because a perceiver responds to its physical marks by perceiving them representationally as such, the perceiver perceives a mark's physical style as a representational style conventionally if the representational style can be inferred more or less from the physical style directly, and conversationally if it cannot be. Because images typically consist of multiple marks each with its own physical style, a multi-mark image then may represent both conventionally and conversationally as a whole.[7]

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Neuroimaging. How to Question Scientific Images and Their Artistic Value

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Abstract Unquestionable holders of aesthetic content, images have a well-known role even in conveying scientific knowledge. In the present work, we focus on the epistemological role of images within neuroscience. We first analyze the concepts of representation, similarity, and informativeness. Second, we discuss relevant case studies, i.e., images by functional Magnetic Resonance Imaging, and how the pictorial interventions commonly applied to them might have an impact on their informational content. Finally, we explore the notion of imagination as a relevant faculty for modelling neuroscientific theories and the concept of creativity as an instrument to aesthetically modify brain images. These manipulations enable images to achieve the scientific purpose, altering the relation of similarity between the image and the studied phenomenon. In conclusion, this process leads to rethinking the role of the neuroscientist as an active observer.

Keywords Informational images. Denotation. Scientific models. Brain Imaging. fMRI. Neuroscience. Visual Studies. Imagination. Mental Imagery.

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1 Introduction

Images are ubiquitous. Central in many areas, such as art history and visual studies, they have been widely investigated as vehicles of aesthetic content as well as scientific knowledge (Elkins 1995; Bredekamp 2003; Hentschel 2014). By way of example, images have been explored as crucial for media studies (Ott, Mack 2020), learning (Bilbokaitė 2008; Smith 2008), and as a fundamental subject in the mental imagery debate in cognitive sciences (Kosslyn, Thompson, Ganis 2006; Richardson 2013). Indeed, the use of images within scientific disciplines has always been remarkable. Scientists often present the topics they investigate by relying on images for visualizing and modelling natural phenomena when not directly available to the senses. Neuroscience is a prototypical example of this. For instance, we refer to neuroscientific imagining techniques such as structural and functional Magnetic Resonance Imaging (MRI and fMRI, respectively), Positron Emission Tomography (PET), and Computed Tomography (CT) scan which allow researchers and clinicians to study the inner structures of the human brain by means of images.

In the last decades several studies have addressed the impact of neuroimages and related techniques in cultural and visual studies (Prasad 2005; Casini 2011; 2015; 2020; Stephens 2012; Hentschel 2014), and assessed how scientific knowledge can be conveyed through neuroimages, by questioning their epistemological nature (Roskies 2007, 2008; Schweitzer et al. 2011; Dumit 2014). In particular, an aspect critically pointed out by such literature (e.g., Roskies 2007) is that the relationship of resemblance occurring between neuroimages and the natural phenomena they describe (e.g., brain functioning) does not bear *per se* any informational value. However, by analysing the conceptual connections between the notions of representation and resemblance, it could be possible to further understand the scientific informativeness of neuroimages. That is, whether such an informational value is determined by specific technical aspects or can be even related to conscious pictorial intervention of the scientist, and if the researcher's imagination (or mental imagery) may play a role in defining instruments for the transmission of neuroscientific knowledge.

Throughout the present article, we will try to approach such issues. First, starting from a general philosophical analysis of the notion of representation (section 2), we will retrace Nelson Goodman's argument concerning the theoretical independence between this concept and the one of resemblance (or similarity). Then, by specifically focusing on scientific images, we will examine how their informational value represents a relevant factor for understanding their relationship with the depicted phenomena. To do that, we take into account the notion of 'informational images' introduced by the art critic and

art historian James Elkins (1995) whose work on scientific images has opened the field of visual studies of science.

Then, in section 3, we will question the epistemological role of fMRI images by taking into account some examples from published neuroimaging literature as case-study. This part of the paper is devoted to explain how neuroimages are created and can be manipulated by scientists in order to become effective vehicles of neuroscientific theories. From this analysis, a point should be evident: the process of neuroimages production is multifaceted and the scientist decides to directly and deliberately intervene on it, independently from the technological advances of MRI technique. Such manipulations tend to alter the visual and aesthetic properties of the images in order to make them more informative. Therefore, in section 4, we plan to explore the potential contribution of the neuroscientist's imagination and creativity. We sketch two potential directions. The first one is that neuroimages are not just visual reproductions of a certain natural phenomenon, but (visual) scientific models of the theory they convey. In this respect, imagination will be discussed as central in the construction of scientific models, according to the debate already tackled in philosophy of science (Toon 2016; Frigg 2010; Frigg; Reiss 2010; Salis; Frigg 2020). The second direction, instead, sheds light on the possible intersection between artistic and neuroscientific images. Indeed, a fruitful dialogue may exist between the creativity and the aesthetic manipulations applied on (neuro)scientific images and artworks inspired by scientific processes (Stokes 2016; Gaut 2003; 2010).

2 Representation, Resemblance, and Informativeness of Scientific Images

Consider the portrait of Queen Elizabeth II and Queen Elizabeth II herself. Intuitively, one can argue that the portrait represents the Queen if and only if the portrait resembles the Queen. In other words, it appears that the concepts of representation and (pictorial) resemblance or similarity are strictly connected and, furthermore, that the definition of the former depends on the definition of the latter. However, that is not the case, as demonstrated by the American philosopher Nelson Goodman whose work (e.g., Goodman 1976) has greatly influenced the investigation of the concept of symbolization both in art and philosophy of language.

In the rest of the chapter, we first follow Goodman's (1976) conceptual analysis to shed light on the relationship between the concepts of representation and resemblance with regard to images in general. Second, by specifically referring to scientific images, we take into account the notion of 'informational images' introduced by James Elkins (1995). The resulting general framework about the conceptu-

al interdependencies occurring between the notions of representation, resemblance, and informativeness will be useful to approach the case-study of neuroscientific images discussed in the next section.

From a logical point of view, the notions of representation ('R') and resemblance ('S') can be represented as binary relations occurring between two objects of any sort 'x' and 'y'. From now on, we adopt the notations 'xRy' to state that 'x' represents 'y', and 'xSy' to state 'x' resembles 'y'. Then, by assuming that 'a' is the portrait of the Queen Elizabeth and 'b' is the Queen Elizabeth herself, we can reword the relation between the portrait and the Queen as 'aRb' if 'aSb', that is, object 'a' engages a relation of representation with object 'b' if and only if 'a' is similar to 'b'.

The first Goodman's clarification about representativeness and resemblance regards whether both the two relations are reflexive and symmetric. For instance, 'being brother' is a symmetric, but irreflexive relation, while 'being equal' is a relevant case of both reflexive and symmetric relation. Therefore, in general, for every binary relation 'G', to be reflexive over an object 'x' means to relates to 'x' itself, i.e., 'xGx', while to be symmetric over two objects 'x' and 'y', means that if 'G' occurs between 'x' and 'y', then 'G' occurs between 'y' and 'x', i.e., 'xGy iff yGx'.

Goodman points out that while the relation of resemblance is both reflective and symmetric, the relation of representation does not. An object 'a' resembles itself to the maximum degree, but it is not the case it represents itself (Goodman 1976, 4). Then, in symbols, while 'aSa' seems to state a meaningful relation, 'aRa' does not. Furthermore, concerning symmetricity, for two objects 'a' and 'b', it is true that if 'a' resembles 'b', then 'b' resembles 'a', but it is not the case that if 'a' represents 'b', then 'b' represents 'a' (Goodman 1976, 4). For instance, the portrait of Queen Elizabeth of course resembles Queen Elizabeth, and the other way round, the Queen resembles the portrait of her, but we would not say that Queen Elizabeth represents her portrait, even though the portrait of Queen Elizabeth represents the Queen. Therefore, while 'aSb' seems meaningful, 'aRb' does not.

Then, the relations 'S' and 'R' do not share the same properties, and this is the first evidence for arguing that resemblance is not a sufficient condition for representing. Indeed, two different portraits of the Queen may perfectly resemble each other, but it is not a sufficient condition to conclude that they represent each other. Moreover, 'S' appears not even necessary for determining 'R', indeed, a linguistic description of an object has not to be to some extent (pictorially) similar to the object it describes for referring to it. This last example, however, can be useful to correctly understand what the relation of representation actually is. According to Goodman, representing

means being a sign of, i.e., denoting. Then, denotation[1] is what actually characterizes the relation of representation discussed so far. Denotation is a broad notion, encompassing every kind of sign. Linguistic expressions as well as images can simply denote because they are signs through which we refer to objects. Therefore, the relation of representation should not be understood anyway, but as a particular kind of denotation occurring between a sign (e.g., a linguistic or pictorial sign) and its reference (e.g., an object).[2] Moreover, the relation of representation, or denotation, drawn between a sign and its reference can be considered as conventionally fixed, that is, originated by the symbolic norms that generally govern how we name objects, and how we communicate and socially interact. According to major theories of reference proposed in philosophy of language (i.e., the 'causal theories of reference', Donnellan 1970, Kripke 1972), a sign represents a certain object depending on its own adequacy as bearer of the relation and this aspect can be thought as completely (causally) determined by the symbolic system in which we live. In other words, representing something is not a matter of degree or intensity of how robust a relationship of representation is with respect to another one: either 'x' represents 'y' or 'x' does not represent 'y', given the specific rules governing the symbolic system in which 'x' and 'y' occur. This is a further aspect that differentiates representation from resemblance. Resemblance, indeed, can be naturally conceived as varying in degree: we can always rank 'x' as more similar to 'y' than 'z'. A son can resemble his father more than what his sister does.[3] Therefore, we claim, the relation 'S' naturally accommodates this shift in meaning towards a graduated or discrete judgement of similarity, while 'R' cannot.

A further characteristic of signs is to what extent they convey information about the object they stand for, i.e., the 'informativeness' of signs. Such a notion has been introduced by Elkins (1995) in the visual studies debate with specific regard to scientific images,[4] explicitly defined as 'informational images'. The purpose of this concept is

1 A classical topic of discussion in philosophy of language and metaphysics (Frege [1892] 1980; Russell 1905; 1911; Kripke 1972; Putnam 1974; 1975).

2 According to this, non-representational or abstract pictures that widely populate art history are analyzed by Goodman (1976) by means of the concept of 'null' or 'multiple denotation'.

3 In brief, to formalize such a degree in resemblance that objects show, the original relation 'S', now interpreted in a comparative way as 'being more similar', should be considered as an order relation. A binary relation 'G' is an order relation, i.e., it can order the objects of a set against one another, if it is true, for instance, that: (1) if 'xGy' and 'yGx', then 'y=x', and (2) if 'xGy' and 'yGz', then 'xGz', for any 'x', 'y', and 'z' belonging to a set 'A'.

4 In the rest of the paper, we will follow Elkins' (1995) discussion within the field of visual studies and, then, confine the question about informativeness to (scientific) images.

to group all those images principally intended to perform some utilitarian or technical function and transfer knowledge by means of symbolic and pictorial features, such as schemas, numbers, and writing. As images, however, they have always been excluded from the canonical research field of art history due to a deficiency in terms of visual expressiveness, eloquence, and complexity they were supposed to suffer. However, Elkins argues, informational images address the central issues of art history and images studies and they should be investigated as well as artworks. Our purpose here is to briefly explore the meaning of Elkins' notion of informativeness for scientific images and to outline the potential connections occurring with the relations of representation and resemblance.

Assumed that 'being informative' means conveying information, such as a map conveys spatial knowledge of a certain geographical region and given the variety of images usually employed in scientific and technical contexts, to clearly categorize the ways through which information can be pictorially conveyed is far from the purpose of the current work. However, as a general statement, we can say that 'being informative' reflects a sort of relation occurring between a vehicle of the information (e.g., a sign such as a schema or an image) and a subject the information is about (e.g., a scientific theory). Consequently, the fact that an image 'x' is informative of 'y' requires, as a minimum requirement, that 'x' stands for 'y' or represents y, to some extent. In order words, to establish the effective conveying of knowledge between the vehicle and the subject, the fact that the vehicle (or components of it) represents the subject (or parts of it) seems fundamental. Thus, representing is not enough for conveying information, otherwise a simple photo would result informational as much as a pictorial schema, whereas we would like to disentangle between different levels of informativeness of pictures, depending, for instance, on the amount and type of information they provide. Then, it seems plausible to conceive images as vehicles of information gradually ranging from better to worse ones, depending on several factors. An informational image employed for explaining a theory in highly specialized academic papers, for instance, is differently informative from a similar image targeting a general audience. We can generally observe that (scientific) images are not all informative in the same way.

However, does the informativeness of an image depend on the relationship of resemblance between its content and the theory it conveys? Indeed, it could be argued that, for better conveying information, the content of an image should resemble the object it represents as much as possible.

We claim that the concepts of resemblance and information are independent. Suppose, for instance, to figuratively describe the soil composition of a certain piece of ground. A schematic figure describing the soil profile by sketching with lines and alternate pattern tex-

tures the different layers you may encounter can be more informative of, even though less similar to, the piece of ground than a picture of it. Then, it could happen that the more informational images do not correspond to those that resemble at best the content they refer to. Furthermore, because of their theoretical independence, it is even possible that as far as the informativeness of an image increases, its pictorial resemblance to the reality decreases.

With regards to scientific images, this may lead to an apparent contradiction. Indeed, on one hand, due to the relation of denotation rigidly determined by the symbolic (cultural, linguistic, and scientific) systems in which the sign at stake occurs, the scientific image seems to represent (or denotes) a certain phenomenon in objective and direct way, that is, they mimetically[5] capture the 'authentic' nature of the phenomenon. On the other hand, however, the scientific image seems to better accomplish its informational (scientific) purpose, the less pictorially similar it is to the phenomenon it refers to. In other words, the extent to which the image enables the users to understand the phenomenon under scrutiny, i.e., being informative about it, may depend on some modifications of the pictorial format of the image itself that actually make it less similar to the phenomenon how it naturally observable and, in turn, questions its status of objectivity.

In line with this, the neuroscientific images – as far as the neuroimaging techniques (e.g., fMRI) have become more and more employed by psychologists and clinicians for understanding our brain – can represent an interesting case-study. Indeed, the relatively brief but crowded history of neuroimages that will be overviewed in the next section critically emphasizes such a particular path that informational images can follow.

3 Case Studies: Does the Brain Represent the Brain in Neuroimaging?

The relationship between fMRI images and the phenomenon they represent, i.e., brain activity, has been widely discussed by the philosopher of neuroscience Adina L. Roskies (2007; 2008). Her works address the epistemological differences between fMRI images and photographs. Intuitively, both these types of images appear to be transparent vehicles of representation of the objects they refer to. However, it can be argued that photographs represent a relatively direct means of representation of reality due to the more understand-

5 For a general overview on the concept of mimetic representation see Kurtz, Kris 1979.

able causal and counterfactual dependencies[6] with the visual properties of the subject (Roskies 2007). On the other hand, neuroimages convey just an illusion of "inferential proximity" (Roskies 2008) about the phenomenon they refer to. Such an illusion would rely on the fact that fMRI images allow to visualize the brain functioning, while actually "there are no visible properties of brain activity to be instantiated in the image" (Roskies 2007, 863). Indeed, even though people tend to attribute to fMRI images the same transparency of photographs, the complexity in the elaboration of brain imaging data (e.g, the pre-processing of raw data, their statistical analysis, the general theoretical and experimental framework they are related to) and the unclear understanding of brain functioning, make the interpretation of neuroimages much more problematic.

Such a complex relationship between neuroimages and the phenomena they represent can become even more challenging when they are considered within the actual scientific practice, that is, as vehicles of specific information about neuro-psychological theories and experimental findings. In other words, researchers can alter such a relationship in order to visualize and communicate informational content. To highlight this aspect, we decided to consider some neuroscientific images as case-study. Our aim is to prove that in order to achieve their specific purpose, they usually undergo stylistic and deliberate modifications by the researcher (and only marginally due to technical issues) that further reduce the similarity between the neuroscientific image and the natural phenomenon described, while increasing the informativeness about the theory, the experiment, etc. These deliberate manipulations by the researcher are made possible by technical advancement, but are not only dependent on technical aspects: they have simply enlarged the range of possible interventions of the researchers on the visual properties of such images. In order to discuss how the neuroscientist directly acts on them, we will provide examples from different decades.

We opted for functional magnetic resonance imaging (fMRI) studies because of their wide diffusion (more than 196000 published papers on Pubmed in the last five years) and the consequent centrality in neuroscientific research. We preferred not to use structural MRI images, because they bear a clinical relevance and their application is

6 By means of causal and counterfactual dependencies images have to the objects they represent, Roskies (2007; 2008) intends that the visual properties of the real object cause the visual properties of the image and that, if the subject had been differently arranged in terms of visual properties, the resulting image would have appeared correspondingly different. Actually, neither photographs nor fMRI, Roskies (2007, 867) argues, "bears a perfect informational relationship to the object", but intuitively we have a clearer understanding of how these relationships (in particular in the case of the counterfactual one) occurs in photography rather than imaging.

diffused in many fields of medicine (neurology, psychiatry, etc.); on the other hand, fMRI is mainly a research tool with few or no clinical applications so far (Waller et al. 2021). fMRI gives a graphical representation of brain activity. This technique is sensitive to variation in the local ratio between oxygenated and deoxygenated blood in the brain, that is, variations in the local consumption of oxygen by brain cells. The assumption behind it is that neurons demand more oxygen when they are activated. Therefore, fMRI provides an *indirect* measure of neuronal activation, based on oxygen consumption (Ogawa 2012). In fMRI images, this neuronal activation can be seen as groups of voxels (a regular measure of volume, we could image those as cubic bricks of volume) that are colored (therefore activated), with a peak of activation defined as the most active part, surrounded by a gradient of activity.

We selected some brain images from scientific papers in peer-reviewed journals,[7] namely two studies for each decade starting from the nineties. The selected studies can be considered representative of the field at their time; they are all based on healthy individuals (psychiatric and neurological conditions were not included), employ comparable techniques, and their results are presented through brain activation images and brain reconstructions. Neuroscientific fMRI images have already been analyzed from a visual and philosophical point of view by Roskies (2007; 2008), underlying how far they are from being a mere reproduction of the brain. However some elements have not been clearly delineated yet. Such images serve a specific purpose: conveying information (i.e., the results of the study, a theory about the brain functioning) in the best way possible. In this framework a question arises: how the deliberate choices of researchers influenced the creation of such images and therefore the quality of the message delivered?

Before discussing these points, some brief technical considerations are needed (for an exhaustive description of technical advancement in fMRI field, please refer to Bandettini 2012 and Specht 2020). Over the years, technical improvements in the fMRI technique allowed a higher level of details and a better resolution of the images, as clear moving from figure 1.B to figures 2.B and 3.B. More powerful software allowed a better reconstruction of the brain grey and white matter, with more defined images (compare the 3D reconstructions presented in figures 1.A, 2.A.1, and 3.A.1). These advancements affected the graphic representation, making the brain images more recognizable. Due to more modern technologies – such as finer scans, and upgraded softwares for image reconstruction – a detailed representation (i.e., higher graphical resolution) leading to a better definition of the brain processes studied is feasible.

7 Menon et al. 1992; Che et al. 1998; Wagner et al. 2008; Tsubomi et al. 2008; Seydell-Greenwald et al. 2017; Koutsouleris et al. 2018; Pujol et al. 2018.

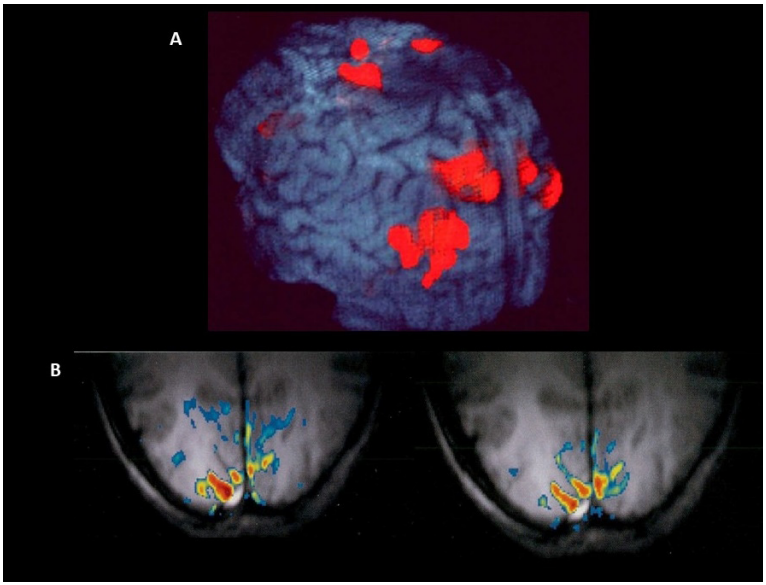

Figure 1 (A) 3D functional map of an individual subject obtained with fMRI, modified from Chen et al. (1998). (B) Functional maps of an individual subject obtained after visual stimulation, modified from Menon et al. 1992

Similarly, the need to compare results from different studies brought to the creation of atlases based on several subjects (such as the Montreal Neurological Institute). In this way, a 'typical' brain was created as an average of different, individual, brains: a model of the 'standard' brain. Indeed, while figure 1 presents the brain of a single subject, without important mediators, the others derive from group differences plotted on a standard brain. Then, the brain we see in figures 2-4 is not an individual one. Such a remark is relevant because when we consider neuroimages, we should bear in mind that in most of the cases it is not a single subject's brain that is represented, but an average brain, obtained from different samples and metrics. The distance between the single subject and the group average is then added to the already present conceptual gap between the actual brain and the picture of it. The brain is highly variable and can be influenced by various features, ranging from genetic influences to learning and training in a specific field (Ritchie et al. 2018). Therefore, as customary when dealing with the brain and with neuropsychiatric syndromes, a single individual does not summarize all the possible differences and the visual results tend to be highly variable: thus, the need of averaging. This average moves the observer away from the object and also might influence the narrative related to brain images, as discussed by Joseph Dumit (2014).

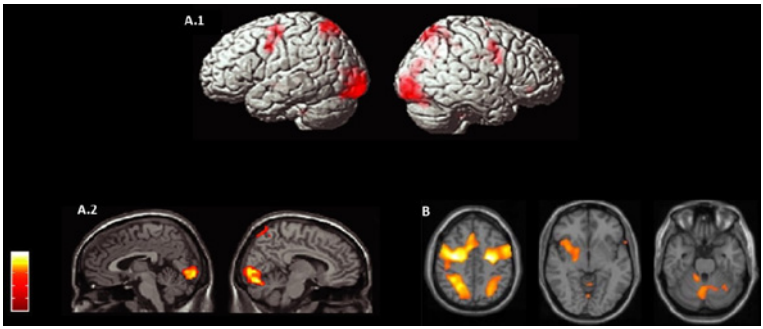

Figure 2 (A.1) 3D reconstruction and (A.2) fMRI images in the sagittal plane modified from Tsubomi et al. 2008. (B) fMRI images, in the transverse plane, modified from Wagner et al. 2008

However, the presented technical improvement accounts only for a limited part of the variability in the presentation of relevant fMRI images. Other visual aspects of them are also dependent on the choices made by researchers, aiming at effectively conveying their message. The first choice regards which image or part of the image to show. As presented in figures 1-3, the selection of 2D and 3D images is not merely linked to technical advances, since they were already available in the nineties, even though with a lower resolution **[fig. 1.A]**. Researchers deliberately decide to present 2D slices or/and 3D reconstructions. Interestingly, the 3D picture could seem easier to interpret because it resembles the human brain more closely. However, in the clinical field where such resemblance could be of great utility to the clinician in order to make diagnoses or program treatments, 3D is little employed. Indeed, we are accustomed to clinical images of brains as slices (both CT scans and MRI), while the 3D reconstruction is able to show only superficial/external regions, whereas deeper regions tend to remain hidden. This is of limited use in clinical practice when we need to see even what is underneath (i.e., in case of a neoplastic lesion, it is mandatory to understand which areas of the brain are involved or disrupted by such lesion). Therefore, the 3D brain raffiguration loses any resemblance with a typical clinical brain image and serves only as a model. Moreover, those 3D pictures can be unrealistically re-oriented (i.e., presented on a bottom up or top-down view – see for instance figure 3.A.1 – which means that the observer can move around the brain in every direction, even the non-real ones, such as seeing it from the bottom, like a disembodied object with an all-around design), with the only purpose of conveying scientific information. Therefore, are the results of a study easier to interpret when presented in 3D, or is it just an aesthetic decision aimed at outlining the neuroscientific theory?

