Image Automation: Post-Conceptual Post-Photography and the Deconstruction of the Photographic Image

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Abstract

This PhD thesis delivers an artistic research practice based on a deconstruction of the photographic image. Photography in post-photographic, digital culture has, due to changes in technology, become a matter of style while neglecting its own traditional process base. This thesis claims that similar automated processes can be found within information technology, which in the artistic realm has a strong relation to Conceptual art. A post-conceptual critique of the notion of 'information' in Conceptual practice allows for a repositioning of the image. Focusing on visual, transformative reflection, the thesis resists the temptation to present generalising philosophical speculation in favour of an artistic research practice that focuses on the inner, transformative workings of artworks, or the work's 'figuration' as I call it, following Jean-François Lyotard and Georges Didi-Huberman.

This research project offers an artistic interrogation into the potential of post-photographic practices under post-conceptual conditions. Apart from photography, the practice employs drawing, installation art, painting and printmaking to produce work that is often conceptually developed on the computer. Much of the work consists of abstract, blob-like 'figures' appropriated from digital-image material, while other work is measurement-based. Figuration is advanced in each of these through constructive processes that remain visible.

A developed understanding of process-oriented practices within the digital realm, which this PhD offers, allows present-day photography to connect to its traditional diversity. The necessary re-thinking of the image, which is a key result of the research, may affect artistic practices beyond photography, giving an extended contemporary photographic practice increased artistic relevance.

The research is supported by art-historical discussions concerning the history of photography, the history of Conceptual art, and what Svetlana Alpers calls 'the northern mode' of painting. Technical discussions of post-photography and the notion of 'information' help clarify underlying processes, while philosophical considerations are used to give meaning to a changed concept of the image. Finally, a methodological discussion contextualises the research within current notions of practice-led research.

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Chapter 1: Studio Practice

1.1 The Research Question

The research question that this PhD attempts to answer is a visual one. It first arose in relation to my work *Remember Me*, 2000 (figs 1 and 2) and can be paraphrased with the query: 'What does it mean to see like *this*?'; in other words, it is the event of seeing that is under scrutiny.

Remember Me consists of a set of six Iris Giclee prints, which formally resemble portraits. The images share, besides the faces they depict, a characteristic blur that evenly covers their surface. In effect, face and blur are not distinct elements. The blur is only visible with the aid of the face, because it adds tonal variations to the image; the face, on the other hand, seems to be made up of blur rather than simply being visible through it. This is related to the way in which the images were made. Appropriated, very small digital photographs of faces were enlarged in Adobe Photoshop using 'bicubic interpolation', resulting in an almost entirely calculated and thus blurred image.

The research question originates from this blur. The blur is distinct from the type of blur that one could encounter as an optical side-effect in photography. In photography, an image is usually blurred when it is out of focus, or when the subject is moving. The blur in *Remember Me*, however, is a software-blur that shows the characteristics of this particular interpolation algorithm. Images softened with a 'Gaussian' blur, which is a different type of algorithm, are in comparison more like out-of-focus photographs. Gaussian blur is for this reason used to fake a reduced depth of field in the digital manipulation of photographs. In both cases, and in a way similar to an out-of-focus photograph, it is impossible, however, to tell blur and image apart. Although Gaussian blur is a software blur, it mimics an optical blur, while bicubic interpolation does not have an equivalent in optics. Thus the perceptions of these different kinds of blurs create very different connotations. While we do not step outside of what we will later call the 'photographic style' in an image that was post-produced using the Gaussian blur, our judgement is less straightforward in the case of bicubic interpolation, since there is no equivalent in traditional photography.

The research question that is encountered visually in *Remember Me* takes its origin from the particular function of the blur in the work. As it brings the question of photography and post-photography into focus, through a blur that has a particular visual appearance, the work opens up an interrogation of photography – the status of photography in a computerised world and the visual implications of a changed technical way of imaging.

Bicubic interpolation is not a blurring tool. It is used when images are resized, and as a consequence become blurred during the reconstruction of missing information. Bicubic interpolation cannot create new information (although new pixels are generated; see Chapter 3), but it does not remove existing information either. Blurs of the Gaussian type, however, do remove information as image detail is lost. In the case of *Remember Me*, bicubic interpolation has the interesting effect of preserving image information that is not – so to speak – part of the image, if we think of the portrait as the image. Given the fact that the sources for *Remember Me* are very small and thus pixelated images, bicubic interpolation preserves the square layout of the pixel raster as though it were part of the face, thus blending face and raster into an interpolated image that is both face and raster (fig. 3).

Although *Remember Me* puts forward a visual question, it does not go any further. In fact, the sexually charged portraits distract from the question by overlaying a second issue: that of gender, gaze and sexuality. The blur in the work is thus in danger of functioning as a post-photographic effect used to create a particular type of message rather than pushing for the meaning of this effect in the realm of visuality. The title *Remember Me*, which was originally conceived as a play on the familiarity of the sexual gaze, extends into a deeper meaning when the work is seen as a research question. The remembrance of photography in post-photography opens up a critical interrogation of the blur of post-photography. In this PhD, the call for the remembrance of photography produces a degree-zero of certain visual aspects of photography, which will later be called 'process-vision' as opposed to 'picture-vision'. Picture-vision is our ability to see what something is or represents, while process-vision is the ability to perceive how something is done or how it works. Photography, it is assumed, has always referred to both types of vision, although it is only from the perspective of post-photography that this has become an issue. In *Remember Me*, the female face is a residue of picture-vision embedded in the process-vision of the technical and conceptual construction of the work.

An earlier example, *Tottenham Court Road 1*, 1999 (fig. 4), can serve to illustrate this. In this work, the halftone dots of a printed photograph are brought back into photography by re-photographing the image through the un-corrected lens of a magnifying glass. The face, with its clearly visible neutral skin tone, is an illusion reconstructed from the blurring of the halftone dots that underlie the smooth image. *Tottenham Court Road 1* is similar to *Remember Me* in that both use reduced image information as their bases (halftone and pixel raster), which the works, regardless of the process, push into picture-vision. They differ, however, in the sense that in *Tottenham Court Road 1* the original photograph returns to the heightened picture-vision of photography. In *Remember Me*,

this reconciliation is disturbed through the impossibility of resolving the image back into a photograph due to the non-optical blur of bicubic interpolation.

A successive work used the same process as *Remember Me*, but in removing the face, attempted to eliminate the associated picture-vision through an emptying out of the image. In *White Square*, 2001 (fig. 5), a white area had been placed on top of the face in the appropriated source material in order to make the sitter anonymous. The same result was sought in the appropriated source material for *White Rose*, 2001 (fig. 6), only here it was done with the help of a large-brimmed hat decorated with a white rose. The covered-up faces offered the first perspective into a reduction of the picture-vision without, however, pushing forward process-vision as an alternative.

