More than meets the eye: embodied engagement with *After The Last Supper*

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Abstract

In this article I argue that the thread spool installation, *After The Last Supper* (2005), by American artist, Devorah Sperber, negotiates the relationship between two modes of aesthetic spectatorship which operate in interrelated ways. The first is based on a modernist notion of aesthetic spectatorship as reflectively detached and contemplative, while the second mobilizes a person's embodied and engaged participation in the work. The installation is investigated here not only as a representation of scientific facts, but rather as a material presentation that elicits embodied responses in active participants. By taking into account the material physicality of the work – its surface, texture and spatial extension – as well as a viewer's somatic responses to these features, the nature of bodily encounters not only with the installation, but also with images in a digital world, are investigated.

Key words: visual perception, linear perspective; disinterested aesthetic spectatorship; engaged aesthetic embodiment; haptic visuality; phenomenology, digital technologies, feminist art.

Optical themes in artistic practice are far from novel. In fact, the science of visual perception has fascinated many artists at least since the Renaissance.[1] In light of the increasing research on visual perception and coinciding with new developments in (digital) visual technologies[2] it should come as no surprise that this topic continues to engage many contemporary artists.[3] The artworks created by New York-based artist, Devorah Sperber, occupy a place in this long line of artistic investigations into the science of vision. For over a decade, Sperber has been transforming celebrated paintings from the history of art and iconic images from popular culture into large sculptures and installations.[4] Using a variety of unsophisticated materials, such as chenille stems (pipe cleaners), map tacks, marker caps, beads and thread spools (as seen in Figure 1), she investigates the neurological processes taking place when we see and analyzes the reasons *why* we see what we see, a topic that has also been of great interest to philosophers, scientists and artists as well as reviewers of Sperber’s work.[5]

Figure 1: Devorah Sperber, Close-up of *After The Last Supper*, 2005, 20 736 thread spools, hanging apparatus, ball chain, viewing sphere and stand, 7 ft. ½ in. x 29 ft. x 8 ft. 12 in. (214.63 x 883.93 x 274.32 cm). Bentonville: Crystal Bridges Museum of American Art. (Photograph provided by Devorah Sperber)

This essay begins by exploring the ways in which Sperber's work displays the scientific model of seeing and situates her work within a larger body of artistic investigations into the visual processing system. However, I want to delve even deeper than the physiological/neurological process of vision that has preoccupied commentators on her work thus far. To my mind, the work accomplishes far more than this. I will show that the thread spool installation, *After The Last Supper* (2005) negotiates the relationship between two modes of aesthetic spectatorship which operate in interrelated ways. The first is based on a modernist notion of aesthetic spectatorship as reflectively detached and contemplative, while the second acknowledges a person's embodied and engaged participation in the work. The installation is investigated here not only as a representation of scientific facts, but rather as a material presentation that elicits somatic responses in active participants. My focus is, therefore, on the ways in which her thread spool works foreground a spectator's bodily and multisensory engagement with them, thereby drawing attention to our embodied interactions with images in general but, more specifically, with images in a digital world.

Showing Seeing

Figure 2: Devorah Sperber, *After van Eyck*, 2006, 5 024 spools of thread, stainless steel ball chain and hanging apparatus, clear acrylic viewing sphere, metal stand, 8 ft. 8 in. x 8 ft. 4 in. x 4 ft. 12 in. (264.16 x 254 x 152.4 cm). London: National Gallery of Art. (Photograph provided by Devorah Sperber)

After Van Eyck (2006) (Figure 2) demonstrates how Sperber's thread spool installations are made. A photograph of an oil painting is digitized, enlarged and pixelated so that the image is transformed into a map of individual colors structured in rows and columns.[6] The map is then flipped upside down and rotated by 180 degrees. Thereafter, each pixel is matched up to a spool of thread of corresponding color and strung up on chains suspended from the ceiling. The resulting sculpture – a collection of spools of thread hung one on top of the other and arranged side by side – is a three-dimensional representation of Van Eyck's portrait, albeit upside down and the wrong way around. To the naked eye the thread spools dissolve into an abstract picture which defies easy comprehension. However, when viewed through a strategically placed optical device – in this case, a transparent acrylic sphere, but in other works, convex mirrors, reversed binoculars or polished stainless steel spheres are used – the image is inverted, rotated by 180 degrees becoming relatively recognizable as the iconic image it reproduces.

Fascinated by the way in which human perception operates and the effects of scale on this process, Sperber's larger works are consciously installed in such a way that they defy easy comprehension unless viewed through the optical device. In her own words, she aims "to present the idea that there is no one truth or reality, emphasizing subjective reality versus an absolute truth."[7] In this sense, Sperber demonstrates the subjectivity of vision, as theorized by the German physiologists Johannes Müller (1801-1858) and Hermann von Helmholtz (1821-1894) in the nineteenth century.[8]

The literature dealing with Sperber's work has thus far highlighted a number of topics such as its alignment with the latest knowledge being produced in the fields of optics and neurobiology;[9] her use of twenty-first century digital technology to map out the pictures as a form of digital printing;[10] and (very briefly) her interest in the connection between the palpable world and the "formlessness of cyberspace."[11] In other words, this literature has focused primarily on how the works "show seeing" as William J.T. Mitchell urges scholars of visual culture to do.[12] As evidence to support these claims, Sperber explains that she is interested in "neurological priming" which refers to the way in which people make sense of visual data.[13] Accordingly, people 'see' (or rather, understand) images once the given information has been processed and sorted in their brains and compared with images already stored in memory. This means that, owing to "visual learning" people see what they "think they see" rather than a supposedly objective and unchanging world.[14] For example, Sperber points out that in the optical devices which are placed at carefully measured distances from her pixel sculptures, people see details (particularly on faces) that are not actually in the abstract picture; a viewer's brain fills in missing information, not unlike the process involved in understanding Impressionist paintings. In her analysis of Sperber's thread spool sculptures, Marilyn Kushner likens them to the paintings produced by Claude Monet and Georges Seurat, whose works were influenced by Von Helmholtz's theories on optical mixing.[15] The similarity is obvious in *After Monet (Water Lilies)* (Figure 3); each thread spool can be likened to the individual patches of paint in the original painting. And, as with Monet's patches of color, the overall 'impression' of the scene is completed through a process of optical mixing.