Furthermore, the choice of which slice to present in 2D images is left to the researcher. Since no clear guideline is available, the slices

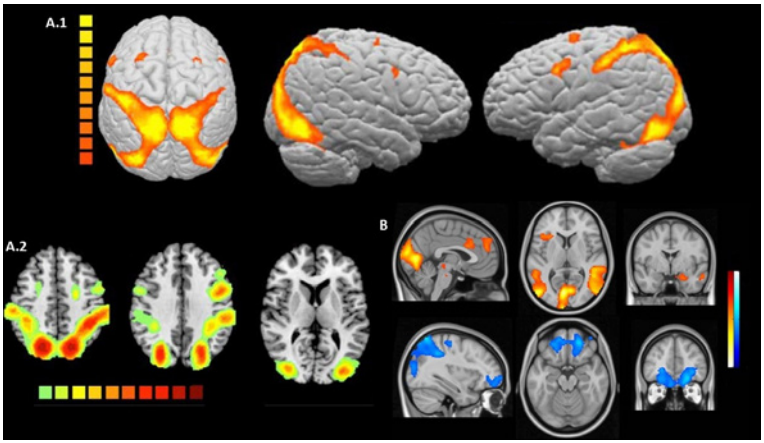

Figure 3 (A.1) 3D reconstructions and (A.2) transverse images of the brain, modified from Seydell-Greenwald et al. 2017. (B) Sagittal, transverse, and coronal fMRI images, modified from Pujol et al. 2018

that give a better and clearer presentation of the results are usually displayed. They can be in the sagittal plane (as in figures 2.A.2 and 3.B), or in the transverse plane **[figs 1.B, 2.B, 3.A.2]**. Only in a minority of cases, instead, the coronal plane is presented (**[fig. 3.B]**, right side), since it is difficult to evaluate where the position of our point of view is located. After deciding which plane to display, the researcher needs to choose which slice to present, following again the principle of the most informative image. The right images of figures 2.B and 3.A are slices coming from the top of the brain; while in others it is possible to see its internal structures (i.e., lateral ventricles), meaning that we are roughly in the middle part of the brain.

Finally, a choice has to be made regarding the color scale. Although it is a common tendency to use the scale so that the peak of activation is marked by the brightest color, no definite guideline is available, and many differences can be spotted in the literature. For example, some researchers opted for a yellow-to-red scale **[fig. 2.A.2]**, others for a warm color scale, ranging from bright yellow to orange **[figs 2.B, 3.A.1]**, others preferred ranging from colder to warmer colors **[figs 1.B, 3.A.2]**. Similarly, both activation and deactivation[8] can be presented, as in figure 3.B, where warmer colors are used to graphically present the increase in activation and colder ones for the decrease in activation.

8 We are usually accustomed to consider the peak of activation as always positive. However, we can also have peaks with negative sign, meaning reduction in neuronal activation.

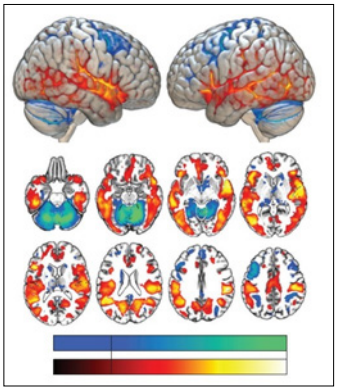

Figure 4 Between-groups brain differences after cross validated machine learning analysis, modified from Koutsouleris et al. 2018

However, these peaks are presented after selecting a threshold. Imaging softwares offer the possibility to choose the level of activation to show, by increasing/decreasing the dimension of the colored area. It is customary to present only the most relevant findings, that is, those significant from a statistical point of view, but a decision regarding how much to show is necessary.

These are just the easiest examples of how the neuroscientist's intervention can be relevant in the creation of images with the aim of better presenting results and conveying a specific message. Other aspects (e.g., the choice of the preprocessing pipeline and of the software to employ) are far too technical for our discussion.

As a final remark, we introduce figure 4 (adapted from Koutsouleris et al. 2018). At a first glance, it is very similar to the other figures presented, despite the different graphic rendering due to a new available software. However, this is not an fMRI study and such images represent the brain differences between groups after a machine learning analysis. This example clearly shows how the reconstruction and the presentation of brain images are employed as 'models' to illustrate results and convey specific theoretical information. Moreover, despite the clear similarity among the different figures, it is important to bear in mind that as scientific images they are difficult to be interpreted without a scale and a text describing what they illustrate. In line with the figures previously analyzed, they can be also considered as neuroscientific visual models.

Ultimately, the pictorial intervention on scientific images discussed so far modify their informational value useful to understand neuroscientific theories and results, making the relationship of similarity with the actual natural phenomenon even more complex.

4 The Artistic Value of Scientific Images and the Contribution of Imagination

As already stated, the topic of representing reality has always been a challenging question for most people dealing with the production and reception of images. Even if this theme has more frequently been associated with the study of art history and the investigation of the artist as a pivotal figure in understanding how to connect the realm of reality with its depiction, the problem deeply influenced the scientific field as well.

What we will try to figure out with this last section can be summarized as it follows. First: we will take into account the central role played by images for their use as a symbolic metaphor and linguistic tool to convey information. Second: we will discuss how representation of reality cannot be considered objective neither for paintings and artworks nor for scientific images. They 're-present' reality as an abstract ensemble of forms revealing a particular relationship between the observer and the outer world. Third: we will argue how the intervention of imagination and creativity in creating and modifying images to make them more or less scientifically informative can be considered a crucial characteristic belonging both to the artistic and the scientific field. In particular, with regard to science, we will take into account the role of the imagination not in bringing to light new discoveries (e.g., the famous Kekulé's discovery of the ring structure of benzene, see footnote 12), but in conceiving scientific models and conveying information through images. According to this, fMRI images would not only be pictorial representations of neuroscientific theories, but scientific models which the researcher's imagination contributes to create. On the other hand, although creativity can be treated as a synonym of imagination, it is instead a concept that we can connect to the active contribution brought by the scientist that reworks and interprets images to make them explicative and supportive of a given theory. As we will try to briefly outline later in the text, the debate regarding the connection between imagination and creativity has a lasting and rich literature (Salis, Frigg 2020; Stokes 2016). However, if imagination plays a central role in building theories, the subject of creativity – more generally associated with art history – could be also applicable to the scientific field in order to explain the aesthetic contribution of the researcher on the production of fMRI images. Even though his or her contribution might appear merely visual, it also impacts on the informational content lying on the image. The centrality of images and their use as a symbolic form to convey information and meanings is a point we can all agree upon, as already treated in the first chapter. Rudolph Arnheim, for example, a German art and film theorist and a perceptual psychologist, writes "what makes language so valuable for think-

ing cannot be thinking in words. It must be the help that words lend to thinking while it operates in a more appropriate medium such as visual imagery" (Arnheim 1971, 231).[9] That statement can be easily applied to the scientific field in the same measure we tend to do with the artistic one. While on the one hand, we have paintings, sculptures, installations, drawings, on the other we can equally take into account charts, diagrams, histograms, and fMRI as images that try to represent phenomena happening in the external world.

The proximity between art and non-art images have been already investigated by Elkins who gives examples of artists that use scientific methods to create artworks over time and, vice versa, by demonstrating that fine-art conventions intervene preponderantly in the production of scientific images to make them more expressive and 'prettier', especially the medical ones. "In terms of the attention scientists lavish on creating, manipulating, and presenting images, the 'two cultures' are virtually indistinguishable" (Elkins 1995, 559).

The example he provides is about the diagrams used by the German immunologist Paul Ehrlich who presents some drawings regarding the function of antibodies in response to the presence of toxins attacking a cell. The Y-shaped diagrams he uses to represent the antibodies do not correspond at all to previous knowledge but can be fully-fledged considered as a pictorial way to give shape to a scientific process and represent something that cannot be seen. Nonetheless, from that moment on, those images become the theory from which modern immunology derives and consequently evolves.

Yet, even if imagination in the scientific field could be evident by keeping in mind Elkin's example of Paul Ehrlich's drawings, it could also not be necessary or sufficiently reliable when applied to other scientific images – like the aforementioned fMRI – that seem to objectively represent reality throughout mechanic and sophisticated processes. But the question is: do they represent reality? Is objectivity a pure and untouched value belonging to those images or there is something that goes beyond that?

As we saw in the previous section, fMRI images represent the neural activity by detecting changes in the ratio of oxygenated and deoxygenated blood. As Roskies states (2007, 864) the visual product deriving from this process lets the observer believe that neural firing – which is colored in the image – corresponds exactly to the brain activity. However, as she notes, it is not entirely correct. In fact, what we see in evidence reflects an indirect measure of the neural activity that forces

9 The statement inevitably recalls the activity of scholars coming from the German context that is not appropriate to define as art historians but more as image historians such as Aby Warburg. His famous project titled *Mnemosyne* is in fact one of the clearest examples of the visual thinking practice, based on the association of various pictures.

the image to be interpreted since it does not provide a clear explanation or an unquestionable representation of the phenomenon. Despite their mechanical and technical features, neuroimages establish a complex relationship with reality, since they make visible phenomena such as the brain activity that naturally lack any visual property. Due to this indirect relationship with reality (Roskies 2007), neuroimages seem to require some level of (aesthetic) intervention by the scientist. This is aimed at making visible information that otherwise would have been unreadable and would remain obscure. In other words, the attempt of describing the brain's activity with an image could be decidedly unsatisfactory without pictorial modifications (e.g., the use of colours) and an iconological interpretation (Panofsky 2019) which is – by necessity – required to the observer. Hence, the contribution of the researcher is essential to let data emerge from the image and to make them informative about a specific theory. Imagination (involved in creating the scientific model) and creativity (useful for aesthetically intervening on the scientific model) can be considered as two sides of a unified process.

It is not coincidental that members of the scientific community do not always 'read' and convey information in the same way and that the understanding of the image is all but unique or univocal (although brain imaging remains a reliable tool). The absence of a process making those images alike and equally readable, leaves the neuroscientist the chance to deliberately and pictorially intervene.

Referring to a statement Paul Klee famously made "art does not reproduce the visible; rather it makes visible" (Klee [1920] 2013) he seems to declare that art does not reproduce what we see but rather it manufactures what we see. Under this interpretation, a painting is not a sort of mechanism that captures and displays existing visible data, but an engine to create a way of looking and interpreting the world. In other words, the act of painting is an endeavor to make visible what commonly is not seen.

Scientific images can be related to that statement inasmuch as they are not simply a mechanical process of reproduction. On the contrary, they create and interpret what is not visible, and even when they are produced through scanning technologies, like the magnetic resonance, they demand the participation of a 'creator' in any case. If we accept this vision, fMRI products could be closer to painting than photography (Roskies 2007, 2008), closer to interpretation than objectivity, closer to imagination than reproduction.

However, while the contribution of art conventions in the analysis of scientific or, more generally, informational images, have already been investigated, the figure of the neuroscientist as an active observer is still lacking. In this perspective, the topic of imagination requires more attention.

Art historians have always been inclined to consider artists involving scientific samples in their artworks as such. Contempo-

rary art is full of examples in which medical images have been 'remediated'(Bolter, Grusin 1999; Montani 2010) and turned into art.[10] Strongly established artists employ scientific material in their works: Robert Rauschenberg in *Shades* (1964) and *Booster* (1967) and Meret Oppenheim in *X-ray of M.O.'s Skull* (1964)[11] make use of x-ray photographs to create sculptures and collage paintings; Joseph Beuys studies accurately a various aspect of the human skull by creating new arrangements of elements according to his own creativity; Hermann Nitsch uses entrails for his performances; Pierre Huyghe in 2019 at the Serpentine Gallery in London presents *Uumwelt,*[12] an installation in which fMRI technology is used to create surrealistic neuro-images in motion thanks to an artificial neural network software.

The terms 'art' and 'imagination', at least till post-Kantians thought, seem to trace some sort of parallel lines in which the latter is considered as a fundamental and unified human faculty which is essentially intertwined with conscious life and artistic genius. Our commonsense view is generally associated with the belief that art making, in a broader definition, is considered as the ability of activating our inner faculties that "conjure new things, or at least, new ideas of things, into being" (Wiltsher, Meskin 2016, 180). However, even if we tend to think that imagination and creativity are widely distant from the scientific field – maybe because they appear not to lead to a systematic objective result – they play a significant role in scientific inquiry and discovery.[13] Paying attention to the imagination might help us not only to shed a light on scientific discoveries but also to better understand how scientific theories are conveyed and modelled. Given that, scientists may acquire a more relevant position in the complex relationship between scientific information, fiction, and art.

In this regard, fMRI images can be considered as an example of scientific models, depending on the level of intervention of neuroscientists. Not by chance, the contribution of the imagination in the development of scientific models have reached major importance in the

10 Plenty of other examples could have been discussed here, such as the famous brain studies conducted by Leonardo da Vinci, for instance. We decided to refer to Contemporary Art because artists have more easy access and use more frequently techniques and materials belonging to the scientific field.

11 Cf. Casini 2011; 2015; Stephens 2012.

12 https://www.serpentinegalleries.org/whats-on/pierre-huyghe-uumwelt/.

13 August Kekulé's discovery of the ring structure of benzene after dreaming of a snake swallowing its own tail as well as Paul Elrich's drawings regarding antibodies and toxins are two explanatory examples of how imagination impacts scientific thinking (Elkins 1995). Cf. also Holton 1978.

recent literature in philosophy of science.[14] Imagination can be defined (even if not always) as a voluntary mental activity that involves a visual or other sensory mental state to subjectively describe non-present objects or circumstances (Stokes 2016). The term 'imagination' is often used as a synonym of 'creativity' but, although being imaginative can be easily associated with originality or innovativeness, not all imaginative actions rely on creativity. Indeed, creativity is more connected to the creation of something new, of novelties which become substantial *in* and *for* a specific context. (Gaut 2003, 2010; Salis, Frigg 2020) Therefore, with respect to neuroimages, creativity refers to the aesthetic intervention of the scientist that, by modifying some visual features, creates something new.

Neuroscientists study our brain via an abstract and simplified system that includes a pictorial and visual outcome. Therefore, neuroimages do not represent phenomena until we make the effort that stands behind the creation process of modeling, that is imagination. Even though there is an intricate debate regarding the type of models, that can be physical or theoretical, they are central to scientists' attempt to understand and give shape to the world and its phenomena (Toon 2016). In addition, a creative and aesthetic action from the scientist is required in order to express and communicate those natural events. Thus, creativity becomes central to pictorially intervene on the outcome by creating a new product and favoring the comprehension of some information.

Boundaries and interplays between art and neuroscience progressively appear blurred if creativity is taken into account not only for a better understanding of artistic production and artists, not only for investigating possible categories medical images could borrow from art, but also to start seeing neuroscientists through a different angle. As a matter of fact, due to the complex analysis they carry out and their creative contribution, they seem to engage in a peculiar relationship with images and act like visual investigators.

In this regard, the 2017 exhibitions *Reaching Beyond the Obvious*, taking place in Montréal on the occasion of the Organization for Human Brain Mapping (OHBM) Conference, a world-famous event on neuroscience, show how profoundly arts and sciences can collaborate symbiotically, combining creative thinking with scientific descriptions of the brain. The undeniable aesthetic values of those images – characterized by charming colors and manneristic nuanced shapes – make the spectator doubtful if he or she is looking at scientific products or artworks and bring us to reconfigure the scientist persona appealing to his or her creativity to create images.

14 Godfrey-Smith 2006; Toon 2012; 2016; Weisberg 2013; Levy 2015; Frigg 2010; Frigg, Reiss 2010; Salis, Frigg 2020.

"Beauty is inside" is also the motto of the neuroimaging artist duo DiMa – composed by Diana Roettger and Matthew Rowe – that transforms complex visualizations of the brain into artistic pictures. The two imaging scientists aim at questioning the fMRI technique by making 3D images representing the workings of the human brain, by pictorially intervening on the product that results incredibly articulated, eye-catching, and profoundly distant from a representation of objective reality (surprisingly enough, they are also sold as it is usually done with paintings and artworks).[15]

The development of unique and creative techniques for mapping and visualizing such data has led more and more to abstract pictures that, albeit providing detailed information, become detached from the natural phenomenon it describes. As a consequence, they turn into artistic products that highlight the active contribution of their authors and end up counteracting the concept of *mimesis* itself by rejecting reality as it roughly appears.

5 Conclusion

Images are crucial subjects that have been investigated in many areas of knowledge such as neuroscience and visual studies, research fields we discuss in this essay. As claimed by Elkins (1995) and Bredekamp (2003), the pictorial categories traditionally exploited in art history can also be applied in the study of scientific-oriented images. In this regard, brain images can be analyzed in a multidisciplinary way and provide the opportunity to reflect upon their theoretical nature.

As we tackled in section 2 and highlighted by aforementioned scholars, a conceptual independence between the notions of resemblance, representation, and informativeness can be drawn. Images can be informational and explicative about scientific theories even if they lack a high degree of similarity with the studied phenomena. In other words, the quality of informativeness belonging to a scientific image does not depend on how it objectively adheres to reality.

Neuroimaging, i.e., fMRI, is a clear example of the deliberate pictorial intervention brought by scientists that could alter the production of images for scientific purposes. Over the years, fMRI-based images have undergone technical improvements, providing higher levels of detail and better resolutions. Undoubtedly, beside a more sophisticated reconstruction of the brain, technological advances increased the possibility to pictorially intervene on the images, making them

15 On the relationship between objectivity and scientific image-making see Jones, Galison 1998; Daston, Galison 2007. Moreover, for a suggestive discussion about the performative capacity of MRI outcomes to function as a portrait see Casini 2011.

more informative about the scientific findings. As seen in section 3, the choice of selecting 2D or 3D format, showing a distinctive slice of the brain to the observer, specifying colors, texts, and shades to denote the presumed neural activity, are all elements at the neuroscientist's full discretion. Therefore, the graphic representation and its stylistic results widely depend on the intentional contribution of the researchers that work on the visual properties of the neuroimages.

Such pictorial interventions create products able to convey scientific knowledge as part of an active process that originates from the neuroscientist's imagination and creativity. As seen in section 4, both play a significant role in scientific inquiry, even though it is often regarded as distant from science. Paying attention to the imagination might help to better understand how scientific theories are conveyed and modelled.

The interpretation of neuroimages requires the effort of considering the purpose of the neuroscientist's imagination that aims at framing the scientific message in what can be considered a pictorial model of the theory itself. On the other hand, creativity also plays a fundamental role in the construction of images. Even though intertwined with the imagination, creativity is more related to the aesthetic and stylistic intervention coming from the deliberate choices of the scientists. Therefore, neuroimages which are determined by a theoretical framework, can acquire and increase their informational content due to this creative work. In this process, the neuroscientist turns into an active observer in the creation of images.

Furthermore, the fact that neuroimages have effectively become material for recent artworks such as Huyghe's *Uumwelt* and DiMa creations and for related academic discussion (Jones, Galison 1998; Daston, Galison 2007; Casini 2011; 2015; 2020), suggest that such images can talk even outside the scientific field, highlighting a range of potential manipulations and creative interventions.

In conclusion, by looking at images of the brain as a spectrum ranging from the mere reproduction of reality to the creation of pictorial models of neuroscientific theories till the most radical artistic interventions, we are encouraged to further explore the concepts of mimetism, scientific objectivity, and intentional manipulation. This multidisciplinary perspective opens up the opportunity to consider the figure of the neuroscientist not only as an objective observer that merely documents reality, but as a visual expert able to create images.

List of abbreviations

CT	Computed Tomography
fMRI	functional Magnetic Resonance Imaging
MRI	structural Magnetic Resonance Imaging
OHBM	Organization for Human Brain Mapping
PET	Positron Emission Tomography

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Wittgenstein's Bridge
A Linguistic Account of Visual Representation

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Abstract This paper uses structure-mapping to bridge the divide between the analytical and visual culture traditions of image interpretation. Wittgenstein's analytic 'picture theory of meaning' from his early period, and his cultural theory of 'meaning as use' from his later period are used to show that the terms similarity, analogy and metaphor can be applied to both image and linguistic interpretation. As a result, by the mapping of similarity and analogy onto the analytic approach, and by the mapping of metaphor onto the visual culture approach, a common linguistic ground for the comparison of these two approaches to image interpretation can be established.

Keywords Analogy. Metaphor. Similarity. Projection. Meaning. Representation. Mapping. Structure. Explanation. Description.

Summary 1 Introduction. – 2 The Early Period and Picturing. – 2.1 Logical Pictures. – 2.2 The Limits of Picturing. – 3 The Later Period and Seeing-as. – 3.1 The Relationship of the Analytical and Cultural Contexts. – 3.2 The Relationship of Analogy and Metaphor. – 4 Conclusions: Bridging the Apparent Incommensurability.

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1 Introduction

Wittgenstein was brought up in an aesthetically educated household. His father was a patron of the Vienna Secessionists and Brahms was a frequent visitor to the house. His sister Margarete's wedding portrait was by Klimt.[1] Against this background of privilege in pre-First World War Vienna, and with specific training in engineering drawing and experience of architectural design with Engelmann, it is not surprising that Wittgenstein had a high awareness of visual culture. Some of his comments on drawing, painting and visual representation reflect this cultural education and there are passages in the middle and late period works where the act of drawing is a starting point for understanding representation in language, e.g. *The Blue and Brown Books* [BBB] (1969), *Philosophical Grammar* [PG] (1974) and *Philosophical Investigations* [PI] (1953).

Wittgenstein does not have an explicit theory of visual representation. This is despite the so-called 'picture theory of meaning' in his early work *Tractatus Logico-Philosophicus* [TLP] (1961 [1922]) which, as discussed below, is not a theory of pictorial representation. Indeed, the majority of the mention and use of visual representations occurs in the later philosophy in which it is frequently claimed that explicit theories are avoided. However, Wittgenstein does make a number of remarks relevant to visual representation. These remarks cover the act of representation itself, its relationship to thinking and our grammar of thought, and the ways in which we interpret and act upon images. It is also characteristic of the later period that the spur to philosophize often comes from language associated with visual experience.

The so-called picture theory of meaning in TLP has been widely accepted in the analytic tradition as a comparison between the way in which an engineering drawing is derived by means of projection from the object, and the way in which language and/or thought is derived from the world around us. Recent research into the intellectual history of graphical representation has shown that in addition to this kind of drawing, other forms of graphical representation were gaining in importance during the first decade of the twentieth century. Section 2 of this paper uses graphical statics and dynamical modelling to argue that Wittgenstein's picture theory of meaning is not based on a relationship of iconic similarity, but on the contrary seeks a linguistic mode of representation by analogy, in which performance and action can be calculated by extending the number of

1 Gustav Klimt, *Margaret Stonborough-Wittgenstein*, 1905, Bayerische Staatsgemäldesammlungen – Neue Pinakothek, München. https://www.sammlung.pinakothek.de/en/artwork/8MLvMXyxz3.

dimensions beyond the basic three of visual experience. In Section 3, this linguistic interpretation of picturing is extended into metaphor by breaking the direct relationship of analogy between the representation and what is represented, in favour of the cultural interpretation of his later period. In Section 4 this linguistic account of the continuity of Wittgenstein's representational investigations, from similarity through analogy to metaphor, is used to reveal how the apparent incommensurability of the analytic and visual cultural approaches to image interpretation might be bridged.