The following sections will give an account of the work that was undertaken in an attempt to respond to the research question in practical terms. The account deliberately keeps to a description of the works and the methods employed, since the context of the studio practice that is set up in this first chapter foregrounds the hands-on material development of the work. The contexts provided by the successive chapters will, by following their own logic, both implicitly and explicitly interrelate. All contexts taken together form my response to the research question that is *Remember Me*.

1.2 Grids and Blobs

Although the grid structure of the source image remains comparatively visible in the final images that comprise *Remember Me*, it is the 'patchy' or 'blobby' appearance of colour within the blur of the image that stands out. These blobs are particularly pronounced around the eyes, for example, which emerge as dark, blurred dots due to the strong contrast in brightness between the eyes and the surrounding skin. Even in low-contrast areas, such blobs can be perceived. The replacement of the face by the square in *White Square* and by the rose in the *White Rose* series introduces a high-contrast colour amongst the more subdued colours in the rest of the image. It is thus the elements in the portraits that are used to hide the faces – the rose and the square – that create the strongest and most monochrome patches of colour.

Focusing on these patches of white in the *White Rose* series, I made the *Potato Prints (White Rose)*, 2004 (figs 7 and 8). The differences in brightness of the blurred but pixellated images of the roses were mapped onto a scale from 0 to 5, 0 indicating the darkest and 5 indicating the brightest areas. (Fig. 9 is an example of the numerical data of one of the 'roses'.) The decision to use a scale of six brightness values was an arbitrary reduction out of a maximum of 256 possible brightness values. I employed the numerical image map in the actual making of the work when using five different-sized halved potatoes to represent

the various brightness values. The largest potato was chosen to represent the highest number (namely, 5) all the way down to the smallest potato representing the value of 1. Points with the value of 0 were not represented. Once the 'palette' was established, the map was transposed onto paper by printing in black gouache with the cut side of each potato. The result is a black blob shape on a white ground. The grid structure is visible, but it appears chaotic at times, where imperfections in the printing have left white areas that rival the white gaps in the grid (fig. 10). The grid, although clearly an element of structure, is visually less important than, or even challenged by, the overall compact blob shape that seems to 'hold' the dots together.

In *The Premier Rose*, 2007 (fig. 11), a comparable process was used, except that here the source image was the appropriated photograph of a large diamond – the Premier Rose. This work differs in a number of ways from the *Potato Prints*: *The Premier Rose* is made with black acrylic paint on primed, white canvas. A selection of lids served as the 'palette'. These were: Size 1: Volvic Mineral Water, Size 2: Yoghurt Drink, Size 3: Spray Glue, Size 4: Sulfur 8 Anti-Dandruff Conditioner, Size 5: Hair Gel (Wet Look), Size 6: Zinc and Castor Oil Cream, Size 7: White Gouache (fig. 12). The 'palette' for *The Premier Rose* shows greater differences in size than that used for the *Potato Prints*: the smallest size is less than 3 cm, while the largest is more than 12 cm in diameter. This wider range in size, and the strong local contrast in the image of the reflective crystal, have resulted in a quite different work: while the *Potato Prints* are very compact and voluminous, similar to some scientific illustrations of molecules (fig. 13), the loose arrangement of dots in *The Premier Rose* is more akin to the halftone dots used in printmaking. This gives rise to the overall cleaner appearance with less volume.

In the case of *Negative Light*, 2004 (fig. 14), a patch of light from a source image (fig. 15) was represented in different sized ripped-out square pieces of black paper that were stuck onto a white gallery wall. The uneven borders of the ripped paper and the curling up of the paper on the wall produced a grid that was only unevenly visible across the work, again destabilising the organisational function of the grid. The large, black middle section created a coherent blob shape that once more stood out against the grid.

The photogram *Catwalk*, 2006 (fig. 16) utilises a similar quantification of image data. For this work, holes were punched into a piece of cardboard, mapping the brightness values of an appropriated photograph of a model on a catwalk (figs 17 and 18). The cardboard was used to mask-off light that was projected onto photographic paper, whereby each hole functioned as a small aperture through which the shape of the light source was projected onto the photographic paper. As the light source was square, so are the elements from which the figure on the photogram is composed.

All of these works use image data that is organised into grids. By focusing on blobs, the grid that usually addresses the whole of an image has been transformed into a local phenomenon. Such a localised grid is secondary to the blob. It appears as if the grid only emerges in those areas of the ground that were intersected by the outlines of the blobs. The blob changes the function of the grid, which moves from being a universal structure in which elements are organised, to a local structure constituting these image elements. The ground usually equally addressed by the grid is allowed to remain empty.

Although the pixel matrix is essential to digital photographs, it is possible to foreground the blobs further and *not* represent the grid within the blob. The digital image makes it easy to address areas of similar brightness or colour. It allows the quick creation of a subset of the grid, whose particular shape, the blob, is a quality in its own right. In the small works *Coffee Stain* and *Madagascar*, both 2004 (fig. 19), I transposed the shape of a stain and that of the map of Madagascar into gold acrylic paint behind A5 sheets of clear Perspex. The size of the golden shapes was optimised by placing them diagonally on the ground in a fashion similar to the selection of irregular shapes on the computer. These are usually framed by the smallest possible rectangle, which is a rudimentary reminder of the grid. Using a literal map in the work creates an explicit relation between blobs and the representations of topographies that we know from geography (fig. 20) and aerial photography (fig. 21).

In *London Eye*, 2005 (fig. 22), the idea of a two-dimensional image representing a three-dimensional map is further alluded to. An image of the central axel of the London Eye was digitalised from a found photograph (fig. 23) and broken down into regions of similar brightness. These were represented by different shades of grey as the image-map was transferred onto a white gallery wall using conventional household paint. The angle at which the axel points to the sky was carefully copied from the source photograph and could be seen as indicating the direction of the map. The accessing and the representation of the numerical data of the image *does*, in fact, treat the image as if it were a map. Focusing on the blob interrupts the representational function of, and foreground's informational relations within, the image. The stripping bare of such representational functions turns the blobs into abstract images.