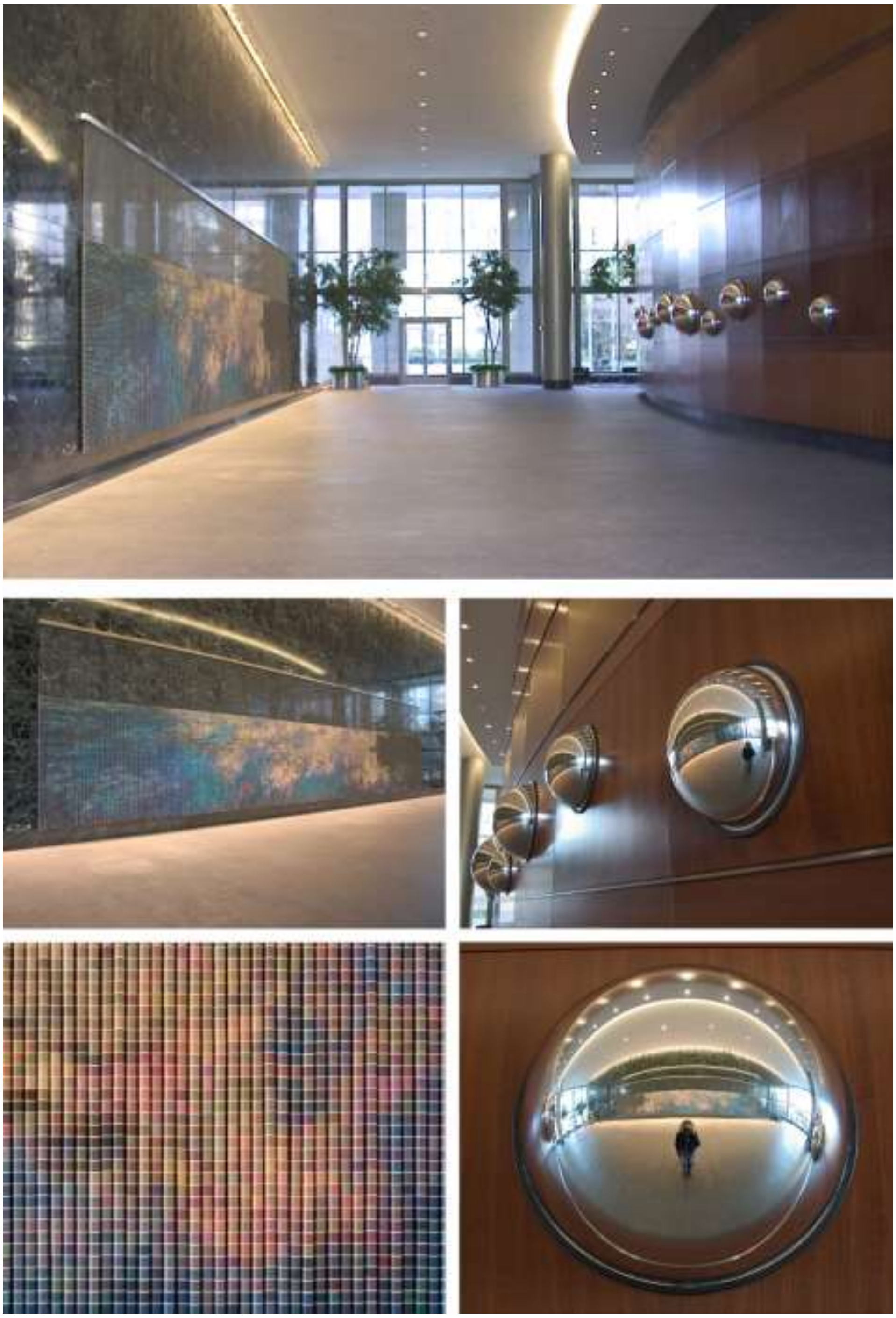

Figure 3: Devorah Sperber, *After Monet (Water Lilies),* 2006, 41,920 spools of thread, stainless steel ball chain and hanging apparatus, 12 ft. 12 in. x 52 ft. x 12 in. (396.24 x 1645.92 cm), 9 hemispherical mirrors, 1 ft. 6 in., 2 ft. 2 in., 2 ft. 8 in. (45.7, 66, 81.3 cm diameter) mounted on opposing wall (view from entrance to lobby). Arlington: Wells Real Estate Funds. (Photographs provided by Devorah Sperber)

Equally, there is an obvious affinity between Sperber's pixelated sculptures and Chuck Close's paintings made up of small geometric forms. Like Close, Sperber is interested in the distance from which a pixelated image becomes recognizable to a normally sighted viewer.[16] In other words, her installations explore what is known about the visual processing system. I do not wish to dispute what has already been written about Sperber's interest in human perception, nor do I aim to explain how vision has been understood to operate at different times in the development of ophthalmology and the neurosciences. Instead, I want to suggest that by foregrounding the visual processing system which relies on the complex operation occurring between the brain and the eye, discussions of the works have so far overlooked the involvement of a spectator's entire body – the affective, multisensorial and visceral dimensions of this involvement – in experiencing the installations. In this respect Sperber's work differs from Close's interest in visual perception. For Close does not seem, to me at least, to engage with issues beyond those related to the basic operation of visual perception. In my view, it is necessary to move beyond what appears to be a focus on "eyesight alone" [17] that has dominated writing on Sperber's art and to consider instead the ways in which her installations implicitly engage a spectator in ways beyond vision. Therefore, my argument is positioned within the growing body of literature that criticizes Art Historiography and Visual Culture Studies' over-prioritization of the visual, a criticism that could surely also be lodged against the existing scholarship on Sperber's work.[18]

Central to this argument is my contention that, when some kind of interaction between the various component parts (such as the thread spool sections and the optical devices placed in relation to them) and the viewer is required, the works must be regarded as installations rather than sculptures. Although it might be tempting to consider some of her works as low-relief sculptures, my classification of specific works as installations is supported by Claire Bishop's contention that, contrary to paintings and sculptures as self-contained objects, installations create situations that not only "address the viewer directly" but also "presuppose an embodied viewer."[19] Perhaps it is precisely because they have been considered sculptures rather than installations that the spectator's embodied engagement with the work has not yet enjoyed much critical attention. By means of a close discussion of *After The Last Supper* (2005) (Figure 4), I suggest that at least two modes of aesthetic spectatorship are staged by the work. On the one hand (and, ironically, a fiction subverted by the work itself), the rationalization of vision in Renaissance perspective and the associated conception of aesthetic spectatorship as reflectively detached and contemplative, is staged. On the other, the work itself compels a mode of embodied and engaged participation thereby working against the aesthetic detachment it displays.