2 The Early Period and Picturing

Although TLP is a difficult book, it is fairly easy to understand the visual analogy of the picture theory of meaning. It appears to derive from the way a drawing is constructed in descriptive geometry or engineering using lines of projection that map one onto the other, and makes the analogy that language has a similar relationship to the world that it describes. One reason why one can call this an analogy, a term that Wittgenstein does not himself use to describe this relationship in TLP,[2] is because the concept has a four-term structure (Biggs 1992, 4 f.).

The possibility of an analogous representation has its base in an isomorphism (Wittgenstein also uses the term "logical multiplicity", § 4.04), which ensures that aspects of the object can be mapped onto aspects of the representation, and vice versa. But Wittgenstein wants to do more than visually depict reality. Bearing in mind the final topics of TLP § 6, if the method of representation could be sufficiently abstracted, one might be able to make calculations and judgements about ethics, etc. Such a requirement to calculate rather than to depict, transforms the focus of the method from visual representations such as descriptive geometry and engineering drawing, to logical representations such as graphical statics and dynamical models.

> In order to be a picture a fact must have something in common with what it pictures. […] What the picture must have in common with reality in order to be able to represent it after its manner – rightly or falsely – is its form of representation. The picture can represent every reality whose form it has. The spatial picture, everything spatial, the coloured, everything coloured, etc. […] What every picture, of whatever form, must have in common with reality in order to be able to represent it at all – rightly or falsely – is

2 However, he does use it several times in the antecedent *Notebooks 1914-1916* (38, 99, 113) and elsewhere.

> the logical form, that is, the form of reality. If the form of representation is the logical form, then the picture is called a logical picture. Every picture is also a logical picture. (On the other hand, for example, not every picture is spatial). The logical picture can depict the world. The picture has the logical form of representation in common with what it pictures. (TLP §§ 2.16-2.2)

2.1 Logical Pictures

One can regard the concept of dimension in a number of different ways, and to understand Wittgenstein it is useful to adopt the mathematical concept of dimension rather than the spatial one. The mathematical concept is that there is one dimension per quality to be recorded; thus if one records the three-dimensional position of an object and additionally records its colour, one needs four dimensions. If one also records its material it would add a fifth dimension, etc. This is not the everyday use of the word dimension, which starts with length, width and breadth, and adds time as a possible fourth dimension, but seems to make further dimensions 'inconceivable'. The everyday concept therefore includes an implicit visualisation which limits the number of dimensions to those of everyday experience. The mathematical dimensionality of a representation allows one to record qualities and to satisfy Wittgenstein's principal objective to be able to 'reconstruct the object'.[3] This reconstructive purpose is emphasised in his examples in TLP which are not just restricted to three-dimensional objects, for example the gramophone record allows us to reconstruct the sound of a piece of music by decoding it.

> There is a general rule by means of which the musician can obtain the symphony from the score, and which makes it possible to derive the symphony from the groove on the gramophone record, and, using the first rule, to derive the score again. That is what constitutes the inner similarity between these things which seem to be constructed in such entirely different ways. And that rule is the law of projection which projects the symphony into the language of musical notation. It is the rule for translating this language into the language of gramophone records. The possibility of all imagery, of all our pictorial modes of expression, is contained in the logic of depiction. (TLP §§ 4.0141-4.015)

3 This allows for non-visual 'pictures', an apparent paradox that can be dealt with by noting that the original German word 'Bild' includes the concepts of model and schema as well as picture.

The coding and decoding processes are mirror images of one another, but even though the analogue gramophone record has sufficient dimensional richness to be a logical picture of the music, it does not include an image of what the orchestra looked like when they were playing the music. Thus DVDs have a greater logical multiplicity or mathematical dimensionality than gramophone records. Digital techniques make it easy to record very large amounts of information about an object but they have a non-visual picturing relationship to what they represent or encode. When one is recording an event one must decide what it is that one wishes to record and therefore the number of dimensions and therefore the medium that is required. This was reflected in the Bergen project to digitise Wittgenstein's Nachlass.[4] The project began with facsimiles of Wittgenstein's handwritten manuscripts etc. and a decision had to be made about what was important to record. Naturally, the orthographic types (written letters and words) were of prime importance, but how important were spelling mistakes; what about the graphologist who attributes meaning to the shape of individual letter forms? What about the line breaks and page breaks? Each logical 'dimension' of the original demands a dimension in the representation.

Wittgenstein's paradigm is the ability to reconstruct an object from its representation, to reconstruct a thought from a sentence, etc. This representational relationship appears to derive from classical mechanics: three-dimensional objects in three-dimensional space in mechanical relationships to one another, but Wittgenstein's mention of both Hertz and Boltzmann in TLP provides the clue to an alternative role of models as ways of thinking about the world rather than as depictions of the world. Graphical statics and dynamical models enable one to infer the performance of real objects such as the behaviour of propellers from vector diagrams or scale models. These techniques were very important at the time that Wittgenstein studied engineering (1906-11) because they were being used to design the first flying machines.[5] Although there is sometimes a visual or iconic aspect to these drawings, they are principally a method of representing invisible forces using vectors. They are therefore at best a schematic representation of what the object might look like, and the notion of representation is principally one of function rather than appearance. Stenius, in his commentary on TLP, calls these "unnaturalistic pictures" (1960, 113).

Hamilton (2001) discusses various modes of engineering representation in Wittgenstein's works, including descriptive geometry,

4 http://wab.uib.no/index.page.

5 The aeronautical pioneer Henri Coanda studied at Technische Hochschule Berlin-Charlottenburg at the same time as Wittgenstein. Both Coanda and Wittgenstein went on to design innovative air-reactive (jet) propulsion systems.

graphical statics and dynamical models. However, the title 'Wittgenstein and the Mind's Eye' seems unfortunate because the mind's eye is something explicitly rejected by Wittgenstein in the later Blue Book (1969, 4). This common interpretation of TLP is described by Stenius as a "misunderstanding" (1960, 113). Sterrett (2002), recognising the role of performance models, preferred Hamilton's expression "engineering mind set" (2001, 73). However, the concepts of the mind's eye or a mindset are unnecessary for the argument of the present paper, which rejects Hamilton's emphasis on representation as the description of appearance (e.g. 2001, 53, 88) in favour of the description of performance. What is significant is not that through language or another form of representation we are able to perform the practical manipulation of the world, but the very possibility of that manipulation. So here one may see a symptom of the change of interest from Wittgenstein's applied studies in engineering to mathematics and the foundations of mathematics, which took him away from engineering to work on logical problems with Russell in 1911. TLP, which was written around 1918, reflects the idea that representation is more to do with possibility and functionality than physical appearance. In particular, to employ terminology from Wittgenstein's later work, when we move to an alternative form of notation, certain aspects become "perspicuous" (PI-I § 122).

There are, however, limitations to what can be recorded in any particular notation. Although Wittgenstein was seeking a perfect language, he was not seeking one with universal application but rather one that avoided being misleading. Thus when Hamilton refers to Wittgenstein's preference for "palpable, graphic forms of representation" (2001, 56 reporting Schulte), Wittgenstein's preference should be interpreted not as focussing on the merits of the graphical, but on the merits of the perspicuous. This paper's analysis of TLP reveals that different forms of graphical notation, and other forms of notation such as truth-tables and symbolic logic, each have the capability of rendering certain dimensions more clearly than others. Wittgenstein's training did not so much indoctrinate him to graphical rather than non-graphical methods, as raise his awareness of the influence that notational systems as a whole have on our concepts and reasoning.

2.2 The Limits of Picturing

The explicit comparison between visual representation and representation in language is a feature of the later period but not of the earlier. Although the later work begins with visual examples of projection drawing, the examples are used to question whether this one-to-one relationship holds good. When discussions of visual experi-

ence are advanced in the later period it is normally to combat the idea that when we are thinking or intending there is a picture before our minds. Particularly targeted is the idea of some kind of primacy such a picture might have because of its 'direct' association with the thought by means of the earlier projection relationship. Thus when Wittgenstein says, "The picture shows me a cube" (PG, 165), the emphasis is on the immediate object of experience. If one takes this image as a representation – in this case a cube – one *uses* the image in a particular way. "If the picture tells me something in this sense, it tells me *words*" (PG, 164). To interpret the figure as a cube involves *reacting* to the figure in a particular way which is as culturally determined as the association between the word 'cube' and the three-dimensional figure. This visual culture interpretation is in contrast with the analytical relationship of TLP because the cultural interpretation of a figure is discretionary. In TLP the picturing relationship is obligatory because a picture will embody the logical form of its object, "the spatial picture [can represent] everything spatial" (TLP § 2.171). What is not anticipated in TLP, in terms of visual representation, is that a spatial picture may be taken for a representation of some other object or form according to a convention or within a particular language-game. This change in the later period shifts his visually-led interpretation from something embodied in the representation to something embodied in our practices. It reveals the limitations, not of a single representational system, but of *any* representational system.

It is a key concept in TLP that a representation cannot represent its own representational form (TLP§ 2.174). To describe a representational form requires one to step outside it. Thus, if one did not understand English, no amount of reading the *Oxford English Dictionary* would help. Contrary to Hamilton (2001, 85) the fact that a picture cannot depict its representational form is not a problem of what can be visualised as opposed to what can be verbalised, but rather what can be expressed in a particular form of representation as opposed to the representational relationship itself. The latter requires stepping outside of the language of the representation in order to describe it. If we are talking about the totality of all our forms of representation of the world, i.e. thinking, then this process of 'stepping outside' becomes impossible. One could compare this to the limitation of a particular paradigm (Kuhn 1996): if the paradigm changes then all sorts of ideas become possible that were hitherto impossible or unthinkable. On the other hand, despite any changes of representational form, when a paradigm changes the world remains unchanged.[6]

6 Kuhn links his argument to a starting-point in Wittgenstein's *Philosophical Investigations* in the section "The Priority of Paradigms", 43-51.

The fact that ethics cannot be put into words (TLP § 6.421) is not a reference to the possibility that ethics could be put into pictures (Hamilton 2001, 85). These are two different modes of representation: language and pictures, and they can show two different things. Pictures are no more able to show their representational form than is language (TLP § 4.121). Neither drawing nor language, to the extent that they represent thinking, can represent the relationship between thinking and the world, because that requires stepping outside thinking. This is the problem that finally broke Wittgenstein's analytic image of a projection model of representation.

3 The Later Period and Seeing-as

In the later period (principally in PI) Wittgenstein's visual representations cease to have a projection relationship to their objects. One consequence of this change is that his use of images begins to refer not only to individuals but also to types, or general and unspecific aspects such as a facial expression rather than the specific look on a specific person's face. When looking at such images we see an aspect in them; seeing-as a face, a smile, etc.

The first part of PI engages with his principal difficulty which is the significance of the representational relationship itself. In projection drawing the projection 'explains' how the image stands in relation to its object: in linguistic terms, 'this word means this object' (cf. PI-I § 1). The system of projection (not the projection drawing itself) is what gives meaning to the image and gives meaning to the word. However, in his later period Wittgenstein claims this comparison cannot reliably be mapped onto our use of words. He particularly wants to object that meaning is not a third element standing between a representation and its object because we cannot, for example, specify the object of an ostensive definition. The ostensive definition 'this is a red patch' has as its visual phenomenon, the experience of a red patch, not the redness of the red patch. Offering up the sample of a red object, during the act of the ostensive definition, is part of the definiens and not the definiendum of red. Therefore, unfortunately, ostensive definition is *not* where 'explanation comes to an end' owing to it being fundamental, as is the case with simple ideas in TLP: explanation comes to an end because we cannot express the direct visual experience in the indirect language-game.

> This sample is an instrument of the language used in ascriptions of colour. In this language-game it is not something that is represented, but is a means of representation (PI-I § 50).

As a result, Wittgenstein uses images, pictures and picturing in the later period in a very different way from their use in early period. He can no longer appeal to the structure of analogy to explain the picturing relationship because there are no longer four terms in a set relationship: *p* stands to *q* in a comparable relationship to how *r* stands to *s*. In the terms of analogy, we no longer know what the relationship between *r* and *s* is. Instead, the image stands without explication and therefore much better compared to the use of metaphor rather than analogy.

As is the case with linguistic metaphor, the underlying relationship of this later picturing is not unpacked and explained. The implication is that the earlier attempts at unpacking the relationships in TLP were futile. In PI the reader must allow the experience of examples to accrue in their cultural context, in order to intuit from custom and use how the community of users intends one thing to 'mean' another, and how we learn to 'see-as' (PI-II, 210). It shows a shift from a prescriptive, analytic visual image theory to a therapeutic, cultural interpretive visual image strategy.

> It is not our aim to refine or complete the system of rules for the use of our words in unheard-of ways. For the clarity that we are aiming at is indeed complete clarity. But this simply means that the philosophical problems should completely disappear. The real discovery is the one that makes me capable of stopping doing philosophy when I want to. The one that gives philosophy peace, so that it is no longer tormented by questions which bring itself in question. Instead, we now demonstrate a method, by examples; and the series of examples can be broken off. Problems are solved (difficulties eliminated), not a single problem. There is not a philosophical method, though there are indeed methods, like different therapies (PI-I § 133).

3.1 The Relationship of the Analytical and Cultural Contexts

Our ubiquitous cultural practice of using samples and pictures as representations disguises their social origins and encourages the belief in a corresponding, analytic association with the thought. The habit requires cultural qualification.

> Perhaps the following expression would have been better: we *regard* the photograph, the picture on our wall, as the object itself (the man, landscape, and so on) depicted there (PI-II, 205).

The ability to make a conventional association between an image and what it represents is particularly complex in the case of pictures of generalisations.

> When I look at a genre-picture, it "tells" me something even though I don't believe (imagine) for a moment that the people I see in it really exist, or that there have really been people in that situation (PI-I § 522).

In Wittgenstein's terms, the necessity of identifying the role of a particular picture within our broader practice – the specific or unspecific reading – must be made perspicuous. Unfortunately, the possibility of genre-pictures introduces what Wittgenstein might call a 'temptation' which is to think that this process leads to a general image or that the genre-picture 'depicts' something general, i.e. that it has a projection relationship with a generalised object. If one sees a genre-picture as an unspecific depiction that does not necessarily imply that what is depicted is unspecific, only that certain aspects of the specific depiction are not part of its function as an unspecific picture. Thus,

> there is a tendency rooted in our usual forms of expression, to think that the man who has learnt to understand a general term, say, the term "leaf", has thereby come to possess a kind of general picture of a leaf… one which only contains what is common to all leaves (BBB 17 f., cf. Goethe's *Urpflanze*).

Another equally erroneous temptation is that each as-yet-uninterpreted representation carries with it as some kind of cultural baggage of all the objects which the representation might stand for in other contexts. This is just the sort of hidden signification which Wittgenstein is at pains to deny.

> Suppose someone said: every familiar word, in a book for example, actually carries an atmosphere with it in our minds, a "corona" of lightly indicated uses. Just as if each figure in a painting were surrounded by delicate shadowy drawings of scenes, as it were in another dimension, and in them we saw the figures in different contexts (PI-II, 181).

The unspecific pictorial image does not have a projection relationship to its object that can be explained by the analytic approach to image interpretation. It must be used correctly within the context of a language-game that constitutes our visual culture. "For such a schema to be understood as a *schema*… resides in the way the samples are used" (PI-I § 73). In practice this is determined by the use to which the drawing is put, rather than some inherent property of the drawing itself. There is therefore no transparent method of projection, no primacy of one form of projection over another: in other words, in the later work the analytic approach to the interpretation

of images has been superseded by the visual cultural. The directness and indirectness of the visual experience, and our understanding of it is reflected in Wittgenstein's rejection of the assumption that there is only one way of interpreting the picture: he complains that "a *picture* held us captive" (PI-I § 115); also, "the picture was the key. Or it *seemed* like a key" (Wittgenstein 1981, § 240). Interpretation on the basis of mere similarity misses the way in which the picture can act within a cultural practice and be seen-as as a type and not as a token.

3.2 The Relationship of Analogy and Metaphor

The claim that Wittgenstein uses images as metaphors (e.g. Wilkerson 1973; Biggs 1992; Nyiri 2014) draws attention to our ability to work abstractly with signs, to use them creatively, but also to cast doubt upon the possibility of an analytic, non-metaphorical use of signs.

> We find certain things about seeing puzzling, because we do not find the whole business of seeing puzzling enough (PI-II, 212).

This new difficulty with the previously favoured analytical use of signs arises in PI-II because 'aspect-blindness' – which in relation to the duck-rabbit describes the user responding to it only as a rabbit – does not prevent responding to it as a rabbit. True aspect-blindness would prevent seeing the image as depicting anything including the rabbit. Therefore the user needs to 'see the aspect' that enables the projection drawing to be an image by similarity, just as much as she needs to 'see the aspect' of the duck and the rabbit. Furthermore, one cannot unilaterally extend the use of the sign beyond the aspects accepted by the users within a particular visual culture, for example, by seeing the duck-rabbit as an elephant.

Acting in a particular way in response to an image shows that someone is seeing a sign in a particular way. This does not imply that when one draws an image, that one's intention that it should be seen in this or that way somehow lies hidden. Wittgenstein asserts this in his usual, ironic way, expecting us to see the impossibility of the assertion:

> We *mean* the arrow in one way or another. And this process of meaning… can be represented by another arrow (pointing in the same or opposite sense to the first) (BBB, 33).

Our intention will only be satisfied if someone reacts to our sign in the way we wish, and this establishes a cultural context for interpretation. Thus the iconicity in a pointing arrow is only conventionally or culturally determined.

> What has the expression of a rule – say a sign-post – got to do with my actions?… I have been trained to react to this sign in a particular way (PI-I § 198).

This gives a clue to the basic use Wittgenstein finds for visual representations in the later period. They function as a therapeutic device against the temptation to pursue philosophical investigations in ways determined by the structure of a sentence rather than the characteristics of what it represents. The difference between the two can be revealed by a change in the representational form, e.g. by a picture instead of a sentence. The benefit of the use of a picture is to provide a contrast with the sentence, rather than providing a more accurate representation. It is this contrast which gives the utility to Wittgenstein's later use of images.

4 Conclusions: Bridging the Apparent Incommensurability

This paper makes six claims, of which the last is original. First, that Wittgenstein's early model for how we represent the world to ourselves is based on a type of visual 'picturing' exemplified by orthographic projection engineering drawing. The act of projecting and explicitly connecting the object to its representation shows that this is a relationship of direct correspondence or *similarity*. Second, that as he extends the logical complexity of the relationship to include non-visual representations such as gramophone records, the visual relationship of similarity is better replaced by the structural relationship of *analogy*. This second claim marks a shift from a visual paradigm to a structural paradigm. Third, that owing to its genealogy in visual representation, this structural relationship of analogy *shares features with the analytical model of image interpretation*. Fourth, that in response to the limitations of the method from analogy to account for the fundamental connections between a representation and what it represents, Wittgenstein abandoned this explanatory model from his early period in favour of a descriptive model based on *metaphor* in his later period. Fifth, that once again owing to its genealogy in visual representation, this cultural relationship of metaphor to what it represents, *shares features with the visual culture model of image interpretation*. Sixth, therefore the relationship between the analytic and visual culture approaches to image interpretation can be investigated in terms of *the relationship between analogy and metaphor in structural linguistics*, and as a result the latter can offer a bridge between the apparent incommensurability of the analytic and visual culture approaches to image interpretation.

The first three claims about Wittgenstein and representation may be summarised as follows. His early model arises in the visual prac-

tice of engineering drawing but owing to Wittgenstein's interest in the structural possibilities of the model, it is quickly extended from the visual into the abstract through a change from an underlying visual similarity to a structural relationship comparable to linguistic analogy. This change allows the model to be applied to non-visual representation whilst maintaining the fundamental principle of isomorphism. The isomorphic relationship ensures that there is a correspondence between the logical complexity of the representation and the logical complexity of the object. As the early period progresses, by sophisticating the notion of dimensionality from 2-D drawing, via 3-D engineering drawing, to the multiple dimensions of mathematical space, Wittgenstein shows that one can speak meaningfully of an analogous picturing relationship beyond what can be merely visualised. On the other hand, Wittgenstein had to deploy strategies to avoid the paradox of using language to speak about the limits of language. In his early period this simply meant that "what we cannot speak about we must pass over in silence" (TLP § 7).

The fourth and fifth claims about Wittgenstein and representation may be summarised as follows. During the transition and into the later period, Wittgenstein eschewed his increasingly complex defence of the relationship of analogy in favour of a metaphorical relationship. By the later period he had changed his approach to the problem of how to speak directly about the limits of language, in favour of an indirect method: "to travel over a wide field of thought criss-cross in every direction" (PI Preface). Methodologically, the shift to indirectness reveals that by exchanging the analogical, proximal relationship of one object to another for the abstract categorization of objects not usually juxtaposed, one can speak meaningfully about commonality without having to explain how that relationship functions.

The sixth, and principal claim of this paper, is as follows. The linguistic tropes of similarity, analogy and metaphor have been described using terms from structure-mapping theory in linguistics. The key difference between similarity and analogy is that similarity maps many attributes but few relationships from the target (about which we seek knowledge) to the base (about which we are familiar), whereas analogy maps few attributes but many relationships. In other words, similarity involves superficial similarity whereas an analogy is often all the more striking owing to the lack of superficial similarity to the base.

> The central idea is that an analogy is an assertion that a relational structure that normally applies in one domain can be applied in another domain (Gentner 1983, 156).

Analogy is in this sense closer to metaphor than to similarity, owing to them both relying on disjunction, e.g. between the claim of the metaphor – for example "Juliet is the sun" – and its literal interpre-

tation. By this comparison, Wittgenstein's early period includes two related but distinct picture theories of meaning. The first adopts a simple iconic model in which both iconicity and spatial picturing are used. The second is more dimensionally complex and meets Wittgenstein's description of a logical picture/representation. This shifts the linguistic description of the relationship from similarity to analogy because the latter relies on the target and base having comparable relationships despite having dissimilar appearances.

> According to [structure-mapping theory], the contrast between analogy and literal similarity is a continuum, not a dichotomy (Gentner 1983, 161).

As a result, it would be in accord with recent scholarship about Wittgenstein's early period to avoid using the term 'picture theory of meaning' – which he himself did not use – in favour of a 'theory of representation by analogy'. However, in his later period he rejects the adequacy of such a correspondence relationship owing to the lack of both the attribute and the relationship mappings regarding the way that images and words function as representations. Continuing the appropriation from linguistics, various commentators have described the representational relationship in the later period as functioning by metaphor. This description applies to his use of both words and images. According to structure-mapping theory, metaphor works by a process of categorization in which a novel category is established that can contain both the target and the base:

> the base concept is used to access or derive an abstract metaphoric category of which it represents a prototypical member, and the target concept is then assigned to that category. (Bowdle, Gentner 2005, 195)

The novel abstract category does not rely on a similarity of attributes or relationships. It achieves its polysemy by the creative possibility of generating multiple categories, and some of that possibility arises from the lack of explicit similarity, including any apparent categorial similarity. One of the challenges discussed by Bowdle and Gentner is how the user chooses between competing potential abstract categorizations in order to select the most productive one for the interpretation of the metaphor. Wittgenstein's response would seem to be that this is a societal matter resolved by normal usage, commonly expressed as his concept of 'language-games'. Wittgenstein's presumed response would be harmonious with visual culture interpretation, indeed Barker and Jane claim that cultural studies is constituted by the language-game of cultural studies (2016, 4).