In various works with photo-murals and posters, such as *Grand Canyon and Indian Summer*, 2005 (fig. 24) and later smaller versions (fig. 25), I ripped the blob-shape out of the same image material from which it was conceived. The blob-shape was transformed in the process, and stretched across the whole of the image. This transformation resulted in a visible displacement between the source and the consequent shape, in places showing both elements next to each other (fig. 26). The borders of the blobs are irregular, but prove

to be specific despite their irregularity: the outline can, for example, be rounder or more edgy dependent on the source image and the coloured area that was selected. Instead of layering a blob onto an image or a wall, this body of work shows the blob in its absence, and as such, as a negative space. The area of the blob (the resultant) and the wall (the support) meet on the edges where the image frame is perforated by the blob, producing a visual reversal: the corners, the image residues, disintegrate and become shapes that float between the wall inside and around the work (fig. 27). In a proposal, I planned to install such artworks on public billboards (fig. 28). According to this proposal, the central blob would be finished in black paint or sugar paper, making a tangible rip in the image space that advertising provides in the urban landscape. Such billboards would give the abstract image an appearance that stands in contrast to our everyday way of seeing. They would open up imaginative spaces derived from the images themselves. A similar approach could be used for custom-made newspapers (fig. 29).

In many of these works, a triplet of layers is at play. First, the works use a support material that is often the gallery wall. Second, an image material is utilised that stands off the support and provides information that is, third, derived from the image to produce a sometimes transformed blob that intersects both support and image. The photograph of *New Cross Gate*, 2006 (fig. 30), showing graffiti on a fence in New Cross Gate station in London, is structurally composed of the same elements. Here, the background is the support on which the grid-like image-fence sits, which holds a white blob-shape that is spray-painted onto the fence. This blob appears as if it is visually erasing the image layer (the fence), pushing it back into the support as if it were invisible or had never existed. Thus the blob becomes a shape through which we see, rather than a shape that we see. In its limited field, a visual opening can be created that allows the information on the image to be seen differently. The present research focuses upon this different visual appearance.

All of these works create a relation between image materials that are supported by the grid structure of the pixel matrix. In terms of imaging, the blob is the most 'natural' shape on which these works focus, since it is the way in which light or, rather, the reflection of light, appears in a photograph. By putting the abstract blob into the spotlight, the function of the grid can be understood but also broken down and re-negotiated in the material experience of the artworks. The grid is, however, not the only structure that can be used.

1.3 Drawings and Constructions

Digital photographs have formed the image material for all the works that have up to this point been discussed. The camera, extended into the conceptual post-production

work of the studio, has been used as a mapping device rather than an imaging device, making the representational function of the image comparatively less important. From the point of view of information, the camera is a possible but not a necessary device; other processes that deliver information for its mapping are feasible. In the works that will be discussed in this section, I substituted the camera with alternative ways of arriving at image information, most notably, measuring. It is crucial for the understanding of the work to focus on the *visual function* of the blob and not to be distracted by its different appearance beyond the pixel grid.

Without taking an image, the camera can be used as a mapping device. In the *Distance Circles*, all 2006 (figs 31 and 32), I mounted a standard SLR camera onto a tripod carefully positioned in an interior space (domestic, studio or gallery). By rotating the camera around a full 360 degrees in 15 degrees steps and by focusing the lens on whatever was central in the viewfinder, I could read-off the distances from the lens, and thus map the space as 'seen' by the camera. The distances were plotted onto the floor and connected, resulting in a shape similar to the blobs discussed above. The square, uniform grid, however, is replaced in these circles by a structure radiating from a central point. Dividing the full circle into 15-degree steps is comparable to the resolution of the pixel matrix: a higher resolution would, in theory, create a smoother blob, although reading-off the distances from the lens is so inaccurate that it would be difficult to obtain different readings from points very close to each other. The circle was constructed around the shape as a substitute for the invisible horizon to which vision in the enclosed space could not stretch. The circle is an ideal device comparable to the orthogonal frame or grid in the previous works. A planned piece, the *GPS Circle*, will use latitude and longitude data received from the Global Positioning System (GPS) for the drawing of a circle that will represent a circular walk around a central point (a gallery, for example). The street layout of the urban architecture, however, will make it impossible to create a perfect circle through such a walk.

The *Distance Circles*, with their central viewpoint and their use of a camera, are still closely related to photography. It is, however, possible to create maps without assuming a point from which a perspective is constructed. The series *Reconstructions (City Trees)*, 2006 (figs 33 – 35; fig. 36 shows a set of pictures of an actual space) utilises the principle of triangulation to reconstruct a shape in a given space. For this work, I measured the distances between groups of trees in the city of Paris. Simply put, if I know the position of three trees, A, B and C, I can construct the position of tree D if I also know the distances between D and A, B and C. In principle, the position of all trees in the group can be reconstructed from those initial three trees. For *Reconstructions*, however, I did not use the same three trees for the measurement of the group. Instead, I used a rule whereby I

measured from any given tree to the three trees closest to that tree, provided a distance had not been measured before. Following this rule, the shape in which a group of trees was planted could be developed and reconstructed. For the reconstruction, a Computer Aided Design (CAD) programme was used. The resulting shape was transferred in pencil to paper.

The usage of a CAD-programme was not necessary, but it made it easier to reconstruct large groups of trees. For *Reconstruction (Road)*, 2006 (fig. 37), I used nothing but a large compass and chalk to create the drawing of *Place Roger Prijou-Valjean* in a parking space near the actual square. The circles, which could be omitted for the pencil drawings, have the same weight as the constructed lines, creating a shape that is the almost disappearing centre of the construction as a whole. In the early drafts of *Argelès Plage*, 2007 (fig. 38), I used a plotter to transfer the CAD drawings onto paper (fig. 39). The piece itself was done with a large compass and a pencil.

The idea of the 'blob' is present in all of these examples. It is a shape or a figure that is drawn on a ground that contains its construction within it. This construction is comparatively even when a grid is imposed, but uneven and dynamic when the construction is internal and does not hold on to an outside structure. Such constructions may be called 'organic', since they carry a principle within themselves that is repeated as the construction is developed. Leonardo da Vinci's *Levels of Equal Cross-sectional Area in the Branching of a Tree*, c. 1500 (fig. 40) is not unrelated. The branching of a tree follows a principle that is present in each branch. In the upper drawing, this is seen from a central point at the trunk of the tree; the bifurcations, however, could also be drawn as circles around each node with diminishing radiuses, thus using circles with multiple centres to represent the development and growth of a tree. The lower drawing shows the ideal circle into which that growth is developing, which looks surprisingly similar to my *Distance Circles*. The point I want to make here is that the work described in this section has done away with an external grid structure in exchange for an internal principle of construction, development or growth. If the blob, as speculated in the previous section, is the area that constitutes the visibility of the preconceived grid, the blob now makes visible a construction not dependent on a structure outside of it.

I have carried this idea into three-dimensional space in *Treetops Remodelled*, 2007 (for example, figs 41 and 42), where I used multiple photographs of pollarded trees (fig. 43) to re-construct a three-dimensional model of the tree (fig. 44) in order to inscribe a construction similar in kind to the drawings for *Reconstructions*. The models were developed in a CAD application (fig. 45), but this time three-dimensionally printed using a stereolithograph rapid-prototyping machine. A sketch done with string and a

branch shows how such a structure 'sits' around the branch (fig. 46). In a later piece, *Treetops (Elastic)*, 2007 (fig. 47), I re-created one of the models in a gallery space using string and elastic.