Figure 4: Devorah Sperber, *After The Last Supper*, 2005. 20 736 thread spools, hanging apparatus, ball chain, viewing sphere and stand, 7 ft. ½ in. x 29 ft. x 8 ft. 12 in. (214.63 x 883.93 x 274.32 cm). Bentonville: Crystal Bridges Museum of American Art. (Photograph provided by Devorah Sperber)

Figure 5: Devorah Sperber, Close-up of *After The Last Supper*, 2005. 20 736 thread spools, hanging apparatus, ball chain, viewing sphere and stand, 7 ft. ½ in. x 29 ft. x 8 ft. 12 in. (214.63 x 883.93 x 274.32 cm). Bentonville: Crystal Bridges Museum of American Art. (Photograph provided by Devorah Sperber)

Compellingly dealing with aesthetic spectatorship (and not only the visual processing system), .*After The Last Supper* (2005) strikes me as a conceptually challenging work and by no means as transparent as the literature dealing with it has so far suggested. Moreover, the work engages in a wider conversation around images, mediality,[20] perception and spectatorship in contemporary visual culture. A careful contextualization of her chosen medium – thread spools – gives clarity to the aforementioned topics.

Media Matters

Sperber's use of thread spools, chenille stems and other unsophisticated (domestic) materials conceptually situates her work within a broader framework of feminist art practice. In the 1970s politically charged feminist art set about to reclaim the private, domestic realm and so-called 'woman's work' which had previously been devalued in the aesthetic hierarchy that privileged the supposedly 'monumental arts' (painting, sculpture and architecture), a sphere of artistic production dominated by men.[21] The thread spool works can therefore be associated with domestic arts, such as embroidery, stitching, lace-making, crocheting and knitting, all of which were historically marginalized as 'feminized', 'lesser' and, therefore, devalued as 'craft' according to the historical hierarchical division of the arts.[22] The reclamation of 'women's work' through the appropriation of discarded materials has continued – and perhaps even intensified – in the twenty-first century as is evident in the exhibition *New Embroidery: Not your Grandma's Doily* (2006) held at the Museum of Contemporary Craft, Portland, USA. This exhibition featured works by Louise Bourgeois whom Rozsika Parker claims has done the most "to restore fabric and stitching to their place within 'high art.'"[23] In addition, in 2006 and 2007 respectively, The Museum of Arts and Design in New York showed *Radical Lace and Subversive Knitting* and *Pricked: Extreme Embroidery*, with both exhibitions including works by men and women artists.

In keeping with the feminist emphasis on fabric and textiles it would seem that via her own media Sperber negotiates, subverts, and contests oppressive boundaries between different artistic categories. But more specifically, her contribution to feminist art practice is to question the fabric of a particular artistic tradition by disorienting the alleged disembodied gaze associated with perspectival objectivity. This is achieved by destabilizing the *master*-pieces she recreates in thread. In *After The Last Supper* in particular the modernist notion of detached spectatorship is put on display whilst a viewer's actual embodied movement around the work subverts that paradigm. Utilizing Leonardo da Vinci's *The Last Supper* (c. 1495-1498), which exemplifies the Renaissance 'invention' of one-point perspective and its associated connotations of disembodied spectatorship, is a compelling strategy for negotiating these paradigms of aesthetic distance and aesthetic proximity.

The two conceptions of aesthetic spectatorship discussed here are termed 'disinterested aesthetic spectatorship' on the one hand and 'engaged aesthetic embodiment' on the other, with the former implying distance and the latter proximity. Although for some the concept of disinterested aesthetic spectatorship has already been exorcised from both aesthetic theory and artistic practice, according to Arnold Berleant "aesthetics today (still) labors under the burden" of the modern conception of aesthetic disinterestedness" that "has lost its relevance and impedes our ability to understand and appreciate the arts, especially their recent development."[24] For this reason, it is necessary to briefly sketch its main protocols.

Disinterested Aesthetic Spectatorship

Both constructions of aesthetic spectatorship referred to above are intricately related to the ways in which visual perception has been understood at different historical moments, not only biologically and scientifically, but also in terms of philosophical conceptions of viewing art as either an embodied or disembodied event. The mode of disinterested aesthetic spectatorship is related to the invention of linear perspective in the fifteenth century on the one hand – of which Da Vinci's *Last Supper* is an excellent example – and the 'Cartesian' construction of the subject in the seventeenth century on the other, a combination of ideas which Martin Jay has referred to as "Cartesian Perspectivalism."[25] Of course, the literature dealing with the meanings and implications of both Renaissance perspective and 'Cartesian Perspectivalism' is immense and varied and it is not my intention to recycle all those arguments here. In addition, there is a danger of merely reproducing a particular binary – of a disembodied 'gaze' versus an embodied 'glance'[26] – that, after decades of criticism, may no longer hold water anyway. Nevertheless, it is necessary to highlight one of the dominant narratives which associates Renaissance perspective with the tendency to marginalize the involvement of both the artist and the viewer's bodies as a way in which to privilege a supposedly disembodied eye, even if these assumptions have been treated with skepticism.[27]

Da Vinci was fascinated both by the process of vision and the 'invention' of linear perspective in artistic practice.[28] It has even been suggested that Da Vinci "most completely realized and investigated the multifaceted nature of Brunelleschi's invention" of linear perspective in 1413.[29] He was certainly (initially) convinced that the geometrical system underlying linear perspective corresponds to the structure of human perception.

More than merely a useful means to naturalistically portray religious subject matter in clear and unambiguous ways, linear perspective has also been regarded as a metaphor not only for a particular paradigm or worldview (*Weltanschaung*)[30] but also for vision and subjectivity.[31] According to the prevailing fifteenth century scientific worldview, linear perspective represents the world as a mathematically structured spatio-temporal order within which objects can be examined from outside by the allegedly neutral and "dispassionate eye" of the spectator.[32]

The rationalization of sight and the visual mastery assumed to be produced by the application of perspective is demonstrated in Albrecht Dürer's *Draughtsman Drawing a Recumbent Woman* (1525) (Figure 6). In the same way that Dürer's draughtsman must awkwardly fix his gaze in line with the point of a small obelisk in order to accurately render the woman in two-dimensional space, we are expected to occupy a fixed point in order to clearly and coherently see Da Vinci's picture in the muddle of chaotic colors in *After The Last Supper*.[33]

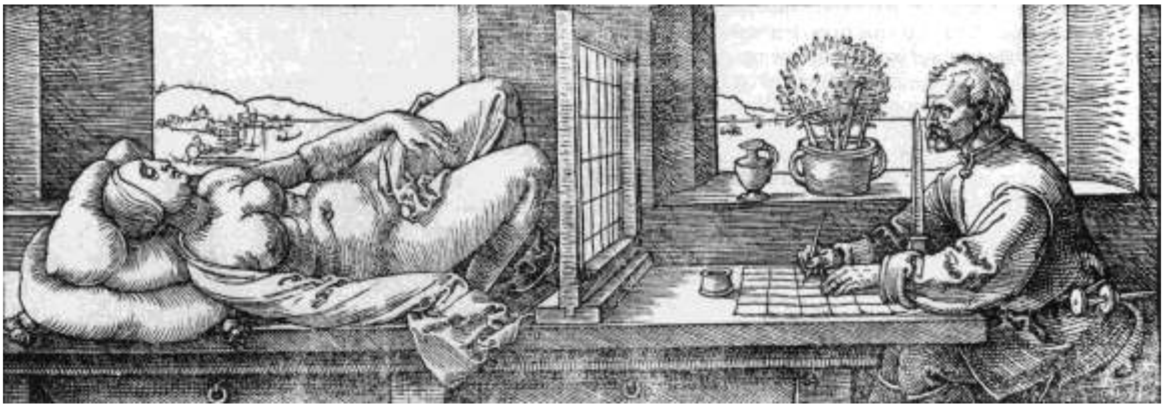

Figure 6: Albrecht Dürer, *Draughtsman drawing a recumbent woman*, 1525.Woodcut, 3.15 in. x 8.66 in. (8 x 22 cm). Vienna: Albertina.