This leads to the final issue of what benefit is gained from the above analysis. Wittgenstein's abiding interest from the early period to the later period was in the relationship between language and the world. His use of images throughout his lifetime was always to illustrate what he thought was the nature of this relationship. In his later period he abandoned the so-called 'picture theory of meaning' in favour of a culturally focussed account of the connection between language and meaning. This is supposed to stem from the day when his colleague Sraffa passed him by on a bicycle and made a rude gesture at him (Malcolm 1958, 69). Wittgenstein realised that the meaning of this gesture was culturally determined, and this extended to the meaning of words in general. This has become known as 'meaning as use' and occurs in a cultural context that Wittgenstein called 'language-games', i.e. cultural practices. The interpretation of that gesture, and of words and images in general, may be compared to the linguistic practice of metaphor, in which two disparate terms are juxtaposed and this disjunction provides rhetorical impact. The disjunction also serves to cue, break or prevent the literal interpretation of the words in favour of an indirect meaning. When we are presented with an image we understand, owing to this cultural context, that we are supposed to see beyond the objectivity of the colours on paper and to 'see-as' an image what is apparently merely an object. Such implicit, culturally inferred meanings are, according to structure-mapping theory, mediated by an indirect object of a different category than the base and target terms. The metaphor is polysemous and so the optimum meaning must be negotiated by the users as part of a cultural practice. There is, therefore, a continuity in the representational relationship between the analytic and visual culture approaches to image interpretation that can be investigated in terms of the relationship between analogy and metaphor in structural linguistics, and as a result this method can offer a bridge between the apparent incommensurability of the analytic and visual culture approaches to image interpretation.

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The Visual Power of Photography and Its Status as a Representation

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Abstract I shall introduce a hermeneutic perspective and photography analyses from visual theory to the debate concerning the status of photographic representation (together with film, as it is based on the photographic method) which continues within Anglo-Saxon aesthetics and analytical aesthetics. I mostly confront Roger Scruton and Gregory Currie's thoughts on the photograph and its object (source), representation-by-origin and representation-by-use with Gottfried Boehm's concept of aesthetic nondifferentiation, and Georges Didi-Huberman's analyses of photographs. This shall allow me to identify the two aspects of photography (independence of an individual object and visual dynamics of an image) which have a significant impact on the status of photography as a representation and on the potential of cinematographic creation as a story told through images.

Keywords Photography. Representation. Aesthetic nondifferentiation. Film frame.

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We become invested in films, we get emotionally involved in depicted stories, we identify with the protagonists, we care about their fate. Film magicians create for us a fictional world with distinct characters, dynamic action, and scenes brimming with emotions. Gregory Currie writes about the particular vividness of the film experience in contrast to the other representational arts – even though film relies on the photographic method, i.e. it simply registers a certain previous state of things, it records actors playing their roles (Currie 2018, 186).[1] Yet we follow the adventures of the protagonists, not just the movements of those particular people. The question arises – how is it that we see Robin Hood and not a specific actor? From where does film get its vividness, its power to draw us into a fictional world?

This problem is an echo of an earlier debate concerning the status of a photograph as representation (and thus also of the film, recording a certain state of affairs). The discussion oscillates between defending its representational qualities and denying them. The denial is linked to the causal process of photographic development. This process is supposed to eliminate or diminish the role of the artist's intention, so that photographic representation becomes limited to the person or object placed in front of the camera. Roger Scruton took a particularly clear stand in this debate; one that he presented in his impactful text *Photography and Representation* (1981), which prompted a lot of responses and counterarguments, and some of its sentiments are still valid. In reference to this text and Currie's works, I shall outline the previously-suggested denial or doubts concerning photographic representation.

I recall the above-mentioned debate in order to point out the two important aspects of photography that can make it easier to answer the question about the vividness of the film, or rather the potential for such vividness. The first aspect concerns the relationship between a photograph and its object, or more precisely, the distance between the object of a photograph and the photograph itself as an independent, physically distinct object with its own features, which offers us a certain view. The photograph – through what it represents – has visual dynamics, a composition (more or less fortunate, harmonious, etc.) through which we recognise figures in particular proportions and mutual arrangement. They can be perceived and interpreted not only by reference to the photographed object and the context of creation, but also through their aesthetic nondifferentiation. I thus include in this debate the issue from image hermeneutics (mostly in Gottfried Boehm's conception),[2] which shall allow me to acknowledge the key role of film

1 The paper was created as a result of the research project no. 2017/25 / N / HS1 / 01626, financed from the funds of the National Science Center, Poland.

2 Boehm 1978, 451.

tools both in constructing the representation and managing the viewer's attention. I shall use the examples of specific film shots in reference to the rules of cinematography.

1 Photography and Representation

Scruton forms a thesis about the nonrepresentative nature of photography. He explains his stance by highlighting the differences between photography and painting. To this end, he creates models of them, logical ideals which include their most important distinguishing features. From the beginning, however, this makes recognition of the representative potential of the former dependent on its differences from painting. Scruton sees this distinction mostly in the ability (or lack of it) to express artistic intentions, which are the indicator of representation. What is representation? It is a relationship in which one object "expresses a thought about" another object or "is designed to remind one of" another object (Scruton 1981, 580). It is a relationship which is described through the categories of thoughts about the object, which are communicated through the image. It occurs in painting. An artist creates an image of a certain object according to his thoughts (and abilities) while offering the viewers a way of seeing it:

> These thoughts determine the perception of the man who sees with understanding, and it is at least partly in terms of our apprehension of thoughts that we must describe what we see in the picture. We see not only a man on a horse but a man of a certain character and bearing. (581)

Yet how are these thoughts communicated? What makes them accessible to the viewer? Can we assume that it is the way of representation (representation for its own sake) (586), which, according to Scruton, is the main point of interest in the case of painting? This is an important issue because it can determine how the artist's intention is expressed in a work of art. Is the intention recognised through drawing the attention to a certain way in which a character was painted, to the painter's style, or the technique applied?[3] Does this rely on the viewer's observation of a character's features emphasised in the painting, its particular nature, on their recognition of, for exam-

3 Additionally, my reception, the way I perceive and understand an object, does not necessarily have to conform to the artist's intention. From a hermeneutical perspective, the author is not the authority that determines the proper interpretation. However, this does not mean that a work of art is not treated as carrying a certain message or thought.

ple, an interpretation of, e.g., a mythological or biblical motif? That is an even more basic question. Expressing thoughts through painting requires translating them into shapes and colours, into a composition which determines the relations between the elements, focuses on certain characters while leaving the other in the background, and emphasises important gestures or glances. This is how "certain character and bearing" can be observed. The given object appears through its means of representation, which I understand as a method of organising the visual field. The way the object is shown contains its interpretation. An object or a character is always depicted in a certain way (in a particular technique, colour palette, proportions, etc.) and this influences how it is received and judged (as powerful, strong, with an angry glare, weak, pensive, etc.).

This is the aesthetic nondifferentiation described by Boehm.[4] On the one hand, it is a quality of visual objects: what appears, always appears through a certain combination of colours, in a certain position in relation to other elements of the image or to the background. Nondifferentiation is also an aspect of image reception: the understanding of an object (attributing to it certain features, behaviours, role in a given situation) depends on how it appears. However, Scruton does not recognise the power of visual dynamics (he reduces them to an object's visual properties)[5] in the viewer's experience, in which he distinguishes:

1. The intentional object of sight: a god (defined by my experience);
2. The represented object: a warrior (defined, to put it rather crudely, by the painter's intention);
3. The material object of sight: the painting (Scruton 1981, 580).

The visual component of the image is either not listed here or was equated to the material object. The represented object reveals itself through the artist's intention, but we must remember that it is realised in the specific visual field of the painting.

A photograph is not considered a representation (or it is, but in a very limited sense), it is denied the possibility of expressing intention due to the causal process of development: a recording of light

4 Boehm takes this term from Hans-Georg Gadamer. According to the latter, nondifferentiation means that in the hermeneutical experience, a work of art is inseparable from its non-aesthetic elements. The experience of sense is a unity with the formal, the semantic, the subjective and the cultural. The unity and sense of the work of art are revealed in a simultaneous presentation of meaning and becoming-present within the presentation, together with the circumstances in which the work is being shown – all this is part of the work's being. Boehm emphasises the unity of sensual appearance and creation of being in aesthetic nondifferentiation. Gadamer 2004, 73-4.

5 Scruton 1981, 586.

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reflected from an object placed in front of the camera.[6] Thus, a photograph does not rely (or relies to a lesser extent) on the author's intention, but is determined by the existence of a real object. Scruton explicitly states that the relationship between the photograph and its object is a causal one, not based on intention. This corresponds to Kendall Walton's photographic transparency thesis, which is based on the conviction that a photograph has a counterfactual dependence on its object (if there were no object, there could be no photograph) and on showing real similarity relations (Walton 1984, 265. 271). The photograph is not supposed to be a medium which allows thoughts about the object to be expressed, it simply shows the object, it reveals its appearance. What is in the photograph (identification) is separate from the "how" of the picture. When viewing, we do not focus on the qualities of representation, but rather on the features of the object itself.[7] Currie, while distancing himself from Scruton's radical approach, reaches similar conclusions when he writes that a photograph might be taken accidentally, and we could still observe and determine that it is a photograph of a particular object. However, he finds the counterfactual dependence thesis inadequate, since it can be also applied to painting and the potential dependence on the features of the object observed by the painter. It does not account for mediation through the artist's intention (or lack of it).

Currie introduces a distinction between sitters and sources. In the case of a painting, a real object or person might serve as a model for the representation, but they do not necessarily belong to it. The representation itself can refer to a mythical character, etc. In other words, a model facilitates the process of creating a representation, but is not required. In the case of a photograph, a real object is essential, it is its source (Currie 2008, 268). Moreover, the photographed person will always remain a particular human being. A photograph is forever connected to a certain person.[8] Because of that, however, a photograph is characterised by a particular closeness, or intimacy, towards its object. It is an important aspect which not only relies on a connection to a specific, living (or once living) individual, but we could also add to the scholar's statement that this intima-

6 How then should we approach the paintings and drawings which were made with the use of a camera obscura or camera lucida, like in the case of the watercolour drawing *Scenery from Mr Jenkins cottage* (1850) by John Rea or *View of Coffins Beach* (1862) by Fitz Henry Lane?

7 A question may be asked here about the difference between amateur and artistic photography – however, in terms of primary features, scholars do not see the necessity. Currie also writes about the dominance of the image source in reference to artistic photography. See Currie 2008.

8 Of course we are talking about analogue photography; digital processing of an image exceeds photographic activities in terms of what belongs to ideal photography.

cy means capturing something ephemeral, e.g., an emphatic gesture, raised eyebrows, a glance, a movement of the hand, or posture, which occurs only for a moment.

According to Scruton, the source of a photograph is its main and only subject and a photograph cannot turn the object into a representation of something else. On the other hand, Currie does not deny the photograph's potential to be a representation. However, he distinguishes between representation-by-origin and representation-by-use. In painting, representation-by-origin depends on the painter's intention and the limits of their imagination, while representation in a photograph is always connected to the source. Only through its usage can a photograph represent something different. My doubt concerning ascribing photography to the category of representation is based on – as Currie states – that in particular circumstances a "pepper pot may represent a regiment by being so used in the course of explaining the battle" (2010, 19). As Currie says,

> So a photograph or film image may represent one thing by origin – Cary Grant for instance – while representing something else because of the use of that image in a project of narrative communication. (20)

Does a pepper pot fulfil its function in the given context as well as a photograph, or a film shot? Do the latter not possess certain visual qualities which make them more suitable as a representation? Does the way a photograph was taken (its composition, etc.) not impact the way it represents and the features it emphasises?

The relation between the image and its source or model, the object involved in the process of photograph development, is the indicator of the possibility of communicating thoughts about the represented object. Thus the representation is linked to the relationship (mechanical, causal or intentional – that is, mediated through the artist's sight and brush) with the preliminary object of the painting, or even dependent on it. This does not take into account the function of the visual layer of the image with regard to what it depicts (and how it does that). The omission of the visual layer makes that dependence possible. This is also confirmed through Currie's distinction, which does not consider the role of the visuality of a photograph in the representation it creates.

The representative e potential of photography (or rather, the lack of it) is further examined by Scruton with reference to the relationship with the source of a photograph, which also influences how film is approached. It is a recording of an arranged situation acted out in front of the camera, along with the acting, scenography, make up, etc. Cinematographic tools can only record the representation and broaden its reach through arranging situations impossible on the stage.

On the other hand, a film is supposed to make the efficiency of representation and conveying the reasoning behind it more difficult – the viewer needs to understand that the person caught on camera is trying to show behaviours and emotions which are not their own and belong to a fictional story. Scruton states that the audience is given no criterion of relevance, no criteria listing the things on which they should focus (1981, 599). A film is subjected to accidentality and multiplicity of elements such as dust on a jacket, actor's wrinkles, a multitude of appearing elements which interfere with the message – especially when compared to a theatre stage. Yet Currie states that a film contains certain elements designed and recognised as by design, which are evidentially significant for some aspects of the story (but not all are significant), and recognising these meaningful elements is tied to, e.g., the camera movement (2010, 57). Thus, he confirms that cinematographic tools indicate what is relevant to the story, yet this is still not the same as conveying thoughts on the object.

What about choosing the shot, the specific perspective that sets limits to what appears in a photograph? According to Scruton, these activities do not make the photograph a representation for two reasons. First of all, these are aesthetic actions which emphasise the charm of the given place, but they are not the expression of thoughts on the object. Second, they do not occur in the photographic medium, but before the picture is taken. In a thought experiment, Scruton offers the example of a frame he would place at the end of a street, so that it shows the desired view:

> I move the frame so that, from the chosen spot, only certain parts of the street are visible, others are cut off. I do this with all the skill available to me, so that what is seen in the frame is as pleasing as it might be […] But how could it be argued that what I see in the frame is not the street itself but a representation of it? (1981, 596)

However, Currie argues against such correlation between perceiving a view and observing a photograph by pointing out the lack of egocentric information in the case of the latter. The presence of this information depends on the location of the person observing the view. The location determines our access to the view – which means that seeing is perspectival (1991, 26). Photographs do not offer such information, and the access to the view is not determined by my angle of viewing a photograph.

Moreover, seeing is perspectival, but it is also embodied and multisensory. The light which reveals the view can also be the thing which obscures it, if we have the sun in our eyes. A romantic morning and a foggy landscape (or a rainy city) are associated with the sensation of moisture or cold. We perceive distance by estimating it in geometric parameters, but also by the reach of our body's movement. Depth

is not just positioning one object behind the other, but is also the evidence of corporeal being among things – as Maurice Merleau-Ponty would say (Merleau-Ponty 2012, 265-79). These are important phenomenological conclusions concerning embodied seeing and sharing (being in) a space. Such perception offers us a richness of sensations, which are not reduced to recording visual features. Similarly, even if we place a frame limiting the view, the view will always be inseparable from its spatial context and will remain ingrained in its horizon.

2 Distance of the Photography

The lack of egocentric information not only means that I am not situated in the location of taking the picture, but also that viewing a photograph establishes its own different perceptual situation and that the photograph is an independent object with its own material features. No matter where I position myself in relation to the photograph, I cannot change the perspective of the view on it. It appears that the above considerations overlooked not just the role of visuality in the photograph, but also its materiality. A photograph is a distinct object with its own physical features, and an image independent from its viewers or its creator themselves. It comes into being through registering the visual qualities of its object, and it also shuts out its other features. A sort of photographic reduction takes place, reducing the object to its visuality. The object becomes removed from its spatial context while the chosen frame determines the composition of the picture, and defines the surroundings which become the background for the given object or person. It shows the objects' proportions and visual relationships which are observed regardless of the spatial whole of the original view. It becomes clearer because of that removal.

A photograph is an item which is independent of the photographed object. Thus not only does physical distance appear between the photograph and the object, but also the distance of the object from itself. Although an object, as a source, is always a specific individual, the visuality becomes removed from its context. If this is not a cut, then it is certainly a rift between a photograph and its object, which allows for rich and creative usage of the photograph, while oscillating between closeness and remoteness. The way of reception of the photograph and the objects oscillates between a sense of remoteness and closeness, incomprehensibility and obviousness – depending on whether we know the particular person, whether we treat the photograph as a record of a specific event or confront it with a visuality that we cannot ascribe to any particular situation, and its composition is exceptionally clear. Such works can be found in Spencer Tunick's creations. *Dream Amsterdam* from 2007 shows alternating

stripes: a white stripe and a stripe formed by nude people facing back. Their corporeality – arranged into repetitive patterns, crowded in a vertical frame – becomes abstract.

We might not recognise a particular person or context, but we can be struck by a facial expression, a captured gesture or a position shown on a photograph. They become the basis for interpretation of the picture, they evoke associations, feelings of familiarity or strangeness, and determine the features we ascribe to the given person. This particular expression can be found in Jacques Henri Lartigue's works, like in the photograph of a laughing couple from 1925; in Anysia Kuzmina's photograph of hands (2017); or in Anders Petersen's shot of a kiss from 1978.

Photographic images can be both intimate and universal. Ken Rosenthal, through his original method of exposure and development, creates memory images.[9] They resemble pictures from family albums, but they cannot be linked to specific people because of their particular visual quality: a blurriness and softness which gives them an oneiric atmosphere (like in the photograph series *The Seen and Not Seen*). Blurriness not only stops us from recognising the person, but it also changes the nature of the environment itself. In the photograph of a woman under water (number 237-1 from the series), the whole image is arranged in such a way – through the woman's position in vertical lines, the contrast between the bright, shimmering water and the dark silhouette, and between the bright bottom and dark top – that it evokes the impression of ascending, of calm and stability, or even an image of holiness.

The photographed objects become easily available, they reach out to the viewer; sometimes they are reduced in size, sometimes they are enlarged and thus made homogenous. The photograph is reproduced, moved, subjected to modifications and juxtapositions. Colloquially speaking – it has a life of its own. This is because a photograph is a separate object, not a view within a frame. The life of a photograph and the changes it introduced to the way of experiencing the photographed objects were described, among others, by Walter Benjamin (1969, 217-51). Because of these qualities, the photograph became the foundation of Aby Warburg's work. Through photographs he traced transformations of, among others, antique motifs beyond the previous classifications of the history of art. Because of this removal, we can easily juxtapose a photograph with other photographs or texts in other contexts, and influence the way of understanding of what is photographed. Such transformations are traced, among others, by Georges Didi-Huberman (2018) in Bertolt Brecht's works, e.g. *Arbeitsjournal*,

9 https://petapixel.com/2014/09/23/conversation-fine-art-photographer-ken-rosenthal/.

in which the author confronted photographs of war, cities in ruin, speeches, councils, different persons and daily life photographs. He arranged them in the manner in which films are edited – he created tensions, conflicts, he emphasised differences. He used these photographs as tools of reflection. Of course, we could say that this is representation-by-use (depending on the context in which Brecht placed them), but without their visual content they would not fulfil this role: they would not emphasise shocking similarities or differences. In this case, using these photographs means experimenting with their potential meanings, meanings of what they depict. This in turn would not be possible without the distance between a photograph and its object.

In *Kriegsfibel*, in which Brecht (2017) arranged photographs from newspapers with various captions, there appear, among others, pictures of soldiers: one standing above the other, dead or dying. We identify them as an American and a Japanese soldier, moments after the former shot the latter. We could say that identification is a basic representation-by-origin. The contexts which Brecht gives them by adding different comments or epigrams change our perception of the posture of the standing man and of the situation itself. Does the representation, or its meaning change? Is the way we perceive, ascribe features to people and determine their relationship, a part of representation?

The caption for the newspaper featuring one of these photos refers to the tactical necessity which forced the American to shoot the Japanese. In Brecht's work, however, there is another comment, a question: what necessity put them in this situation? Brecht's works fulfil Benjamin's postulate in which he says that "What we must demand from the photographer is the ability to put such a caption beneath his picture as will rescue it from the ravages of modishness and confer upon it a revolutionary use value" (Benjamin 1997, 169). A photograph becomes engaged in new contexts because of the montage, which allows the photographed object (with all of its visual expression) to be confronted with other pictures or captions, which change the way we interpret a given situation, relationships or posture.

The above examples of using photography don't just show how interpretation of what is shown on a photograph can change depending on the right context – or at least the reception of the meaning of the representation is changed. In this case, is this representation-by-origin, or representation-by-use? Can we say that a photograph in the first context of its publication (the newspaper from which Brecht cut it out) was representation-by-origin, or is it representation-by-use in both cases? Is representation-by-origin always obvious and is there only one? Is it enough to say that a photograph represents-by-origin two men on a beach without recognising the situation, or determining the relationship between those people? Will reconstruction of the event ensure representation-by-origin? So many questions arise, which

shows that the issue of representation and defining the object of a photograph is not apparent.

Doubts concerning the causal relationship between the photograph and its object, which is supposed to be the foundation of representation-by-origin or determine the subject of the photograph (in the case of Scruton), do not only arise with regard to those of Brecht's works analysed by Didi-Huberman. Dawn M. Phillips provided important arguments in this matter. She questions this relation by showing that the causal relationship between the photograph and the object placed in front of the camera does not necessarily result in the subject of the picture (neither does it need to convey the real qualities of the object or result in an image). The subject is not the result of the mechanical process of photographic development. Phillips says that, "Rather, photographed objects are elements involved in the photographic process that constitute part of the causal provenance of a photograph. It is possible for those objects to be the subject, but it is also possible for something else to be the subject. It is even possible that the photograph has no subject at all" (2009, 331). The author carefully forms her theses and states that if a photograph has a subject, it is not because of a causal relationship. She also confirms that this idea suggests another one: namely that intention plays a part in the creation of a photograph, and even more so – let us add – in determining its subject. Can we then establish that the object placed in front of the camera is automatically what the photograph represents?

An important example of the concept that the object in front of the camera and the record of the light it reflected do not obviously determine the subject of the photograph, but that the subject emerges through interpretation and montage activities (through juxtaposition against other photographs), is the unreadability of the picture analysed by Didi-Huberman. It refers to a photograph from a series taken by a Sonderkommando in a concentration camp, and smuggled from the camp in order to serve as evidence. I do not intend to engage in a broad discussion regarding the possibility and moral justification of imagining and reconstructing the situation in which the photographs were taken. I shall refer to only one aspect of these photographs: to the black frames, or rather – black, illegible fragments obscuring large parts of the pictures. However, the black areas appeared as a result of the photographic process, they are the mark of the state of things and objects in front of the camera in the specific moment. As Didi-Huberman writes, "This mass of black is nothing other than the mark of the ultimate status by which these images should be understood: their status as visual event" (2008, 36). Illegible fragments become the subject of the photograph and the representation of the situation only after the sequence is established, with the aid of other photographs and the scholar's explanation. The black mass is the darkness of the build-

ing where the photographer was hiding. Changes in the shapes of the frames correspond to the change of the photographer's location, while blurry fragments and askew framing offer us important information about the urgency, the risk, the secrecy of the whole action. Is this representation-by-origin, or representation-by-use (use in the sequence, by adding a comment)? Does recognition of the situation and the photographed object not happen through establishing the intention and location of the photographer? This shows how non-obvious the subject of a photograph can be, and that the source of a picture does not guarantee representation (or its evidence). The aforementioned analysis by Didi-Huberman is also an example of how – in the process of interpretation – we oscillate between judgment of the visual aspects of a photograph and reconstruction of the situation in which the photograph was taken (together with the trace left by the objects in front of the camera).

3 Visual Power of Photography and Frame

The visual aspects of photography and the composition can be shaped through a photograph, and also expose the particular objects and determine their significance. Among them there are the visual qualities which do not depend on the source of the photograph, but on the photographer's decision – as Jiri Benovsky shows (2011, 559-80). These are: aperture, focal length and shutter speed, and we can also add the choice of lens. Aperture impacts the depth of field, i.e. which object shall be in focus. Focal length affects how the objects show their spatial relations (it can create a sense of depth, increase the distance or make the objects appear closer to each other) and the field of vision they cover. Benovsky confronts Walton's transparency thesis, according to which we look through a photograph at the source itself. He compares photographs to telescopes and mirrors that help us to see through them (1984, 251). This thesis corresponds with Scruton's conviction about the lack of impact of the photograph on the photographed object. Benovsky, by listing these photographic tools and their impact on the image, states that "the overarching aim of photography is not accuracy in depicting the world; it is rather, the aim to make us see the world in a way the photographer wants us to see it" (2011, 392).