The three-dimensional work engages the viewer differently from the drawings. The shapes in the drawings are contained by their outline and look to a certain degree like drawings of specimens (fig. 48). In *Treetops Remodelled*, the outline is interrupted and thus, opened up, which makes them appear spatially more active. In this respect, the models stretch the idea of 'blobs': the openness contradicts the outline to a certain degree, which is necessary to conceive something as a blob. If, however, the idea that relates the models to the blobs is followed through, it should become apparent that on a more abstract level the blobs might be seen as simpler instances of dynamic, open and abstract figures in general.

1.4 Conceptual Transformations

The relations that I claim exist between the works demand the imagination of a less tangible principle, which the research has sought to foreground. So far this has been done by looking at images of blobs of various shapes. In the current section, it should become clear that the abstract 'figure' under scrutiny may have additional aspects, which are addressed by a different type of work.

Painting (USB) (fig. 49) is a work that is very slow to execute and which has, as a result, been in progress since 2004. It consists of a painting that, in effect, copies an image frame that was captured when I connected my USB web camera for the first time to the computer (fig. 15). In *Negative Light* (fig. 14), I also made use of this image by focusing on the patch of light on the background wall. For *Painting (USB)*, however, I wanted to represent the whole image as if it were a blob, i.e. as if it had an internal constitutive logic only spatially limited by the picture frame. The re-doing of the image in acrylic paint thus had to establish such logic.

In *Mona Lisa*, 2005 (fig. 50), I introduced colour into the work by painting each piece of a jigsaw puzzle in a monochrome colour that matched the average colour on that piece. The matching of the colour was done by eye from a scan of the puzzle. For *Painting (USB)*, however, I wanted to arrive at a colour for each pixel that resulted from the mixing of different proportions of the primary colours (red, blue and yellow) and white, a mixing that was made following a rule rather than an approximation by eye. Such mixing is standard on a traditional computer screen, for example, where three cathode ray tubes (CRT), one each for red, green and blue, are fired according to the RGB, the red, green and blue value of that pixel, which is possible because light mixes lineally. Physical paint, on the other hand, does not mix lineally. Professional paint-mixing systems, such as those

used by Dulux, therefore employ a database of possible colours against which a colour sample is compared and for which the mixing instructions are known. For *Painting (USB)*, I devised a system that mixes the three primary colours plus white *as if* they mixed lineally, comparable to light. This was done by scanning swatches of primary colour and determining their RGB values (fig. 51) and by constructing a colour space spanned out between these colours (fig. 52). The colour of pixels of the source image can be mixed by mapping the RBG value of that pixel onto the hypothetical colour space created from the scanned pigments. Fig. 53 shows the position of all colour values of the source image in relation to the hypothetical colour space. For colours that lie within this hypothetical colour space, a mixing instruction can be achieved directly by combining the pigments in proportion to the distances of the colour from the corners of the hypothetical colour space; colours that are outside of this space have to be projected onto that colour space before a mixing instruction can be derived.

The 55,000 individual pixels of *Painting (USB)* can thus be mixed and applied to the canvas (fig. 54) with a square piece of wood (4 x 4 mm) using lists of colours and their position in the grid (fig. 55). No visual comparison between the painting and the source image is necessary. Only in comparison to the source image does the painting look 'wrong'. (The shadows, for example, are all blue, since all dark colours have a quantity of blue in them, due to the fact that pure blue is by far the darkest pigment of the primary colours.) The painting looks 'right', however, from the point of view of the colour-mapping programme, since all colours are represented correctly according to their measured values. The image maps that for the blobs have so far been discussed only in relation to the *location* of image points can also be applied abstractly. *Painting (USB)* maps the colours of all pixels instead of their locations: what have been discussed as 'dynamic, open and abstract figures' can be conceptual transformations and need not be restricted to spatial mappings, although diagrams that look surprisingly similar to some of the drawings for the *Reconstruction* series, for instance, can be used for their visualisation. One could thus generalise that with the blobs, figures of transformation have been isolated that are not only spatial but also conceptual in nature.

Talking about the transformational aspect of the blobs allows one to focus on temporal implications. It was one of the initial ideas for this research project to look at *Remember Me* as something that is moving or has to be moved. Some tests were made in which I shifted the resolution that underlies *Remember Me*, creating an animation of the image (fig. 56). An installation was proposed that consisted of two projections showing the same animated footage out of sync. The dissatisfaction with the overburdening question of the face and the gaze that was alluded to above made me radically re-think and re-address the function that this installation was supposed to have in relation to the research

question. Instead of putting forward an animation that would have expanded the research question, a different type of installation was made that answered the concerns, according to which an animation of *Remember Me* appeared appropriate.

The chief reason for looking at an animation was that a sense of vibrancy was already at play in the still images of *Remember Me*: somehow, the blur made the images 'hover' over the wall, while focusing on the blurred image seemed to be difficult for the eye. Thus, additional to the blob shapes, a particular type of instability also seemed to be important for the blur from which the blobs were derived. *Chokes*, 2003 (fig. 57) is an installation that utilises the principle of a feedback loop. Fluorescent tubes of the traditional kind usually produce a flicker when switched on before the tube is fully alight. I used this flicker as input data for the switching on or off of a second fluorescent tube, whose flicker was used to switch on or off the first tube in return. In this way, both light systems (each consisting of a tube and a light switch) were interconnected in a feedback loop: Flicker Light A –> Switch Light B –> Flicker Light B –> Switch Light A –> Flicker Light A –> Switch Light B … The feedback loop was maintained using custom-made electronics consisting of light-dependent resistors (LDRs) to measure the light levels at the tubes (fig. 58), solenoids to do the actual switching of conventional household switches (fig. 59), and a circuit board with a micro-controller holding the programme (fig. 60).

Initially, the programme tells both sets of solenoids to switch both lights on. The flicker, being a random event that is very specific to the tube and the associated electronics, happens unevenly across the two tubes. Whichever tube flickers first will start the feedback loop. The work is active for a few loops (with a maximum duration of about 5 seconds) until both lights are either on or off and the installation has resulted in a stable state. The stable state (on or off) is maintained for about ten seconds. Both lights are then automatically switched off for half a minute before the process is re-started. Fig. 61 shows a graph of the light levels and the resultant switching commands.