Furthermore, the acrylic sphere draws attention to the fact that distance is a necessary requirement for clear or focused vision.[34] If not viewed through the optical device from the required distance, the thread spools remain blurry and chaotic. From a philosophical perspective, the distance required for clear and distinct vision metaphorically alludes to the mental distance supposedly required for the production of clear and objective understanding.[35] Perceptual distance, it has been supposed, is able to produce the mental distance considered vital for objectivity, which is fundamental to the reductive 'Cartesian' view of the world.[36]

Based in René Descartes' notion of subjective rationality outlined in his *Meditations* (1641),[37] Cartesianism has been closely linked with the notion of detached spectatorship central to the model of vision constructed by Renaissance perspective. For Jay, 'Cartesian Perspectivalism' dominated in the modern era and denotes the powerful scopic regime produced by the combination of linear perspective and Descartes' dualistic philosophy.[38] This narrow conception of a 'Cartesian' subject and the later construction of the 'Kantian gaze' in aesthetic theory are not entirely unrelated.[39] Although in *The Critique of Pure Reason* (1781) Immanuel Kant acknowledged aesthetic experience as closely tied to sensory and subjective experience, in *The Critique of the Power of Judgement* (1790), he furthered Descartes' rationalist philosophy in his conception of aesthetics as a mode by which a properly disinterested observer can judge well-formed objects.[40] For Kant, it is only through the *a priori* function of the mind that the sensory impressions are synthesized into a coherent totality. In favor of a 'mindful' aesthetic experience, therefore, Kant intellectualized aesthetic perception with the proper aesthetic response made possible by a 'disinterested' mode of attention, allowing for critical reflection.[41] In some formulations of modern aesthetics, the notion of a disinterested viewer, who is ideally separated, isolated and distanced from the work of art, emerged.[42] As a result, a particular form of Art Historiography developed based in large part on a 'disinterested' aesthetic experience according to which art is validated by a learned group of people whose aesthetic way of seeing hinges on their ability to detach their intellectual experience of an image from their 'unreliable', multisensorial, physical bodies. The acquisition of such knowledge was aided by instruments which would assist in developing what Irit Rogoff calls "the good eye,"[43] a term that describes certain kinds of art historical procedures, and a process astutely displayed in Karen Knorr's *The Analysis of Beauty* (1986-1988) (Figure 7).

Figure 7: Karen Knorr, *Connoisseurs series*: *The analysis of beauty*, 1986-1988. Cibachrome color prints mounted on aluminum frame and brass plaque with caption included, 3 ft.⅓ in. x 3 ft. ⅓ in (92 x 92cm) cm. http://karenknorr.com/photography/connoisseurs/analysis-of-beauty. (Photograph provided by Karen Knorr)

Although thoroughly contested by postmodern criticism, the belief in the disembodied eye and the Cartesian mind-body split, as discussed above, miraculously still pervades much thinking on human engagement with technology today. Citing examples from literature and film to research in artificial intelligence, Maria Coleman argues that in contemporary (popular) culture there is a tendency to deny our sensual, embodied and material existence.[44] Such anxieties over the relationship between humans and technology, 'natural' and 'artificial' vision and the impact of technology on the human senses are part of a broader critical and theoretical concern over shifts – figured as both beguiling and worrying – taking place in visual culture as a result of the ever expanding smorgasbord of visual technologies that surround us. Tim Lenoir argues that there is a tendency among some theorists of new media to claim that “digital imaging ... detach[es] the viewer from an embodied, haptic sense of physical location and ‘being-there.’”[45] Advocating this position, Jonathan Crary claims that computer-based images refer to nothing but “millions of bits of electronic mathematical data,” predicting that “increasingly, visuality will be situated on a cybernetic and electromagnetic terrain where abstract visual and linguistic elements coincide and are consumed circulated, and exchanged globally.”[46] Likewise, according to Mitchell, “a worldwide network of digital imaging systems is swiftly, silently constituting itself as the decentered subject’s reconfigured eye,”[47] to which Sperber’s acrylic sphere, which transforms the thread spools into a recognizable image, appears to allude. Apparently, in this version of the posthuman landscape that awaits us embodied perception (not to mention human beings) will become obsolete.[48]

Taking a different position on the matter, Mark Hansen claims that the human body acquires a deep significance in relation to digital images, arguing for “the refunctionalization of the body as the processor of information.”[49] In his account of new media embodiment, the creative capacities of the sensorimotor body cannot become redundant. As a visual expression of his ideas, installation and interactive art may provide the ‘antidote’ to the continued privileging of the intellect over corporeality especially in those works that investigate the relationship between embodiment, subjectivity and computer technology.[50] Mathieu Briand, for example, manipulates spatial and temporal perceptions provoking viewers to question their perceptions of reality by using cameras and wireless headgear viewing devices.[51] Similarly, Angela Bulloch creates three-dimensional pixel boxes which, like Sperber's thread spool pixels, render the previously ephemeral concrete. Thus, the relationship between disembodiment/embodiment, distance/proximity, art/technology and detachment/participation – all themes that also occur in Sperber's art – are also explored by artists who facilitate interactive, engaged and multisensory aesthetic experiences through their art.[52]

But what happens when computer-based image processes transform an oil painting into pixels which are, in turn, converted into thread? What do these transmedial shifts suggest about the relationship between the concrete (oil paint or thread) and the ephemeral (pixels) – and by extension, our embodied/disembodied relationship to digital images? In contemporary culture images travel between media and between bodies in particular contexts and situations. Similar to the ways in which images circulate in the digital realms of popular culture, in Sperber's work "old" images "resurface in new media" as Hans Belting describes the ways in which images now travel across diverse media and contexts.[53] "As they take residence in one medium after another" he argues, images have become nomadic.[54] Da Vinci's *Last Supper* could even be described as "incessantly" nomadic to quote Leo Steinberg.[55] By manipulating a well-known work of art Sperber draws our attention to this 'nomadic' character of images. In this case, the *Last Supper* (according to the artist one of the most reproduced images in art), having been reduced to mathematical data and after becoming supposedly ‘intangible’ as a digital image (endlessly accessible on the Internet and only a few clicks away on a PC, laptop, iPad, tablet or cell phone), is ‘rematerialized’ in the form of 20 736 spools of thread. In my view, Sperber’s rematerialization of the pixelated image in thread – always providing a reminder of both its analogue and digital genealogy – presents the notion that the digital image is not fully intangible nor disembodied, and neither is its spectator.