If a photograph or a single film frame were to remain transparent with regard to its objects, it would not matter which frames were included in the film representation, and the possibility to create stories through images would be limited. Even single photographs can stimulate the imagination; they suggest relations between the characters and their potential motivations. One of Gaetano Luisi's photographs from the *Echoes passing through the sea* series (2012) – in

which we can see a woman in the water in the foreground, on the right, and a ship far away on the left – has a great narrative potential. This potential results from the composition, which shows the woman and the ship on opposite sides, the contrasting line of the horizon which splits the image in two, and the overlapping line of the woman's gaze, diagonal and directed towards the ship.

Frames can be wrong or misleading, or good and artful. They lead the viewer scene after scene by carrying sufficient information which shall be revealed in a particular moment of the film. Through various tools, filmmakers shape the visuality of the film to tell a story – they reveal information about the protagonist, their desires and emotions, they offer the means of perceiving them, they show their relationships with the other characters. The way the protagonist appears affects how they are received, how their behaviour is interpreted and judged. This constitutes aesthetic nondifferentiation of the film. Skilful shaping of visuality (in accordance with the many different rules and conventions, and also through creative use of visual mechanisms) allows for precise communication and management of the viewer's attention.

Phenomenal transparency, mentioned by Currie, only increases aesthetic nondifferentiation. The term, which the English philosopher introduced, refers to the qualities of a film experience and consists of focusing not on the image surface, but on the represented object itself. Currie writes:

> When we see a cinematic image we usually do not attend to any property of the image surface; we attend rather to what is represented. We may attend to how the people and objects in the scene are laid out, the point of view of the camera, the kind of lens used, and so on. In doing that we are focusing on what is represented, by what technical means and as a result of what decisions. (2018, 192)

However, it is also worth mentioning here that the tools used to create the scene and the filmmakers' decisions affect the represented object itself, the way it is perceived and understood.

A film representation includes many different factors, such as movement, sound and montage, which orders the sequences, creates the dramatic effect of the scenes through timely planning, and builds the film as a whole.[10] However, the shot understood as a film frame – a photograph – is the content-carrying element of a film. It does not just gain meaning in a given sequence, it affects the sequence. Therefore,

10 This is consistent with the conclusions of Noël Carroll, who emphasises the role of order of events, the amount of time of showing an element, and its scale in the viewer's attention management. See Carroll 2008, 116-46.

the composition, spatial relations between the objects, lighting and depth of field, are subject to decision at the frame level.

It is important whether the things within the frame are in the foreground, within the depth of field, in the centre of the composition or situated according to the rule of thirds, or in a specific location. These different elements require specific decisions. Placing one character on the foreground and the other in the background (in the case of, e.g. two people looking in one direction) introduces a hierarchy of importance between these characters. Capturing one character before the other in one shot, e.g. through a panoramic view, suggests a connection between them. Using a balanced composition showing two characters creates the effect of tension, it gives their meeting aspects of a confrontation.

Close-ups draw the attention to the character's emotions and reactions; they can also evoke a sense of confined space, stuffiness, or the character being stuck in a hopeless situation (as it was used in C.T. Dreyer's *La Passion de Jeanne d'Arc*, 1928). Long shots allow the character's gestures and the way they move to be emphasised; they reveal more about their surroundings, they show them in a context and establish the relation between the character and the space. Medium close-ups allow the character's reaction with the environment to be contrasted. Gustavo Mercado analyses an interesting case (2011, 43). It is a shot from the film *Perfume: The Story of a Murderer* (Tom Tykwer, 2006), a part from the scene of Jean-Baptiste Grenouille's execution, right after the crowd has been intoxicated with the smell of perfume. A medium close-up is used, which is a meaningful choice: it clearly shows the protagonist's emotions, his disaffected, disdainful look and his loose shoulders, indicating the calm and relaxation of a person who was about to be killed.

In such a close frame, however, it is difficult to show a wider space (in this case the marketplace and the gathered crowd), and space is significant as an effect of the protagonist's actions and the object of their reaction. This is why the camera is situated slightly above the character's eye level, which usually gives the impression of reducing the character's power; yet here, by placing him in the middle of the frame – along with his clear emotions – it creates the effect of him dominating the environment. The depth of field is balanced, so that it does not draw the attention away from the protagonist's face but it retains the background as the context of the scene. Using similar techniques, i.e. a shot from above, central placement of the character can work differently in an appropriate context. In one of the last scenes of the series *The Morning Show* (2019), this is the way of presenting the forsaken, defeated Mitch Kessler, who is seated behind a large table. The camera is situated so that it captures the symmetry and perspectival depth defined by the lines of the table, other furniture and walls that surround the character, and appear

to dominate him and point to him. His central position is also significant, as he was an egocentric, formerly admired by other characters, and now he has lost his social status, job and respect. What is different between these two methods of framing is the size of the location: the character is shown in a broader context, and the expression of emotions is evident through the character's posture (a close-up is not necessary).

Awareness of cinematographic tools is also necessary if there are lots of elements in the film that are perceived as significant – if filmmakers do not take this into account, the message can be unclear, ambiguous. Therefore, a film can be subject to randomness (as seen in the works of beginner artists), but cinematographic craft relies on skilful managing of the viewer's attention, on visual presentation of a number of pieces of information. The elements which are not clear and on which we – as viewers – do not focus on, and which Currie would describe as insignificant, are equally important. They are the equivalent of what Boehm calls the iconic thickness in the case of painting. These are the elements of a painting which are not attributed or adjacent to any figure – they are an interspace of ambiguous content. This space is a vast continuum which brings to light the figure and the relations between figures and the whole representation. This is the paradox of iconic thickness. These elements, which cannot be attributed to a particular figure of meaning, organise figuration and allow the explication of sense: "This impossibility of utterance which is not capable of describing the intensity of the phenomenon and breaks down in it, […] exposes what is pictorially the thickest" (1978, 463). What has not been articulated plays an important role in the process of the image's interpretation (1996, 164).

In the case of film, what are iconically thick are those elements which are not brought to light, which stay out of the depth of field; it is the background which allows one to focus on the character while it remains in the dark. A rather painterly effect of thickness was achieved in the very tense group scene in the film *Exiled* (Johnnie To, 2006), right before the shoot-out: the characters are situated in various places within the frame, some in the background (with significant shortening and well lit), others in the foreground, almost flat without the depth effect, fading into the undefined blackness, separated by hanging fabrics, doors or just darkness. However, more often this insignificant in-between space is filled with objects, buildings or sights which do not attract attention, but which are a continuation of the presented world and build a specific atmosphere; they are the elements of architecture, e.g. vertical lines in scenography, which are not significant in themselves, but which allow the effect of bias (deformation caused by tilting the camera and increasing the effect of tension) to be created; they are the details which in any given moment can be highlighted, e.g. through focusing on them, and become a part of the plot.

4 Conclusions

Scruton's reflection (whose perspective is similar to the one taken by Currie or Walton) on the status of the photograph as a representation was focused on the relationship between the object (the source) and the photographic image. This relationship was the basis for the ability to express the artistic intention while at the same time expressing the thought which is the object of interpretation. The subject was equated to the object, ignoring the material and visual aspect of the photograph as an image. However, as a result of photographic reduction (the process through which the photograph comes into being, independent of both its source and the viewer), it becomes distanced from the photographed object.

The latter becomes removed from its own context, time, space and situation, and is reduced to its visuality. It appears within a given frame, in which the proportions and relationships between the elements and the background are established. At the same time, it offers closeness of the object, its intimacy, i.e. concreteness and the captured moment, an ephemeral gesture, a display of emotions. Through this removal, we can observe the gesture and experience it. In a film, this is additionally intensified by the length of a given shot – the amount of time the viewer is exposed to the given emotion.

This distancing is also the reason why interpretation of the photograph – recognising what is in it, what the situation is, or what it means – is not always obvious. We can be moved by an emotion but we cannot identify it or relate it to anything. Sometimes it turns out that establishing the representation-by-origin requires using a photograph: placing it in the given context or juxtaposing it against other photographs. Thus representation-by-origin is not always evident. On the other hand, representation-by-use is not discretionary – we cannot compare the use of a photograph to the use of a pepper pot to explain battle strategy. A photograph is an image, it has visual dynamics within which a figure appears against a given background, in a particular location with regard to other elements. The figure becomes revealed and defined through this dynamics; we observe it, receive it, judge it through its visuality – in aesthetic nondifferentiation

The removal of the photograph from its source, as well as the power and suggestiveness of its visual dynamics (depending on a successful or unsuccessful shot), are a necessary condition for the cinematographic creation, in which a two-dimensional moving picture shows viewers a complex world, frame by frame. Even single shots provide information about the protagonist through how they show the character and their surroundings (depending on the situation, location, or depth of field, which are decided by the filmmakers and allow them to manage the viewer's attention and offer them their vision). Thus shaped, the visual dynamics of shots and frames, the context, and

also the order and rhythm introduced through the whole sequences of images in the montage, constitute the film plot – a rich representation of a given story and its protagonists.

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The Productive Inadequacy of Image for Contemporary Painting
Image Based Operations in the Work of Beth Harland, Jacqueline Humphries and R.H. Quaytman

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Abstract This article considers the productive inadequacy of image for contemporary painting. The mutability of image is tested against the material, spatial and durational conditions of painting, and the attentional attachments it might mobilize through an examination of the working methods of Beth Harland, Jacqueline Humphries and R.H.Quaytman. Painting is not positioned as image, but as a processor of image information, able to prompt an image response, A resistance to image is framed by the art historical and philosophical legacy of image expectations and preclusions that each artist feels compelled to work against, and the expanding opticality of our contemporary social, cultural and economic interactions.

Keywords Contemporary painting. Image. Beth Harland. Jacqueline Humphries. R.H. Quaytman.

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The productive inadequacy of image is a painter's response to the evanescence and mutability of images. Painting has been used as an exemplar of image, but material dependencies and objecthood, and a factious history of self definition and reappraisal can give it an unhelpful opt out when the term image is put under any pressure. Painting's image status seems increasingly awkward in the slipstream of expanding optical consumption that marks our contemporary condition, yet I propose that contemporary painting is ideally placed to open up an account of images. Through a consideration of works by painters Beth Harland, Jacqueline Humphries and R.H. Quaytman, I do not position painting as image, rather it is approached as a processor of image information, producing and prompting an image response, and modifying the attentional deployment of a viewer.

I argue that the paintings of Harland, Humphries and Quaytman utilise image based operations which are cognitively conditioned and art historically determined, and are responsive to an exponential expansion of visual pulls on our attention. The image based operations identified are activated to combat the subsuming of painting into the category of image while simultaneously harnessing image and imaging potential, with painting considered a modifier of the attentional deployment and experience of a viewer. The methodologies of Harland, Humphries and Quaytman enable the intangibility of image to be filtered through material and process, and image response becomes dependent on surface, viscosity, and method of application. Additionally, image tangibility is resisted by strategies of visual instability and displaced through layering, repetition and opticality, snagging our attentional processing in complex ways.

Painting's early immersion in depictive motivations countered by a radical rejection of a representational function makes image a heightened term for painting. Painting as image is encountered at the point of upload, archive or visual analysis. At each of these moments image acts as a limitation or dilution of painting's objectness, material particularities and its spatial and durational positioning. Art historian David Joselit points to some of the consequences of "painting's entry into the world as an image in circulation". In the context of a scroll past apprehension, "The question has become, not where to deposit a quantum of paint on its support, but rather, where will the painting – or the image – go. How will it behave?" (Joselit 2016, 17). This prefiguring of the future moment of a painting's reception informs the practices of Harland, Humphries and Quaytman. For each artist, complicating the spatial and durational circumstances of painting's reception are productively at odds with its condition as an image in circulation.

In discussing works by Harland, Humphries and Quaytman, produced over the last decade, I will concentrate on interviews and transcribed conversations with the artists and their own writing. The directness of these sources identify strategies that negotiate painting's

complex relationship with image through the observations of painters; strategies that demonstrate a multiple and intersecting resistance to image while still processing, producing and prompting images. With all quoted commentary on the work and working methods from the artists themselves, we see that this resistance is framed by the art historical and philosophical legacy of image expectations and preclusions that each artist individually feels compelled to work against, in particular a critical engagement with the legacy of modernism. For each artist this resistance to image is also conditioned by the prevalence of the screen as the dominant interface in our social, cultural and economic interactions. More intrinsically, this resistance intersects with a question about the processes of vision, and the imaging making conditions of perception.

Before turning to the specific artists' works, I need to lay out a series of functional sub categories of image that are pertinent to the discussion and emerge in the artists descriptions of working processes and responses: image as visual artefact, image as data, and image as visualisation. I say functional because I can put them to work to map the image field contemporary painting finds itself negotiating and because they are certainly not exhaustive. The issue of definition, edge cases, and taxonomy, can stall an analysis of image as the terms of reference are under dispute (Elkins, Naef 2011). Within each of my functional sub categories, the physical requirements of painting hits up against the mutable and intangible potential of images, articulating a point of access and avoidance of image for the artists, and providing a juncture that captures image's productive inadequacy in their practices.

Firstly, I refer to image as visual artefact when image is used inter-changeably with painting, or image is used as a catch all term for the visual outputs of a culture. Painting enters art history most easily under the conditions of image, as the comparative and categorising impulses of art history run parallel to visual capture and storage facilitated by the invention of photography. Image in this sense readily gets stretched to 'image of…', foregrounding a representational function for painting whilst demoting other characteristics. Here image is allied with language and can imply a sort of material transparency that a naming response to image relies on. It might also act as a reminder of an optical emphasis that was a factor of modernism, in which the material properties of painting are just a circumstance of process to be looked past in the service of visual effect. Jacqueline Humphries describes her frustration with this emphasis on the visual for painting; "sometimes the difficulty for me is simply the 'given' of the visual aspect and how that seems to ignore the physicality of painting which differentiates it from other kinds of images […]. The term 'visual' does not adequately describe the procedural and perceptive physics of painting in all its aspects" (Ryan 2018, 15)

Secondly, image as data. For contemporary painting, participating in the digital slipstream is to enter into the potential of image as commodity, and image as data is painting at the point of upload, circulation and exchange. Painting enters art history most easily under the conditions of image, as the comparative and categorising impulses of art history run parallel to visual capture and storage facilitated by the invention of photography. For contemporary painting, participating in the digital slipstream is to enter into the potential of image as commodity. Image as data and the reproducibility and shareability it infers also captures the sense of image information imported into or onto painting. It zooms into the unit by unit marking of a surface, or zooms out to the overlay of an appropriated schema or an already imaged source material. For R.H. Quaytman image as data enables image to be included in the space of painting, when direct depiction or gestural response have been excluded by the artist. Quaytman's use of reprographic processes helps her bypass an art historically conditioned "horror of the representational". As she outlines, "you could say that the paintings are elaborate exercises of avoiding that fundamental mimetic gesture" (Joselit 2011).

Finally, image as visualisation is the sense of image as a consequence of our perceptual modelling of the world, connecting to the anticipatory and reflective processes of imagination and memory. Image as visualisation tilts between image as an objective record of perception, and image as subjective, biased, and predictively coded. This is where painting might act as a prompt for an image response in a viewer or might be considered as material evidence of the perceptual engagements of its maker. It might also signal image perceptually detached from the concrete support of the painting, image that can't be located on or in the painting, but is producible by the painting under viewing conditions or positions. It captures image as internal picturing, the anticipatory and reflective responses of imagination and memory. Image as visualisation positions painting as a compelling example for philosophies of perception, but it also opens up a critical obstacle for evaluating a cognitive response to painting that is particular to art discourse. The thrust of recent radical art practices towards participation, envisaged as a direct physical or collective interaction, has for many devalued the internalised cognitive engagement and attentional attachment painting might prompt, characterising it as privileged, individualistic and removed from any urgent social and political context. The works of Harland, Humphries and Quaytman each make a claim for the complexity of cognitive participation, and the modes of attention painting facilitates, while also introducing methods of displacement that avoid a singular encounter. Beth Harland points to "strategies of interruption, shifts in expectation through subtle in-congruity, something repeated (but perhaps with slight variation) that you remember seeing at an earlier point"

that engage memory processes and increase the duration of our attentional attachment (Thomas 2018, 118).

Importantly, all three serviceable categories, image as visual artefact, image as data, and image as visualisation, highlight painting's misalignments with image, but also position painting's material, durational and spatial decisions within the context of image processing and production. Contemporary painting's resistance to the category image gives some traction for considering the ubiquity and elusiveness of image, and its pertinence in a consideration of the visuality of our contemporary experience.

Jacqueline Humphries, interviewed by the artist David Ryan in 2018, proposes painting as a sort of meme (Ryan 2018, 47). Painting is envisaged in adaptive and recurring circulation but also as a reiteration of itself. Humphries has long made a correspondence between the space of painting and screen based space, but the correspondence is made in terms of process and interaction rather than as a purely visual reference. As she outlines, "by equating a canvas with a screen (common in my work through many different iterations), I can play out behaviours that I think are ever more present and common in our culture. I can transform those behaviours into painting" (Ryan 2018, 55). Gaming space in particular provides an equivalence for Humphries to the moves and counter moves of processed paint that the work is immersed in for both maker and viewer. The direct gaming references Humphries uses in the 2018 interview are Pong, Minecraft and Dwarf Fortress, all exemplifying a logic that compounds look with function. In Dwarf Fortress the game space is depthless in the sense of an overhead view, and built only out of text and symbols. It is reiterative of its own programming logics. As Humphries asserts the visual output of the game "is instrumental to the needs of the game" (Ryan 2018, 54). Taking that thought back into painting connects with some wryness to the modernist demand that painting should be only itself. Stripped back of any rendered graphic interface. Humphries identifies strongly with what she calls "the purist, fetishistic aesthetic" of a game space made solely out of data. This seems to me where Humphries painting practice productively bounces against a determining tendency in painting's art history. The user interface a painting might present to a viewer can be generated by the logics and consequences of its own making, the procedural behaviours and processes of "dismantling and rebuilding" (Ryan 2018, 50). In this sense Humphries's work meets a modernist requirement set for painting in the twentieth century, avoiding a resemblance based category of image, while also working with an accumulative process of image data and image output.

This resistance to being categorised as image is highlighted by the destination of painting as part of a screen formated visual feed. As Humphries describes, "What's striking in today's screen culture

is how one image is so rapidly replaced by another which doesn't relate to it in any way: there's no definitive image, nothing which synthesizes or sums up, just an endless torrent. The screen itself is the unifying element, and compresses within itself this multitude. I can't look at an image on a screen any more without sensing another one or another billion images lurking just behind it ready to push it offscreen" (Ryan 2018, 56). This multiplicity can be seen as a modification of our attention capacity and mode of deployment. Jonathan Cray has argued, "part of the cultural logic of capitalism demands that we accept as natural switching our attention rapidly from thing to another" and that "the rhythms, speeds, and formats of accelerated and intensified consumption are reshaping experience and perception" (Crary 1999, 29-30; 2013, 39-40).

Humphries sees her work within the logics of screen culture but as offering a counter measure of compressed material processing. The painting as a single frame of material information is primed for visual consumption but can displace a sense of unity with a visual hum of layered materiality that requires variable viewing distances that are perceptually irreconcilable. The abstract rebuff to representation and illusion shimmers elusively in Humphries practice. In an earlier interview with artist Cecily Brown, it is clear Humphries values how the paintings cannot be captured as a single image, either perceptually or as a document. Working at the time with metallic paint and its changeability under varying light conditions, Humphries recounts how "the paintings change as your physical relationship to them changes. I like the unstable situation that depends on the light and the viewer both moving around; the painting changes before your eyes. They're impossible to photograph – there's no 'accurate' image" (Brown 2009).

The analogy to the screen at this point for Humphries was predominantly cinema, partly as a question about the attentional capture that cinema space demands of an audience, and partly in relation to the optical flicker that her multi-layered processes can produce. As Humphries notes, "there's no protocol for making people look at paintings", and certainly nothing equivalent to the durational and collective viewing experience framed by cinematic space. For Humphries the work of the painting to capture attention is certainly facilitated by a perceptual instability as "light moves across the surface and makes new images before your eyes" (Brown 2009). This perceptual instability links to recent writing on aesthetic experience that draws on current cognitive and neuro psychological research, particularly the distinction between focused and distributed or focal and diffuse attention. Whether aesthetic experience is supported by distributed attention (Nanay 2016) or the sequential reallocation of attention (Fazekas 2016) across the various properties of a single painting is a live discussion. Contemporary painting's reaction to

the limitations and possibilities of an aesthetically framed response needs to navigate some critical quicksand, but it is clear that shifting attentional modes are activated in the live encounter with a work, whether a returning gaze or a gaze scattered by oscillating layers of paint application. Research into the connection between focused and distributed attention and mood brings an emotional cadence to the attentional capture and modulation that Humphries' paintings prompt (Srinivasan et al. 2009). Humphries has used the term activation to express her desire for the paintings to do something, "to intensify the sense of one's own interaction with it" (Ryan 2018, 53). This motivation for activation was a driving factor in the black light series, in which the paintings take on illuminating and illuminated properties of the screen. These were paintings as a light source "activating their environment rather than the other way around. The painting isn't just on the wall with you looking into it, the painting is really in the room" (Ryan 2018, 54).

There is a balance Humphries seems to be trying to strike, between the optical charge of a work into the space of its reception and a pull back to the work's surface conditions. In this way the work also rewards a moving viewer in physical space and disappoints as an on screen capture as image. In a recent group of works stencils are used to transfer a mesh of small emoticon motifs across the painting, the perceptual permutations shifting radically between a close up or distanced viewing, The emoticon reference allows Humphries to riff on expressionist and gestural precedents for painting at arm's length, imported as a repeated signifier of mood or attitude. As Humphries states, "It seemed a funny idea that a painting could come with its own expression, for instance in the case of *:)*, which is a blue painting, I layered the emoticons vertically but upside down, so then it appears to frown. That way the painting becomes, on its face, 'a blue painting that is sad'". This balance gets articulated in the optical and material consequence of this mesh, where the decisions of material thickness, pressure, speed and direction of application bump up productively against the mechanism of image transfer. Humphries alerts us to her procedural observations at that micro level of making, that "by forcing the paint through the stencils very gesturally, I could make the gesture register in the pattern, and that's primarily what you see – a kind of fragmented mechanized gestural haze – until you get very close to the painting, and only then can you see the tiny emoticons" (Ryan 2018, 54). Here painting contains image, produces images, while still avoiding becoming image.

Beth Harland's work also takes on the consequences of the screen and digitization for painting's ingrained materiality. Like the seemingly contradictory values of abstraction and image processing seen in Jacqueline Humphries work. Beth Harland's paintings are a complex response to art historical precedents and a contemporary con-

text of extreme visuality. This is steered by the commitment to the experience of viewing in space and over time, and the fascination with the processing of image information through and into the material of paint. I will draw predominantly from a transcript of a panel discussion at ICA Singapore in 2016 during an iteration of the exhibition project *Impermanent Durations: On Painting and Time* and two descriptions by Harland of the process of making work (Harland 2011; 2019; Thomas 2018).

Paraphrasing John Berger, Harland expresses the sense that painting "addresses all sorts of future moments in which it will be looked at – a kind of premonition" (Thomas 2018, 108). Looking forward and looking back is part of the durational scope that Harland has mapped for painting. Harland's recent work *Methods of Modern Construction* returns the artist to a pivotal moment in painting's history, early modernism, with ways of seeing upended by visual invention (Thomas 2018, 112). This recognition of a radical perceptual model but one housed in an art historical past, instigates a sort of improvisation loop for the artist, building an iterative set of remakings and returns. In a visual essay in the Journal of Contemporary Painting in 2019, Harland lays out this methodology in 3 parts. As Harland describes, "Part 1 is a large wall collage, built up through small varied elements. These are made with exuberance, both in their use of colour, eclectic materials and motifs" and as a direct response to painting precedents, particularly Henri Matisse, engaging with painting "as a way of looking" rather than a vehicle for depiction (Harland 2019, 213-14). This approach frees the work to engage speculatively and as Harland says 'exuberantly' with paintings art history, but generating fragments or moments that don't build to a stable and resolved whole. Rather they act as a resource to be endlessly resorted and reordered. Each collage element can sit as a component within a larger grid format of shifting adjacencies or can be detached from the grid as a single work. Calling the collage "a generative form, an archive of sorts from which the act of remaking can take place", image as visual artefact and image as data are both deconstructed and become pliable under Harland's methodology (Harland 2019, 215).