The experience of *Chokes* is physical. The flicker is very intense in a darkened space; the hammering of the solenoids against the switches is extremely loud. Thin wires hang from each tube across the space to connect these to the switches they are operating. This is technically not important, but it was done in order to emphasise the necessary crossing at one point between the two light systems A and B. This could be imagined as a horizontal figure 8 (∞), the symbol for infinity (fig. 62). The loose, hanging wires, paired with the loud sound and the intense flicker and the knowledge that electricity is involved create a highly physical experience of active instability.

States of instability were the main concern of Ilya Prigogine, 1977 Nobel Laureate in chemistry, in his book *The End of Certainty*. According to him, they are related on a very

material basis to the act of seeing: '[W]e can say that matter at equilibrium is "blind", but far from equilibrium it begins to "see".' (Prigogine, 1997: 67) Without wanting to speculate too much on a field that is beyond the limits of this PhD, it is, however, interesting to notice that instabilities, as they may be experienced in *Chokes* and on a more visual level in *Remember Me*, and in subsequent work, may be seen as material processes of reflection and ultimately vision. (This topic will be of importance in Chapters 4 and 5.)

1.5 Inventory

I have been using diagrams as another way to foreground the dynamics of reflection. The blob that above was seen as related more closely to a map than to the representational function of images could also be conceptualised as a diagram. Diagrams are visualisations of data that can be very different in kind, while maps visualise a space and the locations of data points within that space. From the moment the space becomes a conceptual space, as it does in *Chokes*, for example, and not an image space comparable to the *Potato Prints* and other related works, the notion of the 'map' may be too limited to express the particular type of a not necessarily spatial order, which internally regulates the appearance of a blob or any other kind of shape or drawn figure. *Inventory*, 2006 (figs 63 – 71) is a collection of diagrams relevant to the philosophical background of this research. The work consists of a set of stretched canvases primed with green blackboard paint. The diagrams are made with white chalk. It is important for the panels to be paintings rather than blackboards because this fact emphasises the diagrams as figural propositions. On an actual blackboard, as with so many of Joseph Beuys's blackboards (fig. 72), the diagrams are seen more as vehicles for teaching than as works in their own right. At Tate Modern, for example, where some of Beuys's blackboards are housed and exhibited, they look like mementoes of his teaching and thus like residual objects. Some of the visual functions of the diagrams may be overlooked.

Inventory thus brings together the works that map image information, which so often use diagrams (see figs 44, 45, 52, 53 and 55), with systematic and philosophical thinking about the research. Diagram details also share their appearance with some of the other works, like *Reconstructions (City Trees)* (fig. 34), for example, where the lines organise the space. The abstract figures that I have introduced through my discussion of blobs – and this is crucial for artistic research practice – are also 'figures of thought', i.e., visualisations of the abstract movements necessary for a thought to occur. It is no coincidence that the visuals through which this research has progressed are, in the end, compatible with, if not identical to, the visualisation of thoughts as they are formed in research. Lines, arrows,

shapes and even words form a constellation in movement, which floats on a ground comparable to the blobs in the *Potato Prints* or the line drawings.

The materially visible blobs have served not only as an introduction to these more abstract transformations, but may to different degrees be seen as active themselves. A relation that can be drawn across the range of work executed for this PhD shows that at the heart of it, the research addresses transformative functions that appear differently depending on the type of engagement the work creates. This can also apply to processes of thinking, which form the backbone of any PhD research. The 'conceptual transformations' that have been described on various levels can thus be extended into the fabric of the research itself and into the way it develops 'knowledge and understanding', which in the present case must also be the knowledge and understanding of development.

Chapter 2: Post-Photography

2.1 The Documentary Style

Just over a decade ago, Martin Lister's introduction to *The Photographic Image in Digital Culture* solemnly declared that '*there is no clean break*' between old and new media (Lister, 2001: 20, his italics). Today, it has become apparent that his statement has to be seen within its historical context. In 1995, 'new media' were still new. The concern was to assess just how new the proclaimed new media actually were, and how possible it was to approach them using traditional categories. Today, after the hype of the new appears to have worn off, it is not so much that we might reorganise the cultural territory of the 'digital' as another artistic practice, but that the territory itself has changed. For example, the title *The Photographic Image in Digital Culture* implies that the 'photographic image' remained addressable as a viable entity and that it was merely its place within digital culture that needed to be negotiated. In contrast to this, the 2002 Brighton conference *Photography, Philosophy, Technology* produced a reader entitled *Where is the Photograph?* (Green, 2003), which seemed to imply that the shifting cultural grounds had by then destabilised traditional media.

Current approaches to photography have to respond to this shifting ground, and appear to require a re-definition of photography in order to preserve its integrity. For example, the exhibition *Cruel and Tender: The Real in the Twentieth-Century Photograph* (5 June – 7 September 2003) was Tate Modern's 'first major exhibition dedicated purely to the medium [of photography]' (Burton and Bolitho, 2003) and can serve as a telling example of such activity that modifies our understanding of the history of photography in order to accommodate an – albeit limited – contemporary digital practice.

Tate's dedication of the exhibition to the 'medium of photography' was not just expressed in the sheer amount of photographs on show, but also in the focus on a central practice of photography, namely a realist or documentary style. The term 'documentary style' was used by Walker Evans, the photographer to whose work the words 'cruel and tender' were originally applied, to make a sharp distinction between the photograph as a document and the photograph as an artwork. Evans made this clear in an interview with Karl Katz in 1971 when he said:

> 'When you say "documentary", you have to have a sophisticated ear to receive that word. It should be documentary style, because documentary is police photography of a scene and a murder … That's a real document. You see art is really useless, and a document has use. And therefore art is never a document, but it can adopt that style. I do it. I'm called a documentary photographer. But that presupposes a quite subtle knowledge of this distinction.' (Evans, 1983: 216)

As a 'documentary style' photographer, Evans created images that looked like documents and appeared to have a use, when in fact, according to Evans's own definition, they were not documents since they had no practical use. Documentary style, then, is a mode that gives the impression that an image is a document when it is not. With the shift from the photograph as a document to the photograph as an artwork, the point of reference has also shifted. The police photographer references the murder that has taken place, while the artist references the image's appearance as document. This appearance might in turn reference a reality, but this is not the primary concern of a documentary-style photographer. Thus what guarantees the reality of a documentary-style photograph is the fact that it looks like a document, not the authenticity of the depiction.

Evans characterised the documentary style in various ways. He linked it to Gustave Flaubert's literary style, which is at once realist and objective, permitting no space for subjectivity to appear. (Evans, 1983: 70) It is also lyrical, in so far as the non-lyrical documentary photograph was likely to fail in its documentary function. (Evans, 1983: 238) Evans himself has, in a posthumously published introduction of 1961, compared his way of working to that of a historian: 'Evans was, and is, interested in what any present time will look like as the past.' (Evans, 1983: 151) The historian's or archaeologist's view allows for a disinterested distance as '*an aesthetic ambition*', as Peter Galassi has pointed out (Galassi, 2000: 87, my italics).