Although a model of disinterested aesthetic spectatorship is staged by *After The Last Supper*, it is precisely this reductive account of vision and its links with rational objectivity that are also challenged by our actual engagement with the artwork. Precisely because a viewer cannot – and, in fact, does not want to – remain in the ideal position in front of the artwork this paradigm of spectatorship is undermined by the work itself. Instead of withdrawing from the scene, as the detached, unmoving, “monocular spectator”[56] of *The Last Supper* is supposed to have done, a viewer’s engagement with *After The Last Supper* is corporeal, mobile, involved and haptic. This kind of spectatorship requires viewers to relinquish their desire to see the complete and rationalized image and to imaginatively plunge into the blurry, immersive and tactile sculpture instead.

Engaged Aesthetic Embodiment

Engaged aesthetic embodiment involves a corporeal encounter between a viewer – or more accurately, a participant – and an artwork. According to this mode of aesthetic spectatorship, vision is not solely a mental activity occurring between the eye, the optic nerves and the brain, but is intricately connected to our corporeal experience of the world. Sperber's work makes viewers realize that perception is a full-bodied human experience operating by means of a fluidity of bodily/mental modes. Surely the installation cannot merely be regarded as a representation of the scientific facts of vision, but more accurately as a material presentation that elicits somatic responses in the viewer. By taking into account the material physicality of the artwork – its surface, texture, weight and spatial extension – as well as somatic responses to these elements, the nature of a participant's bodily encounter with *After The Last Supper,* beyond vision alone, comes into view.

Drawing on neuroscience, philosophy and cognitive psychology, embodied responses to art and the embodied dimensions of images (and objects) are being analyzed through the lenses of the sensory turn,[57] the pictorial turn,[58] empathy theory,[59] affect theory,[60] phenomenology[61] and conceptions of aesthetic embodiment and engagement.[62] These somewhat disparate theories are increasingly being brought into a close conversation in order to understand the connection between embodiment and the perception of images. Many theorists of aesthetic experience and embodiment have turned to neuroscience to more clearly 'flesh out' the embodied perception of art. Neuroscientist, Francisco Valera, for instance, has argued that neural patterns are embedded in embodied phenomenological activity which means that the cognitive activity of the brain is utterly connected to bodily being.[63] Embodied cognition thus refers to the fact that thought relies on sensorimotor interaction with the world.[64] According to this conception, also termed 'enactivism,' the combination of sensing and motor activity – or, sensorimotor action – is fundamental to our making sense of the environment; cognition, therefore, emerges through a continuous process of bodily actions performed in the world. James Gibson's earlier idea of *affordances* – characteristics of the environment that shape the subject's interaction with it – are linked with this understanding of active bodily perception.[65]

In philosophy, phenomenological conceptions of embodiment refer to an integrated mind/body whole and can be traced back through the theories of Maurice Merleau-Ponty who dismantled the 'Cartesian' model of vision and reinstated the body as the source of knowledge. According to Merleau-Ponty, our existence is intertwined with the *flesh* of the world.[66] Following this conception of embodied perception, in some quarters, aesthetic experience has come to be regarded as embodied, engaged and participatory, emerging between a person and an artwork.[67] This means that an experiential encounter with a work of art proceeds from the interaction between an embodied sensual/sensory being responding to the work's material qualities – its suggestive gestalt of marks, traces, cues, motifs, and so forth. Rather than denying the involvement of the body according to a mode of (disinterested) aesthetic spectatorship, an aesthetics of embodied engagement acknowledges the significance of embodied response to art, including the visceral, affective, multisensorial and proprioceptive dimensions of that experience.

One of the features of *After The Last Supper* that undoubtedly contributes to its embodied and sensorial experience is its scale, which produces a particular kind of movement by those who respond to it. Owing to the spacious rooms in which the sculptures are installed people interact with them kinesthetically, moving closer and then further away, with roaming, and, at times, squinting eyes, puzzling over how these individual thread spools can dissolve into a recognizable image in the acrylic sphere. One's experience of the installation is thus inherently mobile; our movement is orchestrated by the placement of the sculpture in its environment or "expanded situation" as Robert Morris refers to the space in which an object is exhibited.[68] Some people even try to look behind the thread spools, fascinated by the mechanics of the installation which seems to hover precariously in front of the wall. People negotiate the work in its expanding space and in its relation to their own bodies.

Mobile and participatory engagement is as much involved when looking through the viewing device as when looking at the greater sculpture; shorter people stand on their tiptoes and crane their necks, whilst taller people awkwardly bend down to get into the 'correct' position. In this way, subtle shifts in one's mode of perception are orchestrated by the placement of the viewing device. We must continually adjust our bodies in response to the work, becoming proprioceptively self-aware of our relation to the installation as we compare the visually complex abstract image to the clear image in the sphere, trying to make sense of the chaos, but also enjoying the richness of the tactile spools of thread. We occupy two places simultaneously, being actively involved in both.

The corporeal encounter with *After The Last Supper* is further encouraged precisely because the blurred enlargement frustrates vision, recognition and mastery. As a result, viewing Sperber's installation is a mobile activity and the body is not merely the vehicle that transports the eye to the exhibition. It is therefore not 'eyesight alone' but the entire body that is drawn into this installation.

What is shown by this work is that vision is neither a monocular nor monosensory possibility; it occurs in conjunction with the entire body which experiences itself and participates in the world simultaneously through all of its sense organs. When in the presence of Sperber's work we unite with it perceptually through "the experiential fusion of the senses."[69] Merleau-Ponty emphasized the simultaneity and interaction of all the senses arguing that "my perception is not a sum of visual, tactile and audible givens: I perceive in a total way with my whole being: I grasp a unique structure of the thing, a unique way of being, which speaks to all my senses at once."[70] Thus, although for sighted human beings vision is considered to be the dominant sense, our experience is grasped simultaneously through the multisensory channels of the entire body. Furthermore, it is movement that operates at the base of unified sensory experience.[71] Accordingly, our mobile interaction with the unfolding environment of this work, through muscular effort and movement (kinesthesia), is a meaningful part of how we experience it. Although our bodily interaction with this work is not as obvious as experiencing Carsten Höller's *Isometric Slides* (2015) or *Two Flying Machines* (2015), for instance, our experience of the artwork is no less embodied. Equally, although *After The Last* Supper might not involve active participation in ways different from other artworks – for we might move closer to or around any sculpture or even a painting for that matter – here we are implicated as subjects in the subversion of the very model of perception that is put on display. In my view, this is the work's contribution to revitalizing thinking about aesthetic spectatorship.