This process of distilling colour, mark, motif and shape from an art historical source is then reformatted by Harland. Part 2 of the work consists of a digital picture of the wall collage as it was set up in the studio, a momentary fixing of a work that by its nature feeds off realignments and shifting placements. This image capture is the work as a gridded block, small and flattened but exquisitely high resolution and chromatically brilliant on the back lit surface of a tablet. The screen size is a close approximation of the individual collage elements and "the re-presentation of it as a screen image is an action of removal from the origin and also introduces another form of attention and temporarily, that of the digital realm" (Harland 2019).

It embraces both the seductiveness and the inadequacy of image as data, and screen based destination of painting as an image in digital circulation. In part 3 of this sequential but looped system a series of small paintings transcribe aspects of the original collage through a filter of pixel-like blocks of colour or tone. Carefully and precisely reworked via the conventions of easel painting, "they each focus on separate aspects of the original: one painting takes up only the colour information and distills it into a grid of the most dominant chromas and tones; others are rendered first as pencil drawings, removing the colour and surface variations, and then painted in monochrome" (Harland 2019, 115). Like Hito Steyerl's 'poor image' these works connect with a loss of visual information but these inadequacies or limitations are meticulously and labour intensively rendered in paint (Steyerl 2019). The exuberance of the collage working is countered and also refined by this slow extraction. Harland has described these works as becoming documentary, and "as a kind of aside from the main story – of life, of history and their forceful narratives – that can perhaps only be dealt with as small steps, negotiations that relate to individual moments of *sensation*: touch and colour, space and time" (Harland 2019, 214).

The component nature of Harland's practice in *Methods of Modern Construction* mirrors the selective function of attention, identifying targets for the artist's attentional focus and peripheral pulls that tug in the making and then are played out in the dispersal of those components when installed on space. Each reworking trails the logics of its imaging potentials and histories with it, and shifts between the digital realm and material reworkings are asked to account for each other, but also to modulate the attentional attachments of a viewer. In recent exhibition projects, the set ups of work are clearly provisional, the work describing its own potential to be repositioned, reworked and reimaged. As Harland recounts, "This comparison of formats asks: How is the viewer's experience of looking and time altered in the shift from the complexity of the unruly collage to the distilled precision of the small monochromes? Might both formats provide a rhythmic structure for viewing, affecting the pace of the act of looking?" (Harland 2019, 114). The extended and dispersed durations of looking that the works ask for are more poignant because of the awareness of an inherent time limit of a particular configuration, a moment of address with an individual viewer in a specific space and context. The interdependencies in process, between collage, digital rendering and transcribed painting, are redistributed when the work is installed. Sequencing and spacing decisions provide "cues for looking" (Thomas 2018, 110), directing the movement of a viewer and duration of their attention within the architecture of the gallery space.

Beth Harland's engagement with early modernist motifs in *Methods of Modern Construction* signals a long investment in working

with source material. Unlike Jacqueline Humphries working against painting re-presenting something already seen in the world, Harland's work engages with processes of repicturing. Thinking about painting in terms of a negotiation between illusion and materiality, Harland wrote in 2011 about the interplay between an image source and material handling, "when sight and touch open the same space in the painting, when visual resemblance and affect combine; when I internalise the experience of looking" (Harland 2011, 11). Harland conveys the combination of looseness and control that an external source can facilitate, that the concentration on something external to the painting attaches and detaches the application of both material and image to the painting surface so that neither fully settles or resolves; "There's a photograph as reference, the colours of nature removed, and an oscillation in my attention between the 'image' and the application of 'material'. There are times when these positions of attention seem to coalesce, and eye and hand execute one singular action" (Harland 2011, 11). This oscillation evokes and values a sense of tactile verification for painting, the conferring modalities of sight and touch (Olin 1989, 294-6).

This repicturing process is enabled because image as outcome has already been secured by the image source, in this case a reference photograph. The responsibility to be image is therefore displaced from the painting, while carrying a response to image data, built mark by mark, moment by moment. As an instance of the productive inadequacy of image for painting, Harland articulates this interplay in relation to Jacques Rancière's writing on image, "Rancière has much to tell about the complexities of image, and he is clear about the fact that in art the question is one of alteration of resemblance: 'the images of art are operations that produce a discrepancy, a dissemblance'" (Rancière 2007, 6; Harland 2011, 13). What is clear in Harland's engagement with source material is the discontinuities that open up between what can be pictured and what can be named, or between image and material, offer a productive space for the artist. The art historically fraught aspect of painting and imitation or likeness is tackled by Rancière in *The Future of the Image* when he makes a distinction between mimesis and resemblance, "the anti-mimetic revolution never signified renunciation of resemblance. Mimesis was the principle not of resemblance, but of a certain codification and distribution of resemblances" (Rancière 2007, 104-5). In Harland's work, the attentional capture triggered by resemblance is internalised for both artist and viewer, and also scattered between works, and between the processes of observation and the processes of memory.

Scattering the viewer's attention is a strategy also used by R.H. Quaytman. Quaytman's shift from the restriction and convention of single paintings to using a serial structure, binds individual works

into a set of dependencies within a collection of works, or chapters as Quaytman terms them. This strategy is tightly co-ordinated by a set of rules established by Quaytman that draws every work into an overarching system. This was partly motivated by the desire "to shift the most intense focus off the individual painting and into the situation of the painting – to its neighbors and context" and "to create a lateral reading as opposed to one that was primarily about depth or surface" (Bessa 2014). The stretch and temporality of attentional possibilities this accommodates is partly an acknowledgment of conditions of viewing work that are often far from the ideals imagined by art history or by artists. Quaytman has stated, "I actively try to make paintings for passive, distracted, foreign, and even disinterested audiences" (Krebber 2016). For Quaytman paintings are objects that are changed by and dependent on location, placement, sequence and of course other paintings rather than self contained and autonomous within a framed limit. Here Quaytman unsettles painting as visual artefact by making works that already predict their destination as objects stored as much as pictures displayed. Shelving and storage structures used by Quaytman imagine the work under the conditions of a physical archive, and complicate its ability to be archived as image or as visual artifact.

In acknowledging these conditions of display, storage and circulation, Quaytman recognises that the works "have to be open to disruption and shifts in legibility" (Joselit 2011). This issue of legibility is carefully calibrated through her procedural entanglement of image and material, using silkscreen to bypass an art historically conditioned aversion to representation and as Quaytmans says giving access to content "without my having to paint it with a brush" (Joselit 2011). Image as data opens a dense archive of photographic and printed material for Quaytman, supporting a research process that is site responsive. Image is translated through the liquidity and mesh of the silkscreen process, making photographic information materially contingent, and also inextricable from the absorbent chalk ground of the panels Quaytman uses. As she remarks "silkscreening abstracts the photograph, materializes it and snaps attention back to the picture plane" (Stillman 2010). Screen printing for Quaytman imports images onto painting while absorbency provides image into painting, providing procedural negotiation between image and its material carrier that synthesizes access to pictorial content and the properties of abstraction, This calibration of image and material connects to an early motivation for works to be directly handled, as objects and as surfaces (Krebber 2016). The bevelled edges of Quaytman's panels, slanting back from the front face of the work, might heighten a sense of surface facing, but they also increase their potential to be lifted, overlapped, and slotted as objects. The holdability of the work, and a viewer's awareness of their surface tactility, is now deferred by the

requirements of museum and gallery installations, and is left to invite an imaginative and optical experience of its materiality.

Quaytman's engagement with the optical has also connected with the perceptual effect of the after image, recalling Wladyslaw Strzeminski's avant garde experiments with perception in the thirties. Quaytman underlines her position, "unlike '60s Op, my pattern paintings do not convey a future of freedom and fun, but call attention – as Strzeminski's work did – to vision itself" (Stillman 2010). In discussing the optical charge she has utilised across various chapters of work, Quaytman notes how they are hard to look at, and simulate for Quaytman the experience of a monitor image. For the viewer "it feels like zzz, like electricity in your vision" (Bessa 2014). Quaytman also comments on what she sees as a positive instability in reproducing this aspect of the work as image, "when it's reproduced it's always different, because the pixilation never gets it right. I kind of like that aspect of its resistance to be documented" (Bessa 2014). By harnessing opticality and simulating pixelation Quaytman future proofs the painting from being adequate to a pixel based image of itself.

This approach to image processing and diverse image registers has been described by Quaytman in terms of pictorial events. For example the placement of a panel with an optically charged but abstract surface can manage or counter the narrative draw of a photography based panel, each offering "a different kind of time and appearance" (Bessa 2014). Pictorial event is a term associated with art historian Michael Baxandall writing about renaissance narrative painting. For Baxandall, and I think also for Quaytman, the issue is not what a medium can represent, "rather the nub is what a medium must explicitly discriminate. The things that language must be decisive about and pictures must be decisive about are different" (Baxandall 2011, 123). Baxandall defines pictorial events in a way that connects closely to Quaytman's thinking and the oscillations she orchestrates within and between the works. So for Baxandall they are "*pictorial* in that they are proper not just to seeing but to seeing a depiction on a plane surface; and *events* in the sense that one may be led to consider them as outcomes from conditions. These events must be part of a sense that the picture has a character beyond the sum of objects represented". (Baxandall 2011, 117)

In interviews, Quaytman has at various points identified the sense of painting having a posture, an attitude of address that the painting is configured by and potentially configures in its viewer. This mirroring folds compositional structure into a physical and psychological alignment to the work. One posture is figured as a profile stance, the other is figured as though turning towards the viewer with a face in 3/4 view. Both profile and 3/4 view seem to picture for Quaytman the attentional attachment of catching a viewer's eye, and then the slide sideways of a peripheral pull of an adjacent panel. Interviewed

in 2010, R.H. Quaytman describes how she conceptualises the profile. As a contemporary painter negotiating a somewhat problematic legacy of modernism, the trajectory indicated by the profile gives an alternative alignment to the work, both physically and conceptually. The profile is distinct from facing, facingness being a quality that modernism had promoted as a seemingly logical partner with flatness and instantaneousness for painting (Fried 1996, 266-70, 307). The profile facilitates a sideways move for Quaytman, away from a face to face encounter, while still retaining an exposure to surface, with surface experienced laterally rather than centrally. Quaytman says of the profile, "It seemed to refer to the viewer's movement past a painting. I began to think of paintings as objects that you passed by – as things that you saw not just head-on and isolated, but from the side, with your peripheral vision, and in the context of other paintings" (Stillman 2010).

The profile manages a double move for Quaytman; it pictures an absorbed attentiveness in the sense of an attitude of interiority and a gaze directed across the painting surface rather than outwards to the space of a viewer, while also providing an exit point or directional cue for the viewer to move on. This displacement of a central positioning of a viewer in front of a painting connects to Quaytman's intention to keep the gaze of a viewer mobile and contingent, rather than being fixated by an individual work. As Quaytman outlines, "I try to use images that are not too magnetic emotionally so that you won't be wanting to stare at it too much. It has to allow you to slide off it. It's sort of like a profile. Often if it's people […] they look to the side. If she's looking to the side, you look to the side. It's like a directive or an arrow" (Bessa 2014). The directive function of image information within Quaytman's practice is a recurring strategy, arrow-like motifs and profiled figures share the same status.

The alternative to the profile for Quaytman is a 3/4 stance that both faces and turns away, equivalent to a compositional device snags our attention and acts as a pause or interruption within a sequence of works. In an interview in 2011 with art historian David Joselit, Quaytman singles out her attachment to a figure in a Marcantonio Raimondi print *The Judgement of Paris* (1517 ca.) that has this turning 3/4 stance. Identified as the source for a figure in Édouard Manet's *Le Déjeuner sur l'herbe* of 1863, its multiple recurrence in the archive of art history gives a resonance to Quaytman's claim, "If paintings could have a posture this would be it" (Joselit 2011). In the Raimondi example the sense of the figure turning its back to the viewer while also turning to face the viewer is more pronounced than in Manet's version. As a posture it articulates the distance and closeness that painting depends on, drawing a viewer in and holding a viewer back. These alignments or stances draw on and undercut the pull of image in our experience of the work, and a reciprocity between our looking and the characteristics of what is being looked at.

When considering the image saturated parameters of contemporary painting, image in all its guises provides a productive inadequacy to work into and against. The working methods of Jacqueline Humphries, Beth Harland and R.H. Quaytman all invest in image processing and image response while deferring image as an adequate category for painting. Jacqueline Humphries has expressed the need to acknowledge a new "regime of the image", recalling Jacques Rancière again, and a "radically shifting landscape of knowledge and the massive social impact of that". For Humphries "the library is no longer a gridded block but an unnavigable amoeba" (Ryan 2018, 57). Here image as data permeates everything, but "the procedural and perceptive physics of painting" provides some material adhesion (Ryan 2018, 51). Returning to Quaytman, we see image as visual artefact stymied by a set of rules that prefigure the archive. They function for Quaytman "to confront what seemed problematic to me about painting – the overbearing authority of its long history, its exhaustion, its capitulation to capital and power", and as a sort fiction that enables making, "they continue to generate new possibilities" (Stillman 2010). Beth Harland has argued that "painting has the possibilities of multiplicity and of slowness on its side, a very particular kind of temporality; an accumulation of presents, all of which are there but not all seen, nor in any particular order" (Harland 2011, 13). Image as visualisation intersects with all other image possibilities for painting, observed, remembered, imagined. As Harland has expressed so persuasively, "we might say that a painting's capacity to refer to the world in a convincing and evocative way, while keeping its distance, remaining 'other', sets up a complex space for the painter and the spectator in which to be" (Harland 2011, 13).

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The Narrative Aesthetics of Protest Images

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Abstract In this paper I argue that protest images have a certain aesthetics and a degree of transformative power. Crucial to this aesthetics is the images' narrative structure, like the representation of goal-directed actions. On this basis, I show that there are more aspects that contribute to the storytelling capacity, like narrative characteristics and an aesthetics of dramatization. Using the example of climate change protests as a case study, I establish that these aspects can contribute to the transformative ability of protest images, if used effectively.

Keywords Protest images. Transformative. Narrative. Dramatization. Aesthetics.

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1 Introduction

Protest images have recently received a great deal of attention within various disciplines, especially in visual culture studies, media studies, and the studies of social movements. Two main tendencies within this recent work can be distinguished. On the one hand, scholars regard protest images as a tool with which protests can be mediatized. According to this view, protest can be seen as a form of visual dissent (Neumayer, Rossi 2018) or as a performative act (McGarry et al. 2019) and images are helpful for protests because they can make such actions more widely known, for example through the spread of these images on social media. The main interest for these scholars is on the social movements of protest and how they build up momentum (Sadaian 2019). Studies in this vein also consider how images of certain disasters or of protests can lead to political change (Casas, Webb Williams 2019). On the other hand, protest images are seen as a subject worthy of study in their own right. For example, some argue that protest images have a certain aesthetics (Göttke 2020), while others explore how new technologies like smartphones diversify and multiply the kinds of protest images that exist (Neumayer, Stald 2014; Stuart 2013), or how picture-books and movies about historical protests utilize documentary footage and repurpose such events into new forms (Davis-McElligatt 2017; Lyons 2015).

While researchers in the latter strand are merely interested in the aesthetics of protest images, those in the former strand want to study how social movements gain momentum and how protests can lead to social change. But the two approaches are closely connected. I want to combine these two strands and argue that protest images are indeed a crucial factor for social movements and that this is due to their narrative structure and aesthetics of dramatization. I will apply some accounts developed in analytical aesthetics and image theory to show how a protest image – through its content, narrative structure and aesthetics of dramatization – can become an influential tool for social transformation.[1]

New technologies and social media can be crucial for protest movements. Such digital devices and platforms are used to mobilize, plan, and communicate (Walgrave et al. 2011; Poell, van Dijck 2017). Nevertheless, it remains contested how influential the digital space is for protests (Christensen, Garfias 2018) and it proves to be difficult to make general claims about the communication of protests *per se*.

1 A historic example for this might be the images by Charles Moore from the Birmingham Campaign, which were printed in *Life* magazine. The case has been made that these images played a crucial role in the civil rights movement. For three exemplary images and an argument about this case see Johnson 2007.

The communication of protest is complex and different models have been developed to describe it.[2] Three things seem important: there are different media to communicate a protest *with* (for example linguistic or pictorial); different channels to communicate a protest *through* (newspapers, social media, online spaces, television, direct messages, etc.); and different addressees to communicate a protest *to* (like fellow protesters, sympathizers, adversaries, or the general public). My focus in this paper is on a specific medium a protest can be communicated with: images. While I touch on aspects to whom a protest is communicated to, I won't discuss aspects of different platforms through which protests are communicated.

Most protest images accrue their transformative power through vast distribution on social media and the interest of news media in broadcasting and commenting on these images. But in order to be distributed widely, these images first need to be sufficiently interesting and arresting. And this is mainly achieved through their narrative and dramatizing content and aesthetics. The bandwidth of the distribution and the extent to which they are commented on may nevertheless be the main factor for an image's potential for transformation. But it is not certain whether and how one can separate the power of the image's content from its distribution. As such, it is worth looking at the content specifically to obtain greater clarity about how these images communicate, surprise and engage spectators and evoke emotional responses and tensions.

What is a "protest image"? In this text, I take protest images to be photographs of people demonstrating, striking or using other forms of civil disobedience as a tool of protest. These images are documentary in form and can be made either by people who are not part of the demonstrating group, or by the demonstrators themselves. I take protest images to be in most cases a welcome and intentional act within a group's repertoire of actions, as they can function as a potential multiplicator and therefore an effective tool of protest.

A protest image should capture the people demonstrating or their actions. For example, an image that depicts the destruction of a building that was burned down during a protest the previous day would not count as a protest image, in my definition; rather, it would be evidence or a documentary image of the *result* of an event that was a demonstration. A protest image is therefore closely connected to what is intended to be seen by the demonstrators, even though the images themselves might be taken by other people who are not part of the demonstrating group.

2 Like ICT based models (Little 2016; Garrett 2006), 'ecological' models (Mercea, Iannelli, Loader 2016) and action-network-models (Bennett, Segerberg 2012).

Figure 1 Stockholm, 2018. Photography © Michael Campanella/The Guardian

Though my account may be applied to most kinds of protests, the specific elements differ with each cause. To this end, here I will focus on climate change protests. My reasoning for doing so is that such protests are frequent and not limited to a single country, making them especially suited to serve as a case study. Moreover, climate protests have achieved one key aspect of transformation: growing their support into a global movement.[3]

The image on the left of Greta Thunberg in front of the Swedish Parliament **[fig. 1]** cannot be the sole reason for the whole Fridays for Future movement. Indeed, the movement cannot be reduced to this image. That said, the image led to certain developments, other strikes and demonstrations that in turn were mediatized, which led to still others, and so on. So, it was an important strike and an important image. Why was this image successful? The reason, I argue, at least in part, is that it captured viewers' attention, not only because of the visuals, but also because of the circumstances that are represented. A school strike was a novel event. It was a teenager who struck. The action disrupted the regular order of things and can be seen as a form of civil disobedience. This leads me to one of the theses for which I will argue. In order to be transformative, protest im-

3 As climate protests have become a global movement, it may be worth considering how much they are still a protest, and whether some parts of it might be characterized as civil resistance. Roberts and Ash (2009) understand civil resistance as a politically transformative force alongside other forces.

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ages often depict a form of civil disobedience, as this is an effective way of getting attention.

From the millions of protest images of the climate movement, I will pick just some to consider. To a certain extent, this choice is somewhat arbitrary. But I have chosen them to illustrate what I take to be crucial to the transformative aspect from the *content* side, namely that they are narratively engaging and dramatizing. To achieve this dramatization, the images often deploy a dystopian and negative aesthetics and stage interventions in the public sphere.

The paper proceeds as follows. First, I consider the goal(s) of protests and argue that there is always a message which strives to trigger a reaction. Second, I highlight three different functions of protest images – documentation, illustration, and a tool of protest – by identifying the latter as the relevant function for a possible transformation, either by growing the protest into a movement (for example, from a national to a global movement) or by influencing the public discourse or even leading to changes in behavior, laws, governance and commerce. Third, I identify several aspects of narrativity and narrative structures that have yet to be analyzed when studying protest images and argue that this narrative complexity, which seeks to dramatize, is essential for images to function as a form of protest. Fourth, I argue that this narrativity and dramatization framework uses a certain aesthetics that is inspired by artworks and movies, and uses dystopian references, performances, and what one could call a negative aesthetics. Finally, I will highlight the ways in which images can add to the transformative power of protest.

2 The Message and Aim

The message of many protests across the political spectrum and for different causes is a voicing of opposition to the status quo, certain behavior or laws. And, ideally, a protest's message puts pressure on and influences public discourse such that it leads to a change from the unwanted situation. The message of climate activists that is conveyed through protest images is around the following lines: there is an urgency to act now, to change behaviors and laws, for if this does not happen, our future will be devastating. The effects of this inaction will be mass species extinction, water pollution, melting ice caps, rising sea levels, people's livelihoods endangered, and an increase in wildfires, droughts, and natural disasters. Additionally, the protests do not just give warnings about and depictions of a certain threatening scenario; they also want to instigate a threat of their own: by no longer playing along. We will not go to school. We will access this prohibited area. We will occupy this bridge. The urgency that motivates the demonstrators is therefore also expressed through this be-

Figure 2 Friday for Future protest. Berlin, 2018. Photography © Jörg Faris, Friday for Future

Figure 3 Friday for Future protest. Berlin, 2019. Photography © Christoph Soeder/dpa

havior. This brings the protest close to a form of resistance and civil disobedience.

Even though certain effects of climate change can already be felt and experienced, and the demand of the climate protests is to change behavior now, the message relates to the future. So, there is a temporal aspect that is important to acknowledge. And the narrative is not only a voicing of opposition, but also a depiction of certain implications if nothing changes. This message is not just communicated with words;[4] it is brought into public space through acts of protest, and, with the help of protest images, to the people.

The aim of protest (images) is to force governments, organizations, business associations and members of the general public to take a stance, to have them react, and ideally change. An intermediary aim is to gain support for the cause, to influence the public discourse and perhaps to build up an identity for a movement. For this, an ideal situation is to have the images on the news or go viral in order for the message to gain greater exposure. To acquire this attention from the news media, the protest either needs to be big enough, to have some drama (such as violent skirmishes with police or repercussions), or, and this is what I want to focus on in what follows, to be narratively engaging and visually interesting enough to be distributed widely.

3 The Different Functions of Protest Images

Protest images can have at least three functions: they can serve a documentary function, for example when used in a history book; they can serve as an illustration, for example as an illustration of

4 Though different groups use words. For example, *Extinction Rebellion* has three messages: Tell the Truth; Act Now; Go Beyond Politics. Other climate movements like Fridays for Future also use words and communicate via social media. Others still provide a complete action plan for the government. As such, words still play a vital part within climate activism. But it is not the only part and not the focus of the present paper.

Figure 4 Friday for Future protest. Berlin, 2018. Photography © Michael Kappeler/dpa

courage against an injustice, or by providing a visual accompaniment to a verbal explanation of a certain topic; or they can serve to amplify a protest, for example by vast distribution via news outlets that gives the event more widespread attention and increases public awareness of the protest. As I am focusing on climate change protests, which are ongoing, I do not want to look at them solely as documentary images nor as illustrations. They are documentary images, but they are not just that. I am mainly interested in them when they are used as tools to reach the goals of voicing dissent, aiming for change in behavior and/or policy, and bringing awareness and new supporters to the cause. In these ways, protest images function as tools of the protest.

As a tool of protest, images of ongoing demonstrations may not seem to be especially differentiated from other parts of protest, such as marching in the street, chanting, holding placards, etc. **[figs 2-4]**. The images are a form of protest, meaning that the relation to the process, to the actual physical happening, is not the relation of an illustration. And they have a function that exceeds the documentary function, like that of a history book. When one is interested in the power of protest images, the most relevant function is to look at them as tools of protest.