Another aspect of the documentary style is the choice of motif. It does not require painterly subjects, but can accommodate the ordinary, and if the style is 'literary', as Clement Greenberg remarked (Greenberg, 1992: 63), without producing minor works of art. According to Galassi, this is, indirectly, Alfred Stieglitz's merit:

> 'By explicitly defining photographic art in opposition to the sprawling mass of ordinary, practical photography, Alfred Stieglitz paradoxically endowed the latter with an embryonic identity it had not possessed. Evans and his successors completed the process by recognizing a coherent aesthetic in the pile of mundane photographs that everyone knew and used, filed, or discarded as the daily occasion required.' (Galassi, 2000: 39)

Stieglitz's work, in particular, served as a basis *against* which Evans could create his style. (Eklund, 2000: 31f.) Ironically, Evans appears to have fulfilled Stieglitz's demand that 'unless photography has its own possibilities of expression, separate from those of the other arts, it is merely a process, not an art' (quoted in: Caffin, 1972: 36), a demand that Stieglitz himself never quite met.

2.2 The Photographic Style

Because the documentary style is *uniquely* photographic, it becomes the blueprint for a

'photographic style' in general. In the same way as the documentary style produces an image that looks like a document, the photographic style produces images that look like photographs. The term 'photographic style' does not designate a style from a particular artist's hand, but work that appears to be photography. (Cf. Batchen, 1999: 213) The difference between photographic and documentary style lies in the fact that the former, apart from being a more general term, does not rely on the photograph's appearance as document. It is in this way that a photograph, even when its appearance as photograph is convincing, can be imagined to be only loosely related to the photographed reality. Such a process can be seen to generate a new 'photographic reality' that is detached from the reality photographed. Olivier Richon has recently argued in reference to Jacques Derrida that any original reality may, in fact, be dependant on its image. (Richon, 2007: 11) Such a re-definition of reality in relation to photography is at the heart of the notion of a 'photographic style' that is used to indicate an alternative definition of the photographic away from the traditional and more restrictive notion of photography as medium.[1]

When Tate Modern dedicated *Cruel and Tender* to the medium of photography, and placed Walker Evans's documentary-style photographs at the heart of the exhibition, it implicitly emphasised style over medium. The work of Andreas Gursky, also exhibited, can be used to illustrate this distinction further. His work shows how digital manipulation can be used to 'enhance' an image's photographic reality. It can also be used to deduce where the curators of *Cruel and Tender*, Emma Dexter and Thomas Weski, may have set today's limits on the definition of the photograph. Weski, for instance, appears to have included Gursky's work only to the extent that it 'mimic[s] the language of documentary photography' by blocking a 'direct engagement with the world' (Dexter and Weski, 2003: 27). Gursky's images are, for the most part, not digital photomontages, but digitally post-produced photographs. This point is stressed in the exhibition leaflet: 'Gursky has made *subtle* digital alterations to *some* of his photographs, adjusting the composition, eliminating details and enhancing colour' (Burton and Bolitho, 2003: , my italics). This ambivalence between Weski's questioning of Gursky in terms of documentary style at the same time as the exhibition insists on Gursky's photographic basis against the digital, indicates the current striving for a redefinition of photography as style.

The photographic style, then, relies on a visual understanding of reality as produced by the documentary style. The cultural knowledge of how a photograph should look is used and referred to. Both photographer and spectator rely on this mutual understanding, which, on a second plane, can be challenged by the photographer. The photographic style

[1] Photography's 'indexicality', i.e. its physical relation to an event, is of no importance when it comes to the 'photographic style' since the photographic style is all about an image's appearance as photograph independent of its production. A discussion can thus be omitted.

produces photographic reality, and offers a system of beliefs that, if prescribed as reality, can be seen to function as ideology.

Cruel and Tender develops such an ideology. Some of the work of Robert Adams (e.g. fig. 73), for instance, can be seen as closely related to Evans's documentary style (e.g. fig. 74), while the photographs of Lewis Baltz, also on show, appear to stand for a transition into a pictorial reality, first in the images of dehumanised American industrial architecture (fig. 75) (that in Robert Adams's approach is still populated) and later in his *Sites of Technology* (fig. 76), where he is well on the way to an aesthetic model comparable to Gursky's (e.g. fig. 77). The photographic style, as much as it creates a photographic reality, allows the image to be made less realistic in its pictorial appearance as photograph. Photographic reality and documentary-style realism are two separate categories, a fact that is even further underlined when photographs are digitally manipulated.

Digitally manipulated photographs are also re-negotiating photography's relationship to painting, in so far as the 'hand' of the artist appears in the photographic image. The photographic style in general is an image's ability to reference a reality, *as it would look in a photograph*. Before the advent of image computation, photographic reality could only be represented in photographs, whereas in our digital age, photography is no longer a prerequisite for the achievement of photographic reality. Gursky's images, according to the Tate leaflet, 'could be compared to paintings in their sensuous visual impact'. (Burton and Bolitho, 2003) The idea of painting does not only come to mind because of the image's impact. Rather, the production of the images employs a painter's methods of composition, thus demonstrating that digital photography has narrowed the gulf between photography and painting. (Dexter and Weski, 2003: 27)

An artist who consciously explores photography's relationship to painting, yet whose work was not included in *Cruel and Tender*, is Jeff Wall. Because of his art-historical background and the careful composition of his images, Wall is often understood in relation to painting (e.g. Lauter, 2001: 18ff). It is, however, his relationship to the photographic style, while using a painter's approach to composition, that makes his work relevant in this context. (Tietjen, 2003) Wall, who uses the computer as a tool to create montages from individual shots, explained in an interview with Jan Tumlir in 2001: 'The montage is composed of acts of photography, even if there is no simple photographed moment. I don't think that any photographic qualities are eliminated, except the single moment in which the entire image was made.' (Tumlir, 2001: 154) What Wall discovered is that the single decisive moment of 'taking' the image was not necessary for the image to appear as a photograph. Although he decisively does away with the idea that a photograph has to be made in a single moment, he does not contest photography's perspectival construction

from a single viewpoint, and nor does he challenge the integrity of the ambient light. To photograph the individual images, he carefully arranges the camera in a way that keeps lighting and perspective congruent. As he says:

> 'The picture would be a failure if it permitted any doubt that the two worlds were as one … You could use the same digital montage techniques to question … the idea of spatial continuity I've just described. But I'm not interested in that.' (Tumlir, 2001: 153)