A person's engaged aesthetic embodiment is not only mobilized by means of the huge scale of the installation and its particular environment, but also by the tactile nature of the thread spools. *After The Last Supper* appeals, therefore, not only to our sense of sight but also to our sense of touch, movement and a general awareness of our bodies thereby facilitating a new way of being-with-the-installation.[72] Through its particular sensuous and tactile character it offers the possibility of touch – both a visual and an actual touch.

The Tactile Eye

Unlike some sculptures that are meant to be physically handled, (for example works by Rosalind Driscoll, Michael Petry, and South African artist, Berco Wilsenach), Sperber's thread spools activate a tactile sensation through vision. Optical visuality meets (or perhaps gives way to) a haptic engagement with the sensuous materiality of the thread spool sculpture in that the channel of sight tantalizes the sense of touch. Viewed directly, the overall effect of the thread spools is a blurry, chaotic, tactile muddle that, by its sheer size, might be considered immersive in the same way as an extreme close-up in a film or photograph may be.[73] Moreover, since thread spools are used for making clothing or other textile-based products, they appeal directly to our sense of touch. In other words, not only does the work draw one toward it by means of scale, it does so in a specifically tactile manner.

The model of aesthetic spectatorship based on visual detachment is, thus, also dislodged by the materiality of the thread spools. A mode of 'haptic' vision draws us toward the work with the eye functioning not only as an organ of (distancing) sight but simultaneously as an organ of (proximal) touch. Vision, although shown in the work to require distance in order to operate optimally, also facilitates haptic and experiential exchanges.

The term 'haptic' is drawn from the Greek *haptikos,* meaning 'capable of touching' or the German *haptein*, meaning to seize or grasp.[74] In the late nineteenth century, Alois Riegl described two fundamental categories of looking at art: the optic and the haptic.[75] Optical looking requires scanning objects according to their outline while haptic looking focuses on surfaces.[76] This means that looking can be both optic and haptic especially if we "dwell on the tactile qualities of seeing."[77]

Laura Marks has coined the term "haptic visuality" to describe a mode of vision that occurs when the eye is compelled to "touch" what it is looking at.[78] Moreover, haptic images "refuse visual plenitude."[79] It is precisely when one is not able to distinguish the forms clearly that a haptic relationship with images emerges. Often it is vagueness – the indeterminate, imprecise and indefinite character of the image – that produces such a haptic effect. As in the case of film, a distorted image that overwhelms or confounds vision – such as the thread spool image under discussion here –invites a different kind of perception. Precisely because one's ability to see is undermined, one is encouraged to immerse oneself in *After The Last Supper* rather than to remain detached in the manner of Dürer's artist or Knorr's connoisseurs. Haptic visuality thus encourages an immersive encounter with Sperber's work and in this way the mode of disinterested aesthetic spectatorship is, once again, disrupted.

Beyond Spectatorship

After The Last Supper negotiates two modes of aesthetic spectatorship that are not only relevant for looking at art, but also all images as they travel virtually across digital platforms. The installation leads us to reconsider the interrelationship, rather than the opposition, between the supposedly binary paradigms of aesthetic detachment and engaged aesthetic embodiment. As Marks has argued: the optical and the haptic exist in a "sliding relationship" to one another; "the optical needs the haptic" and "the haptic must return to the optical."[80] The thread spool part of *After The Last Supper* emphasizes tactility and immersion compelling engagement with its materiality, while the acrylic sphere encourages us to take a step back. It is this 'sliding relationship' between distance and immersion that, in my view, also characterizes our entanglement with technology in an increasingly digital age.

Finally, Sperber employs a feminist strategy to explore and negotiate the relationship between images, bodies and digital technologies, a topic that is woven into the very fabric of our time. By photographing, digitizing, enlarging, pixelating and rematerializing older artworks she comments on the relationship between people and images in a digital world. Never fully tangible, Sperber's images float between thread spools, acrylic spheres, mirrors and so forth, with the presence of pixels reminding us of their digital history. But even as they float between these media the images are never fully intangible either. Instead, they highlight the materiality of the medium through which we encounter them. Seeing images then – even on a digital device – is always an embodied encounter and our engagement with them, far from exclusively intellectual, is distinctly sensorial, affective and bodily. For images, whether in digital or material form, 'move' us beyond spectatorship and compel the participation of the entire thinking/seeing/feeling/moving body.

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[1] See Martin Kemp, *Optical Themes in Western Art from Brunelleschi to Seurat* (New Haven: Yale University Press, 1990).

[2] Advances in imaging technologies such as Magnetic Resonance Imaging (MRI) allowed neuroscientists working in the 1970s and 1980s to visualise and map the (visual) brain. Since the 1990s neural activity has been monitored in real time. See, for instance, the foundational research on the neural structure of the visual brain by Semir Zeki, *Inner Vision: An Exploration of Art and the Visual Brain* (Oxford: Oxford University Press, 1999) and Richard L. Gregory, *Eye and Brain: The Psychology of Seeing*. 5th ed. (Oxford: Oxford University Press, 1998).

[3] Examples might include, Robert Irwin, Chuck Close, David Hockney, Evan Walters, Mathieu Briand, Nell Breyer, Casilda Sanchez, Annie Cattrell and Suzanne Anker.

[4] One of her well-known exhibitions, *The Eye of the Artist: the Work of Devorah Sperber* was held at the Brooklyn Museum in 2007. She also exhibited alongside Daniel Canogar at *Brain: The Inside Story* (2010) at the American Museum of Natural History.

[5] Over the past thirty years great strides have been made in how visual perception is understood. See Nicholas Wade and Michael Swanston, *Visual Perception: An Introduction* (London: Psychology Press, 2013). In 2006 Sperber participated in a symposium entitled “Visual Art and the Brain” at the New York Academy of Sciences which brought together leading scholars in the fields of neuroscience (Torsten Wiesel and V.S. Ramachandran), neurobiology (Margaret Livingstone), art history (David Freedberg) and art (Sperber, Breyer and Anker) to discuss these new discoveries. See Ana F. Honigman, “The Art of Seeing: A Conversation with Devorah Sperber,” *Sculpture Magazine* 25, no.4 (May 2006): 48.

[6] Marilyn Kuschner, “How We See, Digital Technology and Printed Maps as Tools,” at www.devorahsperber.com/reviews_articles/essay_lpb_kushner_7_05, as of April1, 2016.