When discussing protest images, it may be useful to differentiate between vehicle, image content and image *sujet* (Pichler, Ubl 2014; Pichler 2018). Some protests use images on and next to protest signs, when marching on the street. They give the protest a sense of visual unity: for example, in the Fridays for Future protests, the image of the earth is a major trope, sweating, crying, burning, sick, standing

in as the letter "o", as an eye, or other things that are round, etc. The cardboard is the vehicle, the depicted earth the image content, and the climate crisis the image *sujet*. When used at protests, the cardboard images function to give the people marching a certain unity; they serve as a visual message as to why the people are protesting, and as a visual speech act ("the earth is too hot").[5]

On the other hand, in protest images as I have defined them at the outset, as images of people demonstrating, the photograph is the vehicle, people demonstrating the image content, and the climate crisis the *sujet*. Here the function of these images, when used as tools of protest, can be to amplify the message of the protest through distribution, seeking to gain wider support from the public.

4 Different Narrative Structures and Dramatization

What does the image content need to entail to function as a tool of protest in the best possible way? I argue that an image is ideally suited when it dramatizes the cause of protest, is visually captivating, and has high levels of narrativity. If it does all three of these, the image can be narratively engaging and has a better chance of being distributed widely and thereby putting pressure on organizations, governments and businesses. It may be easier to motivate others to join or support the protest by giving a face to what was previously an abstract cause, and to make this face as convincing and likable as possible to recruit new allies and thereby potentially build up a social movement.

What does narrativity mean in this context? Analytical aesthetics offers some accounts that can be applied to protest images. I will briefly outline these accounts and use them to show that the different narrative structures support protest images in their function as tools of protest.

4.1 Narratively Engaging Images

Bence Nanay (2009) has established an account of what makes an image narratively engaging. He argues that to be narratively engaging, an image needs to represent goal-directed actions. Now, protests are in and of themselves goal-directed actions. People are demonstrating with the aim to change something. The goal is something

5 This might be a symbol for this movement. Another symbol can be seen in cardboard signs inspired by Greta Thunberg's now famous sign with three words **[fig. 1]**. They seem to have been the model for further protest signs.

along the lines of voicing dissent with something, to trigger debate, to push agendas, to put forward an opposing perspective, and to make hardship and restraints visible. The protest's goals might also be to change the status quo by prompting people to alter their behavior, to pressure lawmakers to change or create certain laws, to compel companies or individuals to change their typical behaviors and practices, or to influence public opinion. This is not to say that everybody who protests against something reflects on all of these features. But many have at least some of these aspects in mind. And images that show protestors at a demonstration are often narratively engaging, even if the exact cause of this specific protest is not known. To be narratively engaging is one reason why protest images can be transformative, because through this attention is secured, a rough idea of what is happening arises, and one might even have some emotional reaction. Narratively engaging images can also provoke curiosity and a desire to know what exactly is going on in the image and why. So, to be narratively engaging is important, but this alone is not enough. Many images, even many documentary images, represent goal-directed actions in a form akin to someone jumping from a springboard into a swimming pool. And while these images are also narratively engaging, insofar as they provide a starting point for an explanation, can capture the attention of a spectator, and offer an idea of what was happening when the image was shot, their ability to narratively engage alone is not enough to explain the transformative power of protest images.

4.2 Narrative Images

An account on narrative images maintains that in order to be narrative, an image needs to represent goal-directed actions, as in Nanay's account, or to represent five characteristics, like two events that are connected through a unifying subject and bridging connections, the representation of time passing, and to have someone in the picture display intentions (Fasnacht 2021). If these narrative characteristics can be detected, the image is capable of autonomously telling a story that can be understood by different people without background knowledge. With this account, one might call protest images in general *narrative* images, because all five characteristics are fulfilled: one event as the cause of protest that is indicated; the other event as people protesting that is depicted. These events are connected through the unifying subject (demonstrator or the cause of protest), bridging connections (a causal relation), the passage of time and the display of intentions by the demonstrators, for example to voice dissent or to change the circumstances that causes them to protest in the first place. But many protest images are narrative in this clas-

Figure 5 Climate protest in Lugano, 2020. Photography © CdT Archive

sical documentary sense, and not all these images have transformative power. Thus, more must be needed to make a narrative image transformative.

4.3 Dramatization

I argue that dramatization plays a crucial role in allowing these narrative images to have some transformative power. Dramatization can be understood either in a documentary way, or in a performative way of storytelling. I will sketch both quickly. Dramatic documentary protest images are those in which there is some sort of conflict or violence depicted, for example a violent arrest, the teargassing of protesters, or demonstrators burning or throwing something. These images score high in narrativity,[6] and are images that tend to be photographed, printed, and shared widely. They are narratively engaging and capture the viewer's attention. Another form of dramatization is when protesters are staging a performance. Then they highlight something that is central to the cause of protest and they capture it pictorially. In climate change protests, one way to do this is to take a possible situation in the future and act it out in a way that dramatizes it, for example by staging a "die-in" in reference to a possible future mass extinction of some species. These images are also high in

6 Marie Laure Ryan argues that images can have different degrees of narrativity (Ryan 2014). Images that depict some sort of conflict, obstacles or violence may therefore in general be higher in narrativity than images that do not.

Figures 6-7 Climate protest by "Extinction Rebellion" in Zurich, 2019

Figures 8-10 "Green river". Interventions by the artist Olafur Eliasson in 1998. Images: https://olafureliasson.net/archive/artwork/WEK101541/green-river

narrativity, but not just on account of the documentary form, where they could be described as someone lying on the floor, but also because of the story that is told through them. They might be spectacular to look at as well, but the intention with these protest images is to tell, or rather show a possible future scenario by dramatizing it, as in the example above **[fig. 5]**.

In this way, some of the most persuasive protest images are arguably not necessarily the ones that represent goal-directed actions in a documentary sense. Rather, they are ones that use the whole field of narrative possibilities to tell, dramatize, and show the problem that is causing people to protest. In climate change protests, these are possible future scenarios. These are images where the message can only be understood through background information and context. Therefore, even though they are captivating and narratively engaging, they force the onlooker to inform themselves so as to fully understand what is depicted.

5 Aesthetics

Protest images generally have a certain content that leads to them having a certain aesthetics that is perpetuated again and again. They often have the following elements: protest signs; people in public spaces (often many people, but not always); people shouting; messages on cardboard signs, which are either shouted or visually represented. These images shape our understanding of what protests look like and make them in general easily recognizable as images of protest. One could call these prototypical protest images.

But there are also other protest images, like the ones that dramatize in the performative way. They do not have the typical aesthetic content of people marching in the street with cardboard signs, but instead show unusual interventions that act out a possible future scenario. To further strengthen this dramatization, climate change activists often use an aesthetics that resembles artworks or dystopian and apocalyptic movies. I will consider three examples to illustrate this point.

5.1 Artistic References

At first glance, the images on the first row **[figs 6-7]** do not really differ from the images in the row below **[figs 8-10]**. But the first images document an intervention by climate activists, while the latter are images of artistic interventions by the artist Olafur Eliasson some years before.

I would call the former protest images, even though they are certainly not typical ones. What they show is the importance of background information to categorize them as images of protest. In their aesthetics alone, they are no different from the latter.

Figure 7 has some narrative structure, but with a message that requires interpretation. It is not a picture of someone holding a sign with "pesticides are dangerous"; rather, it dramatizes a certain ecological danger, like pesticides or contaminated water, by staging a performative act that dramatizes and shows this danger via visual means. It makes something visible that in general goes unnoticed or does not receive much attention. And this dramatizing aesthetics is delivered through an extreme color that is guaranteed to grab viewers' attention. Now the protest image needs to trigger some reflection and narrative understanding on the part of the spectator. If they think, "ah, nice, green rivers are beautiful", then the images were not successful in their function as tools of protest. But as soon as reflection on, and maybe a sense of curiosity about, the activists' motivation begins, the images' function as a tool of protest can be seen to have succeeded.

Figure 11 Extinction Rebellion protest in London, 2020. Photography © Jeremy Selwyn, Evening Standard/ Redux

Figure 12 Extinction Rebellion protest in London, 2020. Photography © Steve Bell, Camera Press/Redux

5.2 Apocalyptic and Dystopian References

Some protest images use apocalyptic references as their dramatizing element. They portray interventions and performances, for example in so-called "die-ins". They use performances to highlight the possible extinction of certain species as a result of climate change. These images can again be understood narratively as showing a possible future through an act of protest with a performative element. They function as tools of protest through taking one element, concretizing it and performing it in a way that disrupts and intervenes in open spaces. This secures them attention, and the narrative and dramatizing aesthetics may be at least part of the reason for that.




Figures 13-14 "Ende Gelände" protest against coal mining. Germany, 2019

Figures 15-16 Stills from the movie *The Island* (2005)

Dystopian places, landscapes and apocalyptic narratives are familiar from aesthetics in art and movies.[7] Some protest images deploy a similar aesthetics. Through this aesthetics, protest images may trigger (perhaps unconsciously) comparisons with these kinds of films.

In the examples above **[figs 13-14]**, demonstrators of *Ende Gelände* protest the use of coal in hazmat suits and amid barren landscapes. Now the image understood documentarily shows people trying to disrupt the coalmining. But the aesthetics they used resemble those of dystopian movies that show uninhabitable landscapes, like in the examples above **[figs 15-16]**. This is further dramatized by the use of the hazmat suits.

One needs to gain attention if one wants the protest image to be effective. One way to do this is to use visuals that are extraordinary and capable of capturing the viewers' attention, visuals that are engaging and at the same time evoke particular associations and imaginations. A typical way for climate activists to do this is to stage performance-like interventions of a possible or probable future by using a certain

7 See Brady (2021, 16) for further ideas on how a future aesthetics of nature in the wake of climate change can be imagined with the help of negative aesthetics and apocalyptic narratives from movies and literature.

aesthetics that is culturally familiar from art, movies and literature. There is a rich common knowledge of visuals related to apocalyptic or negative environmental aesthetics. These are gleaned from fiction and documentary images. References to such visuals are likely to boost the aesthetics and argumentative power of protest images. These performative protests can also be compared to what are sometimes called "image events", that is, "deliberately staged spectacles" planned by social movements that aim to gain mass media attention (Johnson 2007, 3).

The protest march wants to act like an image; it intends to be photographed. The interventions above stage a photogenic image; besides the desired disruptive effect, the whole performance is intended to attract attention and be pictorially reproduced. And this is achieved with an aesthetics that is widely known and recognizable from visual culture.

6 Transformative Power

So far, I have argued that the power of protest images comes from their function as a tool of protest, which is achieved through a narrative structure and an aesthetics of dramatization. Through this they have some transformative potential, both inside and outside the movement. Inside, they can help with identity- and movement-building, and in growing and gaining influence through visibility. Outside, they can train the gaze, shape the public discourse and potentially lead to actual changes, be it in law, behavior, or practices.

By way of conclusion, I will briefly restate the key features that I associate with the transformative power of protest images. One aspect is to transform the gaze, the focus, the attention. This is a visual aspect that is best achieved through pictorial means. Through dystopian aesthetics, the dramatization in pictures, the image directs the attention of people to such circumstances in their everyday lives. The protest image can also be transformative insofar as it trains the spectator to see similar aesthetics or problems in places where one might have previously overlooked them. An important aspect of this is the dramatization and use of a specific aspect and turning it into a visual symbol for a far bigger issue that cannot be explained through a single image. Through this symbolization, one might find an entry into a topic that might otherwise seem overwhelming or "not one's problem".[8]

8 Regener, Safaian and Teune (2020) have argued that symbols are visual condensations of the key message of a protest movement. Through the spread of this symbol, not only is visibility achieved, but also the symbol might change its meaning. They exemplify this with the symbol of the rainbow flag.

Shaping and influencing the public discourse is a further potential transformative power. If the protest images are in some way spectacular – for example they show large masses of people, they show some kind of conflict, are otherwise disruptive or aesthetically interesting – then they have a higher chance of being printed in newspapers, shown on television, shared on social media, and so on. If there are protest images that show repercussions against those protesting, this usually has a multiplying effect not only in terms of the image's circulation, but also in bringing new active supporters to the next protest of its kind.[9] Many protest movements have some kind of clear demands, and these demands have a higher chance of being read, shared and discussed if there is an image that is worth printing alongside them.

But the main aim in transformation is a real-world change in the kind of behavior, laws, and mechanisms that cause the problem one is protesting against. Protests and protest images can expedite such developments. In slow, democratic mechanisms, they might be used to push for changes and/or compress the timeframe in which this progress is achieved. Whether and to what degree this is statistically successful is another question, and this is not my concern here since it would require extensive empirical investigation. But there is certainly evidence of certain protests being able to generate sympathy, to gain passive and active supporters, to grow a protest into a movement, and to change public opinion and put pressure on policymakers, businesses, individuals and society at large.

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9 Especially if the response is perceived as unjust and disproportionate, for example if there is a violent repercussion against a peaceful protest. But this is, of course, context- and country-specific. The response might also be so strong that it curbs the motivation to protest. Or the opposite.

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Decolonizing Visuality: The Artistic and Social Practices of Andrea Carlson

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Abstract The article demonstrates how images of the Mississippi River presented in European *Mississippi. An Anthropocene River* project, form knowledge about this region in relation to global challenges of the climate crisis. In the text, I examine visualizations of the river created by the Indigenous artist Andrea Carlson, whose works relate to decolonial methodologies and restore places, communities, beliefs and philosophies eradicated in colonialist practices. Visuality in Carlson's work isn't frozen in a place and time, but constitutes a type of social practice in which knowledge is produced. In analysing her works, I take into account their processuality: that, which took place before their creation, what they refer to, what they reveal, and what the process of their creation.

Keywords Climate crisis. Decolonial theory. Visual art. Indigenous Art. Anthropocene. Knowledge production.

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1 Introduction

The article is devoted to selected works by the visual artist Andrea Carlson, born in the Grand Portage Ojibwe Indian Reservation, with French and Scandinavian roots, who presently lives and works in Chicago, Illinois. These works either date from 2017, or were once again presented in 2019 as part of the European project *Mississippi. An Anthropocene River*. Research conducted in areas adjacent to five field stations along the Mississippi River revealed rapidly changing ecosystems marked by the brutality of colonial practices, and affected by both human and non-human activities and interventions. In examining Carlson's visual works, I will present images of the Mississippi that argue with Western research methods and concepts. These visualisations restore people, places and histories eradicated in the European, and later American colonial project. They take into account the philosophies and cosmologies of marginalised communities, and reveal a certain global logic behind the project of colonization, whose effects can be seen in contemporary global crises. Image-making here is a process taking place across various timescales, spaces and knowledge systems. Existing methods of image analysis are not, therefore, adequate for the examination of the multicontextual issues involved, which include that, which took place before the image existed, how it was created, what it reveals, what it relates to, as well as what change it is capable of enacting.

Andrea Carlson designs visualizations of the river from a perspective grounded in specific geopolitical and cultural contexts. She includes in this process the history and knowledge of Indigenous Peoples, as well as non-human individuals marginalised in colonial hierarchies and dominant scientific paradigms. Her works are aesthetically and ideologically related to the Indigenous Futurism movement, and are based on video formats. They are always tied to a specific location and address its multicontextual issues.

The article is comprised of three sections. The first is devoted to *The Uncompromising Hand*, a video projection that took place in 2017 and 2019 on the walls of the St. Anthony Lock and Dam, on the Upper Mississippi River. This visual intervention in the industrial landscape of the river, is devoted to Spirit Island, which was destroyed during the construction of the lock and dam system, and before European settlement served as a sacred site for the colonized and displaced Dakota tribes. I will examine how images of the Mississippi presented in this project reveal the complex issues surrounding research in this area.

The second section is devoted to images of the river which emerge from the history of the Upper Mississippi, closely tied to industrialization, technological development, as well as the relationships between the colonizers, the colonized, and the Indigenous tribes themselves.

A closer examination of these components allows me to demonstrate their impact on the displacement of Indigenous communities from specific places to areas marginalised on world maps.

The third part is devoted to the theory of the Anthropocene; titular to the *Mississippi. An Anthropocene River* project. In this section, I will present images of the river from the perspective of the AWG research group, as well as Andrea Carlson's and Amina Harper's animation *Anthropocene Refusal*, which dispute its primary geological assumptions.

2 Erasing and Restoring Images and the Creation of Global Models of Power

In 2017, a video by Andrea Carlson entitled *The Uncompromising Hand* was projected on the wall of the Upper St. Anthony Lock and Dam, located on the Upper Mississippi River. Two years later, this work became part of the activities conducted at Field Station 1 for the *Mississippi. An Anthropocene River* project. The animation consisted of sketches based on six photographs of Spirit Island. These photos, taken from the MN Historical Society's collection, documented the location from the 1890s through the 1960s. Carlson's three-dimensional drawings depicted bright red fragments of the island, placed against backgrounds consisting of historical maps. On the visualizations presenting the region changing over the course of time, names of territories surrounding the river appear, hand-written by the artist in Dakota, English, and Anishinaabemowin:

Owámniomni – Turbulent Waters – Spirit Island – *Manidoo Minisiniban*
Dakhóta Makhóčhe – Dakota Land – *Bwaanaki*
Wakpá Tháŋka – Great River – *Gichi Ziibi*
Ȟaȟáwakpa – River of the Waterfalls – *Gaakaabikaang*[1]

The area of the Upper Mississippi was initially inhabited by Dakota tribes. They lived on this territory until their first contact with Europeans (Anfinson 2003, 252-3). For Indigenous communities, Spirit Island, located on this area, was seen as a sacred place, and a site devoted to spiritual practices. It was used to create buildings and urban infrastructure. The island also underwent constant erosion in its interaction with the river. In the 1960, the U.S. Army Corps of Engineers irrevocably destroyed the island, and wiped it from the map. The reason behind this was the planned construction of the Upper St. Anthony Lock and Dam, which would make the city of Minneapolis a

1 See https://vimeo.com/426744913.

navigation hub. The event was treated as an 'engineering marvel' and an industrial triumph symbolic of the victory of (Western) Man over the geologically troublesome and energy-effcient St. Anthony Falls (Anfinson 2003, 253). In 2015, the lock was closed to navigation and opened to the public as a tourist attraction. Two years later, as part of the *Illuminate the Lock* program,[2] it was temporarily transformed into an art gallery devoted to the presentation of site-specific works.

Carlson's film was a visual intervention against the industrial landscape that dominated the Mississippi. In the artist's piece, the titular 'illumination of the lock' restored, symbolically, a long-destroyed place, along with its multicontextual history. The piece constituted an official recognition of Indigenous communities' belonging to the territories once taken from them, as well as their relationship to the land.[3] The projection depicting the island in the form of overlapping images in contrast with the concrete wall of the dam, invoked themes tied to the project of colonization of the peoples inhabiting the area. Both Indigenous and English names of regions, written out by the artist and projected onto the visualization, demonstrated the political and ideological role of language as well as the significance of its use in the creation of specific ontologies and epistemological approaches.[4]

The Uncompromising Hand exposed overlapping colonial processes that include: the marginalisation of populations, their culture and knowledge systems, the exploitation of land, destruction of ecosystems, and the creation of social, political, and epistemic hierarchies. It can thus be interpreted as a form of visual representation of the global logic behind the colonization project. This concept, defined by some decolonial researchers as the 'coloniality of power' forms the basis for understanding the world order built during the process of colonization. It defines the identity and place for the individual in the world, and creates new orders of power and knowledge under decolonial politics.[5]

2 *Illuminate the Lock* was an artistic program that took place over two weekends, created in association with Northern Lights.mn, Mississippi Park Connection and the National Park Service. See `http://northern.lights.mn/platform/illuminate-the-lock/`.

3 This type of declaration known as Land Acknowledgement, an increasingly popular practice among Western instututions, non-profit organizations and art groups, is part of Indigenous protocol. It is always tied to a specific area, where research activities or interventions are undertaken, and is situated in the present as defined by the colonial process. See `http://convention.myacpa.org/columbus2017/land-acknowledgement/`.

4 Insofar as the English language, dominant in the naming of territories adjacent to the river, accentuates objects, entities, acts of ownership, this invoking approaches connected to the dominant position, in the language of the Annishinaabe, which is heavily verb-based, emphasis is placed on relationships and interactions between entities.

5 Annibal Quijano's concept of the coloiality of power has been expanded upon globally since 2000 by a group of researchers connected to the Modernity / Coloniality Group. See e.g., Quijano 2000, 2007; Wynter 2003; Lugones 2006; Mendoza 2016; Mignolo 2018; Grosfugel 2011.

According to Annibal Quijano (Quijano 2000, 2007), the coloniality of power is comprised of three elements: domination, exploitation, and conflict, which are directly embedded into four primary dimensions of social existence: labour, sexuality, authority and subjectivity, as well as their resources and products.[6] Furthermore, racial hierarchisation influenced not only commonly accepted models of employment and exploitation of land and resources, but also legitimized, in the eyes of the colonizers, European hegemony over culture, the definition of the subjectivity of individuals, their identity, ways of knowing the world, and systems of knowledge production. According to the Argentine philosopher Walter Mignolo, coloniality as opposed to colonialism, is neither a European nor an American product, as it functions as a sort of model that supports colonialism, forming a basis for the understanding of the world from the perspective of marginalised peoples (Mignolo, Walsh 2018, 148). It is a model for decoding methods in which particular groups form histories of the world, revealing universalist models of understanding reality as unique and encompassing all living entities. Mignolo defines the process of decolonialisation as the Third Nomos (Mignolo, Walsh 2018, 204). It constitutes simultaneously a crisis of Western civilization, deprived of the necessary tools to solve the problems that it itself created. Expanding upon the theme, Catherine E. Walsh adds, that in the current crisis of civilization, universalist models and Western paradigms are disintegrating before our eyes, and the catastrophe we are experiencing is symbolic of the war against all manifestations and forms of life.

> It is a war that aims to break the social weave, and to engulf and destroy all – including beings, knowledges, lands, and ways of thought and existence – that obstruct and impede its path. (2018, 15)

An analogy to Andrea Carlson's project can easily be drawn from the above quote. The removed island, whether in the process of increasing exploitation or complete eradication, can symbolize the victim of war in Walsh's writing. In this case, this war is set on the uncompromising quest for progress, acting in the name of modernist values and worldviews, which annihilate not only places, but entire cultures and peoples, subjugating them to the dominant systems of authority. Decolonial politics stand in opposition to Western universalism, which in itself contains embedded epistemic violence (Spivak 2010, 35). In exchange, it offers a pluriversal approach (Grosfugel 2011) in which many disparate concepts and worlds exist without mutual exclusion

6 These key premises of Quijano's concept are presented by dr Luiza Prado de O. Martins in one of her lectures for Universität der Künste Berlin *Poetics of Anticolonial Joy*. See https://www.luiza-prado.com/anticolonial-joy.

nor the division between allies and enemies, but instead communicate and cooperate with one another (Mignolo, Walsh 2018, 2). The image of the island does not exist in place of that of the lock, but alongside it, and I can thus interpret it as an example of a decolonial practice.