A style might be called 'photographic', then, when the reference to a photographic reality is left intact. The images can challenge that reality (as Wall's 'surrealist' images do), but from the moment they break it, they cease to be photographic. From the point of view of the definition of photography as a medium, images like Wall's do not sit well in the history of photography (and might for this reason have been excluded from *Cruel and Tender*), because they focus on digital montage techniques rather than the camera itself. In terms of the perfection of photography as style, however, they seem to be an almost logical conclusion. By bringing the reality of the photographic style into the image as the product of a montage (as he most famously did on site in *The Destroyed Room* of 1978, fig. 78) and not as a naive belief in photography's built-in realism, Wall is able to propose contemporary photographic realism from outside the confines of the medium. With this, the opposite is also true: in a situation where the photographic style dominates our cultural reality, its use without its explicit acknowledgement removes the photograph from *this* reality and with it from reality as such. Although ultimately stopping short, *Cruel and Tender* manifests a general tendency in recent photographic practice to detach the idea of the photographic from the notion of 'medium', allowing a definition of photography as style to claim validity.

2.3 The Paintbox

Photorealistic paintings (for example those of Robert Bechtle, fig. 79) have to be understood against the backdrop of a 'photographic style': that such paintings look like photographs cannot be directly due to the *medium* of either painting or photography. There are many paintings that do not resemble photographs, which can be taken as proof that looking-like-a-photograph is not a general property of painting, while as *paintings* they are done with a brush and paint of some sort and not with a camera (although a camera image might have been employed at some stage). Without the notion of a 'photographic style', it would be impossible to tell when something that is not a photograph looks like a photograph: that which is not a photograph needs to resemble the particular way in which that which is a photograph appears. Naturally, photorealistic painting, unlike digitally manipulated photography, is very conscious of staying within

the parameters of painting whilst playing on or with the photographic style. The use of material paint makes certain that a painting, as photographic as it may appear, will not be mistaken for a photograph. Using non-material paint to digitally retouch or even compose a photograph, on the other hand, allows for the act of painting to stay invisible within the image. This is due to the development of image computation, which through its use of technology may be related more to photography than to the manual process of painting.

Although digital computers were operational from the 1940s (Konrad Zuse's Z3 being the first, in 1941), making them suitable for photography has been a slow process, since digital computers are essentially calculators and not machines for image capture or manipulation. The first scanner was introduced in 1957, while in 1963, the first interactive drawing programme, Sketchpad, allowed the user to draw directly on the screen using a light pen. The invention of Random Access Memory (RAM) in 1970 allowed the storage of more data and with it the use of two-dimensional shapes rather than lines or text. Following the design of the 'frame-buffer' in the early 1970s (that is, memory space corresponding to the image on the screen), bitmapped images became possible, and with them the development of paint applications. Only the development of paint applications could prepare the ground for digital photography, as one is even today metaphorically reminded in applications such as Adobe's Photoshop, where the 'canvas', a term borrowed from painting, forms the conceptual basis onto which a photographic image is layered.

Mike King, looking historically at the development of computer art, calls the period in which paint applications were developed and predominantly used the 'Paintbox era', which he sees as stretching from 1986 to 1994, when multimedia applications started to dominate (King, n.d.). According to him, 1986 was the key year for a number of reasons: firstly, it was the year in which the BBC created a television broadcast called 'Painting with Light' that used the Quantel Paintbox application, 'a pioneering television graphics paint system' that has lent the whole era its name. Secondly, it was in 1986 that Adobe's Photoshop was written, albeit not yet released. And finally, it was the year in which key fine artists like Andy Warhol, working on a Commodore Amiga, started to use the computer in the production of their art.

Paint programmes utilise the concept of bitmapped image representation, allowing for the manipulation of individual pixels by 'painting' onto the memory space that holds the image. Although algorithms are used to perform this manipulation of the pixels, the change in colour values is due to the operator's choice of how each individual pixel should look. To give an example, the operator can 'draw' a blue line onto the memory space.

Each colour value in the memory space that is covered by the blue line is replaced by a colour value representing blue. At no point, however, does the software construct a line. That is, the knowledge that the string of blue pixels represents a line is solely on the side of the operator. It is an important aspect of the Paintbox era that the digital artwork was put under the control of an artist, who needed no extended technical understanding to change an image instantly. The shift to bitmapped images paired with the development of easy-to-use imaging software has thus liberated the production of images on the computer.

Paint programmes were a good option for artists who were not interested in the materiality of paint on canvas – something that the computer naturally could not provide. In 1984, Keith Haring even criticised other artists in an interview in *Flash Magazine*, when he said:

> 'Living in 1984, the role of the artist has to be different from what it was fifty or even twenty years ago. I am continually amazed at the number of artists who continue to work as if the camera were never invented, as if Andy Warhol never existed, as if airplanes, and computers, and videotape were never heard of.' (quoted in: Goodman, 1987: 71)

Here, the computer's potential is almost experienced as normative, since it already defines reality, in much the same way as modern air travel does. Like King, Haring references Warhol, whose work stands for a paradigmatic shift in the history of fine art.

Always experimenting with the artistic possibilities of mass media, Warhol produced in 1986 a remarkable image of *Deborah Harry* (fig. 80), which can serve as a good example of the various elements that come together and can be activated in a Paintbox-type digital image. Images like these, which look 'astonishingly like those it normally took him weeks to produce' (Goodman, 1987: 86), could be done in minutes. The image of Harry makes four levels of technology visible: (1) the original photographic image of the subject (2) the substitution of colour within that photographic image (3) the drawing of a line around the face, the painting red of the lips and Warhol's signature, and (4) the name of the software package ('GraphiCraft V27 Release 06') that enabled this type of image.

With a Paintbox-type application, the environment in which the photograph is processed has been conflated with an environment in which one can digitally paint. In effect, there is no technical difference between a photograph and a painting in the Paintbox application. When Warhol foregrounds drawn elements within the photographic image, this is a choice as much as it is Wall's choice to maintain a photographic appearance while composing images made up of separate parts. If photography is essentially the technology that captures images, it is Paintbox-type applications that effectively enables their manipulation. Digital photography paired with paint applications makes the photograph

available for manipulation that has become invisible and thus, indistinguishable from photography.