[7] “Devorah Sperber Threads of Perception, Knoxville Museum of Art,” at www.youtube.com/watch?v=XgBncNbfiUg, as of May 7, 2015.

[8] See Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass.: MIT Press, 1992) for a useful discussion of a new understanding of vision that emerged in the early nineteenth century and the resulting reconfiguration of the observer.

[9] Catherine Zandonella, “Probing the Picasso Lobe: What Scientists are Learning; What Artists Know,” *New York Academy of Sciences Magazine,* (March/April 2006), also at http://www.devorahsperber.com/reviews_articles/nyas_update_article_index_page, as of May 15, 2015.

[10] Kuschner, “How We See.”

[11] Patricia C. Phillips and Devorah Sperber, “Seeing Things,” *Art Journal* 61, no. 4 (Winter 2002): 87.

[12] Mitchell suggests that vision must be defamiliarized in order to make seeing “show itself, to put it on display.” William J.T. Mitchell, “Showing Seeing,” in *Art History, Aesthetics, Visual Studies,* ed. Michael A. Holly and Keith Moxey (Williamstown, MA: Sterling and Francine Clark Art Institute, 2003), 232. Of course, Mitchell is not only interested in the neurobiology of vision but also in ‘visuality’, a distinction explored by Hal Foster in *Vision and Visuality* (New York: The New Press, 1988), ix.

[13] “Devorah Sperber Threads.” See also Cheri L. Wiggs and Alex Martin, “Properties and Mechanisms of Perceptual Priming,” *Current Opinion in Neurobiology* 8 (1998): 227-233.

[14] See Max Wartofsky, “The Paradox of Painting. Pictorial Representation and the Dimensionality of Visual Space,” *Social Research* 51, no. 4 (1984): 864-865.

[15] Kuschner, “How We See.”

[16] Margaret Livingstone, *Vision and Art: The Biology of Seeing* (New York: Harry N. Abrams, 2002), 184.

[17] Clement Greenberg used this term in praise of pure opticality in modernist painting which, according to him, leaves a viewer's body behind as "the illusion created by a modernist is one into which one can only look, can travel through only with the eye." Greenberg, "Modernist Painting," in *Art in Theory 1900-2000. An Anthology of Changing Ideas,* ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 1992), 758. I detect a similar reductive view of the interaction between a viewer and Sperber's artworks in the literature dealing with her focus on the visual processing system.

[18] See, for instance, Francis Halsall, "One Sense is Never Enough," *Journal of Visual Arts Practice* 3, no. 2 (2004): 103-122; Francesca Bacci and David Melcher, eds, *Art and the Senses* (New York: Oxford University Press, 2011); Laura U. Marks, "Thinking Multisensory Culture," in *Art and the Senses,* 240; Patricia Di Bello and Gabriel Koureas, eds, "Other Than the Visual: Art, History and the Senses," in *Art, History and the Senses: 1830 to the Present*, (Surrey: Ashgate, 2010), 3.

[19] Claire Bishop, *Installation Art: A Critical History* (Routledge: New York, 2005), 6.

[20] I use the term mediality here in the same sense used by Hans Belting in "Image, Medium, Body: A New Approach to Iconology," *Critical Inquiry* 31, no. 2 (2005): 304 where he suggests that the visibility of images "rests on their particular mediality, which controls the perception of them and creates the viewer's attention."

[21] Laurie S. Adams, *The Methodologies of Art: An Introduction* (Boulder: Westview Press, 2010), 101.

[22] Rozsika Parker, *The Subversive Stitch: Embroidery and the Making of the Feminine* (London: IB Tauris, 2010), xii.

[23] Parker, xvii.

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[24] See the debate on aesthetic spectatorship between Berleant and Ronald Hepburn in "An Exchange on Disinterestedness. Wherefore Disinterestedness," *Contemporary Aesthetics* 1 (2003), at www.contempaesthetics.org/newvolume/pages/article.php?articleID=209, as of December 14, 2016.

[25] Martin Jay, "Scopic Regimes of Modernity," in *Vision and Visuality*, ed. Hal Foster (New York: The New Press, 1988), 9.

[26] Norman Bryson distinguishes between the gaze and the glance in *Vision and Painting: The Logic of the Gaze* (London: Macmillan, 1983).

[27] See Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1993), 55. It has even been argued that affective involvement is lost in perspectival space. See Peter Fuller, *Art and Psychoanalysis* (London: Writers and Readers, 1980). Regarding the robustness of Renaissance perspective see Michael Kubovy, *The Psychology of Perspective and Renaissance Art* (Cambridge: Cambridge University Press, 1988).

[28] Kemp, *Optical Themes,* 44.

[29] James Elkins, *The Poetics of Perspective* (New York: Cornell University Press, 1994), 7; Kemp, *Optical Themes,* 52.

[30] Erwin Panofsky, *Perspective as Symbolic Form,* trans. Christopher Wood, (New York: Zone Books), 1991.

[31] Elkins, *Poetics*, xi.

[32] Jay, "Scopic Regimes," 9.

[33] Margaret Iversen and Stephen Melville, *Writing Art History: Disciplinary Departures* (Chicago: University of Chicago Press, 2010), 109. See also Svetlana Alper's discussion of the print in "Art History and its Exclusions," in *Feminism and Art History,* eds. Norma Broude and Mary Garrard (New York: Harper and Row, 1982), 187.

[34] Willis Maples and Richard Hoenes, "Near Point of Convergence Norms in Elementary School Children," *Optometry & Vision Science* 84, no. 3 (March 2007): 224-228, at doi: 10.1097/OPX.0b013e3180339f44, as of May 10, 2015.

[35] See Hans Jonas, "The Nobility of Sight: A Study in the Phenomenology of the Senses," *Philosophy and Phenomenological Research* 14, no. 4 (1954): 519.

[36] Jonas, "The Nobility," 517, 519.

[37] Descartes, *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff and Dugald Murdoch, (Cambridge: Cambridge University Press, 1984), vol. 1, 166.

[38] It should be noted that Jay admits that the scopic regimes of modernity are complex and contested with several ocular fields competing. Jay, "Scopic Regimes," 4.

[39] For a discussion of the 'Kantian gaze' see Kevin Hetherington, "From Blindness to Blindness: Museums, Heterogeneity and the Subject," in *Actor Network Theory and After*, ed. John Law and John Hassard (Oxford: Blackwell Publishers, 1999), 66.

[40] Immanuel Kant, *The Critique of the Power of Judgement*, trans. J. C. Meredith (Oxford: Clarendon Press, 1952). It should be noted that the category of aesthetic experience changed in the course of Kant's writing. In his first Critique *(The Critique of Pure Reason*) it is used in a sense close to empiricism's sensory experience (i.e. the receptive function of sensory impressions). In the third Critique (*Critique of the Power of*

Judgement) it has attained the status of productive imagination, the mark of originality and creative genius.