In her essay *On the Uncompromising Hand: Remembering Spirit Island* (2018), that tackles issues specific to the project, Andrea Carlson speculates on the process of planning the construction of the Upper St. Anthony Lock and Dam. The artist pointed out the role of sketching maps, and architectural drawings often being the first material imagining of the 'progress' of the river's area. In this context, the role of technical skill in drawing becomes political, and along with the creator's own position, influences visions of future landscapes – those which will come to be, and those which will be eradicated. Carlson tells the story in which the map's creator begins working on the blueprint in the fifties, which is to say, before the official unveiling of the new industrial construction project. In doing so, he sketched places, which later irreversibly altered the course of the river and the functioning of its ecosystems: environmental, economic, political, cultural and social. The creation of a symbolic imagination of the artist that positions him as someone rooted in a specific contexts, is a significant practice of decolonial methodologies. As Linda Tuhiwai Smith comments, knowledge of genealogy, as well as cultural, social and political experiences concerning specific environments can be understood as a survival tactic not just for communities, but for entire ecosystems (Smith 2002, 2). The artist depicted by Carlson recreates in his drawing elements of the space in which the infrastructure of the Upper St. Anthony Lock and Dam will be built in the future, without acknowledging the presence of Spirit Island. In Carlson's words:

> This was not a mistake of the artist. The island wasn't drawn, because leaving it out was the first step in imagining its absence. (Carlson 2018, 64)

Using the drawing as a tool in her everyday work, the artist brings attention to the significance of creating sketches, paintings, and visual representations. Their moral neutrality is preserved only when one ignores the possibility that they may be used as propaganda in the future, in the creation of maps, blueprints or the introduction of physical changes in existing landscapes. They may migrate across space and time, transforming from hand-drawn lines and shapes on sheets of paper into real actions: interference with ecological, political and social systems, signed treaties and deeds, erased names, places and communities, as well as new systems of authority and domination.

> Our hands abstractly plot out power on paper long before that power alters the landscape. Drawings are fast skeletons of potential

> ideas. Drawings are powerful tools. To viscerally bring back the island, I turned to drawing; the same tool that imagined the island's destruction could be used to bring it back. (2018, 68)

3 Visual Representations of the River in Western Maps and Global Systemic Models

In her previously cited critique of *The Uncompromising Hand*, Andrea Carlson comments an article "Famed Falls of St. Anthony as They Looked at an Early Day", published by Frank G. O'Briene in *The Minneapolis Tribune* (1899). The article describes Spirit Island as a beautiful natural object destroyed by "the uncompromising hand of man, to make room for the (paddle) wheels of progress" (1899, 3). In her view, the author's lament over an island destroyed by settlers is spurious, and yields to a narration favourable to the colonialist drive towards progress. Carlson juxtaposes the newspaper text with Marc Turcotte's poem entitled "Woman Calls Water" in *Exploding Chippewas*, (2002, 55-6) dedicated to Susan Power, a Chicago activist and Dakota elder. In the poem, the 'progressive' tools of the settlers, including the maps they devise, are described as hostile towards Indigenous communities. They define lines of material division, and act destructively towards the environment, and the lands and animate and inanimate entities that comprise them.

Current maps of the Upper Mississippi River, are part of a complex and prolonged process that fits within a model of the coloniality of power that I have cited here. Its origins can be sought in the areas around St. Anthony Falls and Mille Lacks lake in the seventeenth century, upon arrival of one of the first Europeans, the Franciscan priest Louis Hannepin (Anfinson 2003, 252). Imprisoned by the Dakota, he drew maps of the landscapes he observed and took notes on the customs and traditions of the local population. Once transferred to paper in the form of sketches and notes, the effects of his work inspired and encouraged further European exploration, as well as a perception of the lake and waterfall regions in terms of their commercial, economic and energy-producing potential.[7] By the early eighteenth century, an ever-increasing number of water mills, sawmills and barracks were being built in the area. Their construction fuelled the production of flour and the clearing of forests, the transport of timber, local agriculture, and by the end of the nineteenth century, the geological exploitation of limestone islands in the region, including the very site fundamental to Andrea Carlson's work – Spirit Island. On-

7 The European priest's name was also given to, among others, one of the islands in this region, Hannepin Island.

going field work conducted by Europeans, initially visualized through sketches in journals, influenced the subsequent exploitation and settlement of lands belonging to the Dakota, and contributed to the irreversible transformation of their landscapes and expansion of settler maps. It is not coincidental that Linda Tuhiwai Smith, identifies the word 'research' as one of the most negatively perceived words in Indigenous vocabularies, invoking only negative memories, arousing suspicion, and associated with the process of destruction and appropriation of not only territories, but also traditions, beliefs and identities (Smith 2002, 44). It is for this reason that when considering the research process, it is of such importance to become aware of its political implication. For Indigenous communities, it often becomes a method and a methodology, working out the dynamics of what is local, regional and global. It is based on trust and the sharing of knowledge, and often plays a more significant role than the research itself, as well as its conclusions (2002, 45).

Along with the commercial development of St. Anthony Falls, large metropolises such as Minneapolis and St. Louis came into being, as well as hydropower management companies such as the Minneapolis Mill Company and the St. Anthony Water Power Company. At the same time, dams were built alongside a system of channels that regulated the flow of the river, and enabled an expansive exploitation of the land. Economic factors alone did not influence these incursions into the Upper Mississippi. In the nineteenth century, violent erosion of rocks underneath waterfalls threatened their destruction and became the basis for building further locks and dams as well as a concrete barrier that regulates the flow and water level of St. Anthony Falls (Anfinson 2003, 260). The falls had become a significant source of electrical energy and prompted the construction of hydroelectric power plants that gradually supplanted individual mills. In the thirties, in order to fulfill ambitions of turning Minneapolis into a nexus for inland water navigation, it was necessary to adapt this geologically challenging area to its new function. The Upper Minneapolis Harbor Development Project started 1937 and was financed by the city of Minneapolis. These plans were implemented, and individual elements of the landscape removed. The shifting image of the river was visualised in the first European drawings that attempted to capture the wild beauty of the surrounding landscapes, appearing in the architectural blueprints. It was preserved in constantly evolving maps, expanded by subsequent, captured territories, cities built, and infrastructure subjugated to manage locally sourced and globally distributed resources and products.

In the history of the modification of the Upper Mississippi's landscape, it is worth pointing out the relationships between the tribes living in this region, as well as their diplomatic efforts with the government of the United States. In the seventeenth century, the Ojibwe initiated the process of pushing the Dakota from their lands in a se-

ries of tribal conflicts. David Treuer, a writer, literary critic and lecturer, as well as an Ojibwe himself, in his account of the history of and life within the American reservations (Treuer 2020, 78-89) emphasizes that the Mille Lacks and St. Anthony Falls areas were inhabited, conquered and lost long before the Dakota appeared. It is an important theme, as it points to other eradicated places and communities that can not be reinstated in the dominant historical narrative as sufficient information about them no longer exists (2020, 81).

Since signing the Treaty of Paris in 1783, the United States government freed itself of British influence, and conducted negotiations pertaining to the settlement of each region directly with Indigenous tribes themselves. In 1825, the U.S. government signed a treaty in Prairie du Chien with local communities (including the Ojibwe, Dakota, Ho-Chunk, Sac and Fox, Menominee and Iowa), which was to ensure peace between the warring tribes and to enable free trade and settlement of these lands. The Ojibwe, who still constituted a formidable military power, eventually lost access to new land and resources, and in 1837 signed another treaty with the American government (2020, 83). The stabilization and security that they counted on turned out to be illusory, and led to the mass clearing of American pine forests by the government, which fuelled the industrial development of cities in the region. Further treaties signed until 1862 were in turn broken by the government, and Indigenous tribes deprived of their land and rights. The brutal war fought in the 1860s between the Dakota united with a subset of Ojibwe tribes and the government was a consequence of the deteriorating situation of Indigenous communities and the cruelty which they experienced at the hands of the American authorities. The Dakota were resettled from their native lands for over a century (2020, 88).

According to Andrea Carlson, treaties signed during the Dakota/Ojibwe conflicts, that forced the former to do abandon their lands, were often staged as ceremonies, and their terms were honoured (Carlson 2018, 69). The Ojibwe also continued the tradition of protecting and caring for places of spiritual significance to the Dakota people. During the drafting of new colonial maps and renaming places that had been resettled, Americans primarily consulted with Ojibwe communities, with whom they had closer relations that stemmed from past mutual interests.

In this context, it can be said, that the changes that took place in the landscape of the river were dependent on two interwoven factors: the relationships forged between particular groups, as well as the approaches these groups represented. Among Indigenous communities, who were no strangers to war and territorial conflicts, respecting the beliefs and traditions of conquered peoples played an important role. Western settlers, however, intent on domination on every level – social, political, cultural, epistemic – annihilated every-

thing that served as an obstacle to realising their objectives. In projecting Western civilization, subjugated to progress, against the existing image of the river and its surrunding terrain, they erased not only enormous areas of land, but also people, and their homes, their beliefs, and traditions.

In the understanding of Linda T. Smith, designing maps in acknowedgment of decolonial theory strengthened the position of Indigenous communities at the periphery of the world, in areas marginalised in Western models of authority (Smith 2002, 150). The distinct Western perception of space and time also contributed to the growth of systems of domination, which in turn influenced the delineation of bordersand territorial boundaries, and the definition of centres of colonial power. They shaped historical models based on a linear time scale in which all that is modern (European) displaced that, which is traditional (Indigenous). The consequence of this disparity was the separation of individuals from the land and landscapes they inhabited. Smith comments that:

> Through the controls over time and space the individual can also operate at a distance from universe. (2002, 56)

The position of distance in the Western approach allowed the river to be seen as a part of a global system. Its visual representations can be found in the historical processes of designing the Earth as a whole, initially conducted as part of the European colonial project, and resumed in the second half of the twentieth century by the United States (Jelewska 2019, 21). The emergence of the first known globe in the fifteenth century, progressively updated with new conquered territories, and of the concept of the Earth as a cybernetic model, a single organism comprised of interdependent human and non-human systems and its development into the Earth System Sciences superdiscipline based on advanced algorithmic models both situated Western man with regards to the planet in different ways. He was, successively, a conqueror of territories, a holistic manager adapting to new scientific and technological discoveries, working in the interest of colonial, economic, and political systems.

Currently, representatives of Western institutions, in response to the global climate crisis, are attempting to include the notions held by Indigenous communities in their research. The reasoning behind this practice is the desire to draw upon the experiences of colonized peoples, whose primary "research" goal for over 500 years is, in fact, survival. In light of this, perspectives are emerging that advocate 'becoming local', (Chandler, Reid 2019) the creation of knowledge related to the Earth and a return to the Earth from remote measurement stations, (Latour 2018) the acknowledgment of multiple entangled worlds existing concurrently, and the relationships between the ecological and social spheres (Danowski, Viveiros de Castro 2015).

4 Images of the River in the Anthropocene(s): Controversy and Negotiation

As I pointed out in the introduction, the visual works of Andrea Carlson comprised a part of the actions that took place at the first field station during *Mississippi. An Anthropocene River*.[8] Its goal was to seek new methods of producing knowledge and educational practices in relation to the concept of the Anthropocene, a geological epoch shaped and dominated by human activity, first posited in 2000 (Zalasiewicz, et al. 2019, 2).

Anthropocene Refusal is another animation created by Andrea Carlson, this time working together with Minneapolis-born and based Amina Harper.[9] The project consists of visualizations aesthetically and ideologically tied to Indigenous Futurism. Works situated in this movement depict the past, the future, and the present from the perspective of Indigenous communities in the context of themes such as: colonialism and the coloniality of power, and the resulting environmental destruction, systems of social hierarchisation, and differences in the perception of time and space (Fricke 2019, 109).

The video projection *Anthropocene Refusal* consists of a series of single shots, or two shots in a single frame next to one another on a split screen. The animation begins with a large-scale satellite image of the Mississippi as a line winding its way through the land, standing out through its shape and darker colour. This is the only image of the river seen in the film from such a great distance. Subsequent footage shows the Mississippi and its related spaces and structures shot from a much closer vantage point. Among them are: the rhythmically undulating surface of the water; a human hand extended towards the river, with the surrounding landscapes digitally superimposed upon it; hands rendered in a similar technique being immersed in the water intermixing with it; another shot of the river's surface set on a split-screen against floral beadwork;[10] the same floral beadwork superimposed on the outlines of hands submerged in the river. These images show humanity, and its products in constant relationship and inseparable from the river, water and Earth. Simultaneously, in between the images, an incomplete list of Indigenous kin appears, who are living in close relations with the Mississippi and Dakota lands. Among those mentioned are: Mona Susan Power, Mona Smith, Kate Beane, Dakota

8 The *Mississippi. An Anthropocene River* project was part of a wider initiative, the Anthropocene Curriculum, developed in Berlin since 2013, and presently realised around the world.

9 See `https://www.anthropocene-curriculum.org/contribution/anthropocene-refusal`.

10 The beadwork presented in the film were likely from bandelior bags, which were worn by members of Indigenous Ojibwe communities.

Hoska, and Gwen Westerman: artists, activists, social activists whose work, much like that of Andrea Carlson, concentrates on reclaiming the erased images of the languages, histories, and lands belonging to Indigenous communities. Significantly, the work that many of them produce or perform in the field of decolonization of the regions of the Upper Mississippi, is political, and results in social change, and thus steps beyond theoretical, artistic or symbolic domains. As an example, the work of Mona Smith, a Dakota artist and media producer who is one of the names mentioned in the project, provoked a series of educational practices in Minneapolis that were based on, among others, collaboration with city organizations. It also resulted in the creation of the Healing Place Collaborative, a non-profit organization bringing together Indigenous artists.[11]

The post-war decolonial research program, implemented more intensively since the sixties, managed to reformulate itself from locally-focused activities to a kind of global mission based on strategic collaboration between individuals situated in disparate geopolitical and cultural spaces (Smith 2002, 384). According to Linda Tuhiwai Smith, it is based on two primary approaches. The first takes the form of community-based research and it embrace the local initiatives or tribal research devoted to solving particular problems. They are often supported by Indigenous academics, often educated in Western academia. The second approach is related to work inside institutions, where research centres and education programs that make use of Indigenous methodologies are created. They can steer academic interest towards solving specific local problems and forge new research strategies. In this developing program, it is not only the focus on local histories, relationships, beliefs and philosophies emphasized in Carlson and Harper's images that becomes visible, but also the manner in which they shape global processes.

The *Anthropocene Refusal* project presents an alternative vision of the planet's survival, consistent with the beliefs and cosmology of Indigenous communities. It denies dystopian prospect of the extinction of humanity, and concentrates on its healing. The titular refusal of the Anthropocene stems from the creators' view of the concept's causality of the destruction of local and global environments, and the universalist, and thus colonial view of humankind. In the artists' view, the geological quest for the moment when the epoch begins is always tied to a vision of its end. To Indigenous communities, however, the end of the world is not situated in the past, but has been on-

11 Smith's 2006 installation, entitled *City Indians*, shown at the All My Relations gallery in Minneapolis, resulted in the Bdote Memory Map project, which contained the original names of places inhabited by the Dakota, and recordings of Indigenous peoples' stories related to the history of colonization in these territories. See `http://bdotememorymap.org`.

going for over 500 years, from the moment when the first Europeans appeared on their land (Danowski, Viveiros de Castro 2015, 107). The experiences of genocide, loss of their land, the downfall of the local environment, culture, traditions and ways of living have long been a part of the lives of people whom the foundations of the Anthropocene epoch, in its geological sense, do not acknowledge.

In an article published on the Anthropocene Curriculum website entitled *The Mississippi River is the Opposite of the Anthropocene*, Andrea Carlson takes this view a step further, stating that the imposition of the theory of the Anthropocene on the regions of the Mississippi, as it was assumed by European design, threatens these regions with isolation from their colonial contexts one more time turning them into "theoretical unoccupied zones" (Carlson 2020). The first image shown in the film *Anthropocene Refusal*, depicts the Mississippi from a distance, in its entirety, in the form of a satellite image. The image delivers information about the river only available at this scale, but is devoid of any closer local histories placed in multiperspectivist historical contexts that Carlson refers to in her work. In her view, it is exactly those histories that allows us to correctly understand how the Anthropocene could function in the river and its environments, without turning it into a sort of 'mascot' necessary for the validation of a new geological idea (2020).

Activities that in some ways visualise artist's own fears can be found in a series of essays written by members of AWG for the *Mississippi. An Anthropocene River* project. Their purpose is to deliver proof of the researchers' earlier hypothesis that treated the Mississippi as an "icon of global Anthropocene transformation".[12] Images of the river are, in this case, designed from a distance, separating the observer from the object, allowing for it to be seen in its entirety, for enormous data sets pertaining to it to be analysed and combined, and for processes taking place in river infrastructure to be joined with the activities taking place on a global level. In these interpretations, the Mississippi is an element of the technosphere and the hydrosphere, fuelling their metabolisms, simultaneously making use of their infrastructures and functions in the interest of their survival (Haff 2019). It also constitutes a distinct fragment of the global river system, identified by man, with a defined length, width, beginning, end, and number and types of outflows. The transformations of the Mississippi's ecosystems are perceived in a linear time scale and, according to AWG researchers, have accelerated since the process of European colonial expansion began. Industrial development, deforestation and new construction all influence the shifting of river sediment, which consequently leads to the

12 See `https://www.anthropocene-curriculum.org/project/anthropocene-working-group`.

gradual flooding of adjacent land. From this perspective, the Mississippi is an example of a place, where the anthropogenic layers of the Earth contain elements completely different than those characteristic of previous geological epochs (Russell et al. 2019). The future of the river speculated upon by researchers affiliated with the AWG, is a continuous process of adapting to environmental changes: the resettlement of populations deeper inland, expansion of technological infrastructure, and the migration of animal and plant species (2019). More so than a dystopian vision of the world, it manifests as a scenario for the continuation of the present model of 'being in the world', based on Western values, methodologies, methods, and philosophies. In the geological Anthropocene, humans are not represented by Indigenous members of the Ojibwe or Dakota tribes, but by Western settlers whose own destructive activities have placed them in a crisis known to many marginalised populations. Proof of the above can be found in an essay by AWG members, defining the beginning of human impact on the river's ecosystems. According to the researchers:

> The human impact on river systems, including the Mississippi, did not start in the Anthropocene. The Mississippi was likely changed in some way by the Indigenous North Americans through variable deforestation and the introduction of agriculture, with that change accelerated by the early European settlers through agriculture, mining, and urbanization. (2019)

In this take on the Anthropocene, if it is indeed the epoch of humankind, then it is one defined by Westerners, and begins with the European colonization project. Scientists attempting to officially define this epoch in geological time unit outline yet another colonial division between the dominating and the dominated, without acknowledging in the geological concept of "humanity" the presence of societies other than those of the West. Within theories this dangerously universalizing and bound to the destructive logic of the coloniality of power in the face of a global crisis, the images designed by Andrea Carlson and Amina Harper seem to take on even greater significance. They draw attention away from Eurocentric, modernist, distanced cognitive models and literally bring the viewer closer to the Earth's elements, which macroscopic visualisations are unable to take into account.

It should be pointed out, however, that since it was officially presented by geologists, the Anthropocene has been rather thoroughly dealt with by Western researchers from both ecological backgrounds as well as humanistic and social ones. In the context of political agency, so often missing from philosophical theories themselves, it becomes fundamental to the introduction of epistemological changes, and the creation of new ontopolitics within Western academia. The

Anthropocene breaks with modernist dichotomies such as nature/culture or sciences/humanities, destabilising their fundamental assumptions. It also suggests that so-called 'natural' processes do not exist in separation from social, political, historical and economic effects (Chandler 2018, 5). The suggestion of a new geological epoch, strongly criticised by many researchers and artists, posed new questions about what it is that ought to be investigated in terms of the sudden changes occurring within a global crisis, and what methods and contexts are to be employed, if previous methods are no longer effective. According to Donna Haraway, the Anthropocene constitutes a boundary event situated in between two epochs, of which the first (the Holocene) worked in accordance with the model of management and 'being in the world' that is no longer functional, and the second has not yet been formed (2018, 7).

It can be stated that the *Mississippi. An Anthropocene River* project produces different images of the river, dependent on the different research approaches. On the one hand, it makes use of methods known from Western scientific processes, based on, among others, field research, seminars, discussions, or art exhibitions. Furthermore it makes use of knowledge based on macroscopic technologies, which is apparent in the collaboration between the project's creators and the AWG. On the other hand, field stations are related to the multi-threaded history of the regions in question, predominantly tied to the processes of colonization. Here, the river is presented close-up, revealing how water and earth are tied to humanity and constitute one of its inseparable elements.

The meeting of these two theoretical concepts, scientific methods and methodologies used not only by Western researchers, but also artists, practitioners and scientists connected to decolonial theory, as well as representatives of Indigenous communities, concentrated around the contentiously perceived Anthropocene, reveal its pluriversal nature, situated in specific geopolitical and cultural contexts. As comments Anna Tsing, an anthropologist connected to new materialism and the co-creator of the digital platform *Feral Atlas comments: The More-Than-Human Anthropocene*:[13]

> We need the skillset of the sciences, humanities and the art. We also need the experience of careful observers outside the academy, including those whose knowledge stems from BIPOC communities, that's Black Indigenous and People Of Colour.[14]

13 https://feralatlas.org.

14 https://www.youtube.com/watch?v=vVMrLLLU630&t=207s.

5 Conclusions

The images of the Mississippi selected for this article depict the river from multiple perspectives: from modern representations on Western maps, satellite images, blueprints and global systemic models; through focus on the landscapes of the Upper Mississippi as they transform over time concurrently with the growth of industry and the assumption of power by European, then American settlers; to territories under the protection of Indigenous communities, removed in the process of colonization and restored in contemporary art projects and social actions. These visualizations are related to research approaches and ways of 'being in the world' characteristic of communities situated in various geopolitical and cultural contexts. The use and interpretation of particular images is therefore determined by perspective. The process of their creation, however is political in nature, and affects the removal of certain places and their replacement with new ones, subservient to concrete models of authority. Andrea Carlson, for whom drawing is a primary tool in her work, uses it in order to decolonise the river's terrain. Using video projections of the eradicated Spirit Island on a concrete lock on the Mississippi recalls the presence of Indigenous communities, their beliefs, cultures, identities and how they forged relationships with the Earth. Looking at surviving blueprints of the construction plans for the St. Anthony Lock and Dam, or at map fragments depicting the Mississippi through the prism of images incorporated into the works of Andrea Carson, a multitude of aspects and contexts that extend beyond the Western, modernist course of history are revealed. Her works point out that the removal of specific sites in order to replace them with ones that function in the interest of global market growth constitutes a part of the global logic behind the colonization project, referred to by some decolonial theorists as the coloniality of power. This concept, adapted to work within various geographical spaces, conditioning the functioning of global systems from the fifteenth century until the present, is founded upon Western domination, universalist methods of perceiving the world, the production of knowledge and education, and social hierarchisation. As a result, non-Western societies were situated in marginalised spaces of maps, and the lands taken from them, such as those surrounding the Mississippi, were subject to gradual modifications, introduced in the interests of global economic growth. The destructive consequences of these changes, shifting from local environments to global systems, accumulate in the problems of the global climate crisis. Researchers attempting to deal with these problems, particularly those connected to environmental sciences, originate from Western culture and make use of methods based on macroscopic imagery collecting and comparing data gathered at a

very large scale. These research approaches are visible in the interpretations of the river proposed by AWG members as part of the *Mississippi. An Anthropocene River project*. Observing the Mississippi from a significant distance, framing it in terms of the geological Anthropocene and its parameters, as well as identifying the actions of Westerners as the primary agent of change in its ecosystems becomes a continuation of a research process based on universalist and colonialist values. In the *Anthropocene Refusal* project, Andrea Carlson and Amina Harper respond to such practices by presenting significantly magnified images of the river, shifting the viewer's attention away from eurocentric narratives, towards those of the Indigenous and marginalised.

Research by the AWG as well as by Indigenous artists and researchers, such as Andrea Carlson, were presented as part of a European project, whose objective was to seek new methods of producing knowledge and educational practices in the face of global crisis. It connects decolonial approaches with Western research methods and places them alongside geological concepts, such as the titular Anthropocene. Making use of technological tools, algorithmic data, and geological analyses conducted by Western researchers, as well as through the addition of epistemological approaches represented by Indigenous communities, it attempts to use the theory of the Anthropocene to provoke an elimination of systemic divisions between that, which is natural, and that which is political, social, or cultural. Images of the river presented in the project become a complex process of rediscovery of places, people and both animate and inanimate matter. Equally important are the tools employed in the modification of landscapes, the process of their creation, aspects to which these images refer, as well as that which they conceal, erase or restore.

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