[41] See Kant's explanation of the concept of "disinterestedness" in Kant, *Critique of the Power of Judgement*, 48. See also Jerome Stolniz, "On the Origins of Aesthetic Disinterest," *Journal of Aesthetics and Art Criticism* 20, no. 2 (1961): 131, and Norman Kreitman, "The Varieties of Aesthetic Disinterestedness," *Contemporary Aesthetics* 4 (2006), at http://www.contempaesthetics.org/newvolume/pages/article.php?articleID=390 as of December 14, 2016.

[42] Stolniz, "On the Origins," 132, 133.

[43] Irit Rogoff, "Studying Visual Culture," in *The Visual Culture Reader,* ed. Nicholas Mirzoeff (London: Routledge, 1998), 17.

[44] Maria Coleman, "Reappraising the Disappearing Body and the Disembodied Eye through Multisensory Art," *Crossings: eJournal of Art and Technology* 5, no 1, at https://crossings.tcd.ie/issues/5.1/Coleman/, as of December 14, 2016.

[45] Tim Lenoir, "Foreword," in *New Philosophy for New Media*, ed. Mark Hansen (London: MIT Press, 2006), xiv.

[46] Crary, *Techniques of the Observer*, 2.

[47] William J.T. Mitchell, *The Reconfigured Eye: Visual Truth in the Post-Photographic Era* (Cambridge, Mass.: MIT Press, 1992), 57.

[48] Friedrich Kittler, *Gramaphone, Film, Typewriter*¸ trans. Geoffrey Winthrop-Young and Michael Wutz, (Stanford: Stanford University Press, 1999).

[49] Mark Hansen, *New Philosophy for New Media* (London: MIT Press, 2006), 23.

[50] See a host of examples in Caroline Jones, *Sensorium: Embodied Experience, Technology and Contemporary Art* (London: MIT Press, 2006).

[51] Yuko Hasegawa, “Mathieu Briand,” in *Sensorium, Embodied Experience, Technology and Contemporary Art,* ed. Caroline Jones (London: MIT Press, 2006), 51-30.

[52] For a selection of fitting examples see Coleman, “Reappraising the Disappearing Body.”

[53] Belting, “Image, Medium, Body,” 310.

[54] Belting, 310.

[55] Leo Steinberg, *Leonardo's Incessant Last Supper* (New York: Zone Books, 2001).

[56] Jay, *Downcast Eyes*, 57.

[57] See Halsall, “One Sense”; Di Bello and Koureas, *Art, History*; Bacci and Melcher, *Art and the Senses*.

[58] See Keith Moxey, “Visual Studies and the Iconic Turn,” *Journal of Visual Culture* 7, no. 2 (2008): 131-146.

[59] Ellen Esrock, “Embodying Art: the Spectator and the Inner Body,” *Poetics Today* 31, no. 2 (2010): 217-250.

[60] Susan Best, *Visualizing Feeling. Affect and the Feminine Avant-garde* (New York: IB Tauris, 2011); Eugénie Shinkle, “Uneasy Bodies: Affect, Embodied Perception and Contemporary Fashion Photography,” in *Carnal Aesthetics: Transgressive Imagery and Feminist Politics,* ed. Bettina Papenburg and Marta Zarzycka (London: IB Tauris, 2013).

[61] Many recent film theorists have turned to phenomenology. See for instance, Jennifer Barker, *The Tactile Eye* (California: University of California Press, 2009).

[62] Berleant, *Art and Engagement* (Philadelphia: Temple University Press, 1991); Berleant, "Aesthetic Embodiment." Paper given at the meeting of the American Philosophical Association, Boston, MA, December 2003, at www.autograff.com/berleant/pages/recentart, as of December 14, 2016.

[63] Francisco Valera, "The Reenchantment of the Concrete," in *Incorporations*, ed. Jonathan Crary and Sanford Kwinter (New York: Zone, 1993).

[64] John M. Krois, "Experiencing Emotions in Depictions," in *John M. Krois Bildkörper und Körperschema: Schriften zur Verkörperungstheorie ikonischer Formen*, ed. Horst Bredekamp and Marion Lauschke (Berlin: Akademie Verlag, 2011), 233-251.

[65] James Gibson, "The Theory of Affordances," in *Perceiving, Acting and Knowing,* ed. Robert Shaw and John Bransford (Hillsdale, NJ: Lawrence Erlbaum, 1977).

[66] Merleau-Ponty, *The Visible and the Invisible,* trans. Alphonso Lingis (Evanston: Northwestern University Press, 1968), 130-155.

[67] Berleant, *Art*, 89.

[68] Robert Morris, "Notes on Sculpture, Part 2," rep. in *Continuous Project Altered Daily: The Writings of Robert Morris* (Cambridge: MIT Press, 1993), 17.

[69] Berleant, *Art*, 46.

[70] Merleau-Ponty, *The Primacy of Perception and Other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics*, ed. James M. Edie (Evanston: Northwestern University Press, 1964), 50.

[71] Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (Oxon: Routledge, 2002), 272.

[72] I am paraphrasing Martin Heidegger's conception of 'being-in-the-world'. Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (New York: State University of New York Press, 1927).

[73] Annie M.A. Van den Oever, *Sensitizing the Viewer. The Impact of New Techniques and the Art Experience* (Amsterdam: University of Groningen, Amsterdam University Press and Stedelijk Museum Amsterdam, 2011), 16.

[74] Claude Gandelman, *Reading Pictures, Viewing Texts* (Bloomington: Indiana University Press, 1991), 5.

[75] See the examination of Riegl's theories in Margaret Iversen, *Alois Riegl: Art History and Theory* (Cambridge: MIT Press, 1993).

[76] Riegl worked as a curator of textiles at the Austrian Museum of Art and Industry, conducting research on carpets and tapestries, (then considered the minor arts or what would now be categorised as craft, to which Sperber's media also refers). William Simmons, "Hands on the Table: Ernst Ludwig Kirchner and the Expressionist Still Life," *Art History* 37, no. 1 (February 2014): 116, at doi: 10.1111/1467-8365.12063, as of May 20, 2015.

[77] Laura Marks, "Haptic Cinema," in *Visual Sense: A Cultural Reader*, ed. Elizabeth Edwards and Kaushik Bhaumik (Oxford: Berg, 2008), 405.

[78] Marks, "Haptic Cinema," 401.

[79] Marks, 403.

[80] Laura, U. Marks, *Touch: Sensuous Theory and Multisensory Media* (Minneapolis, MN: University of Minnesota Press, 2002), xvi.