2.4 Post-Photography I

Although the manipulation of photographs is as old as photography itself – see Oscar Rejlander's *The Two Ways of Life*, 1858 (fig. 81), for example – it has always been treated as the exception rather than the rule. Henry Fox Talbot, one of the inventors of photography, stresses in his *The Pencil of Nature* of 1844 that photography is done 'naturally' when he writes:

> 'It may suffice, then, to say that the plates of this work have been obtained by the mere action of Light upon sensitive paper. They have been formed or depicted by optical and chemical means alone, and without the aid of any one acquainted with the art of drawing … They are impressed by Nature's hand.' (Talbot, 1977: 2)

The fact, however, that the technical process of photography is natural, in so far as it happens in accordance with natural laws embedded in the optical and chemical apparatus, does not by itself give the image a different status. Arguments like the one quoted from *The Pencil of Nature* try to set up the photograph as a different type of image from painting, for example, by making the artist and his choices disappear from the image. But Olivier Richon has remarked that the bookcase Talbot photographed in 1840 (fig. 82), for example, had been placed in an 'unnatural' setting, outside in the courtyard, to create more light for the photograph. (Richon, 2007: 9) As Geoffrey Batchen has wryly asked: 'After all, what else is photography other than the manipulation of light levels, exposure times, chemical concentrations, tonal ranges, and so on?' (Batchen, 1999: 212)

A photograph that looks like a painting is no more or less natural than a photograph that does not look like a painting. It would, however, be less convincing to the viewer, since, following Talbot's definition, a painting introduces the suggestion of an artist's hand and an artist's choice within the image. The struggle for photographers to be seen as artists, as mentioned above in relation to Stieglitz, is possibly due to the fact that the photographer could not appear in an image that was made to make him disappear in the first place. It was only when the documentary style became accepted, and with it, photography as a practice, that an audience could 'see' the photographer in his very disappearance behind a process that assured the reality of that depicted.

Traditionally, such a 'natural' process has safeguarded the photographic image against its manipulation. This is due to the fact that on a microscopic level, once the silver haloid was developed and the image fixed, the physical binding of the silver grain onto the carrier material meant that it was very difficult to remove, change or even address. Recently,

Peter Weibel, in his contribution to Tate Modern's lecture series *When New Media Was New* (Weibel, 2003), reminded us that the manipulability of digital media is one of their most basic properties. (See also: Manovich, 2001: ; Mitchell, 2001). In comparison to chemical processes like photography and film, electrical processes (as they were first employed in analogue video and later in digital media), because of the separation of information and carrier, allow for the erasure and re-writing of the image. In the case of digital media, this not only amounts to the possible manipulation of a complete image or frame, but also technically sets free the manipulation of the smallest elements by which the image is composed, the pixel.

The manipulation of traditional photographs, being a secondary and intrusive activity, has often been synonymous with the degrading of the original photograph, suggesting that the manipulation is a foreign and thus non-photographic element. As Edward Weston remarked:

> 'The extreme fineness of these particles [the silver grains] gives a special tension to the image, and when that tension is destroyed – by the intrusion of handwork, by too great enlargement, by printing on a rough surface, etc. – the integrity of the photograph is destroyed.' (Weston, 1980: 172)

Such destruction, however, might nevertheless enhance the image idea that has guided the artist. An untitled and undated print by Yva (Else Neuländer-Simon) in my collection (fig. 83), for example, shows clear scratch-marks on the upper right arm and the neck of the model (fig. 84), which thin and lighten these areas of the body on the photograph. By today's standards (and possibly even by those of the 1930s), the marks show the clear will of the artist to enhance the image, even if this meant at the same time admitting that the photograph was imperfect and in need of improvement. Any interference with the traditional photograph, because of the degrading that comes with it, can at best be an enhancement of the image idea but cannot be an enhancement of the photographic appearance of this idea. With digital-image manipulation, however, this has changed: now an image idea can be enhanced along with its photographic appearance. This is possible only if it is the photographic style that makes the photograph and not the use of the medium of photography. The image idea in Yva's case is painterly whilst being realised on a photograph, but the image ideas of Wall, for example, are photographic despite his use of painterly elements. Both focus on the pictorial appearance of the image rather than the process by which it is made and reality is disclosed. (For the case of Jeff Wall see: Newman, 2007)

Focusing on the appearance of the image as opposed to the process of photography appears to be the dominant discourse in both photography and new media studies. In *Snap to Grid: A User's Guide to Digital Arts, Media, and Cultures*, Peter Lunenfeld

proposes that photography's new digital place lies in its subsumption within computer graphics, in so far as core qualities of the photograph are, in the digital realm, replaced by those of graphics and painting. For Lunenfeld, the technical reality of photographs is being 'blend[ed] even further into the computer's digital soup of letters, numbers, motion graphics and sound files' (Lunenfeld, 2001: 59), essentially prohibiting the meaningful separation of computer graphics from digital photographs. In terms of media that produce particular types of images, such an argument might be consistent. However, it promotes the fusion of the different practices bracketed under the digital image, instead of looking at the particularities that those practices might carry. It is thus no surprise that according to such a position, it is only a matter of time before photography's particular relationship with reality will wear out (Lunenfeld, 2001: 60f.), since, seen as image alone, the photographic real may, indeed, be doubted. The process by which the image has come into being is covered up, however, if the image is seen as appearance only.

Thus, one meaning of 'post-photography' (Mitchell, 2001: 225) is the development of an *un-photographic* photograph, of a photograph beyond its condition as a photograph. It has become part of photographic practice, and perhaps even essential to contemporary photography, to work with the photographic image as style. This fact can be more or less fore-grounded in the work of any photographer, but it has become an aspect of a general visual culture aided by the development of image computation that cannot be ignored by anybody working photographically.

2.5 Post-Photography II

If an *un-photographic* photograph is possible – that is, a photograph produced in an un-photographic manner – one may also be permitted to speculate about a photographic *un-photograph*. Such a notion could become an alternative definition of post-photography that takes, not the image's photographic appearance, but photographic practice as central to photography. It also produces an interesting alternative take on photography's relation to image computation.

William J. Mitchell's influential *The Reconfigured Eye: Visual Truth in the Post-Photographic Era* mentions 'automation', that is, the creation of images under the control of an apparatus, as being central to photography. He does so almost in passing, on his way to a discussion of the photographic and later digital image, the latter of which he uses for his argument concerning post-photography. He differentiates between 'algorithmic' and 'nonalgorithmic' images, while stressing that they are on a sliding scale, with partially algorithmic images being possible. Algorithmic images are principally images that are 'automatically constructed', 'involve fewer or even no intentional acts' and 'provide more

trustworthy evidence of what was out there in front of the imaging system'. (Mitchell, 2001: 30) Algorithms are sets of instructions that can be processed by a computer. The notion can, more generally, be used for any rule-bound process such as those employed in photography, as most famously expressed by Kodak's advertisement: 'You press the button, we do the rest', implying that the 'rest' – that is, the exposure and the development – is not worth mentioning since it merely follows the rules demanded by the photographic process and 'programmed' by Kodak. Vilèm Flusser uses similar ideas when he talks about the 'camera program' or 'well-programmed cameras' (Flusser, 1984: 19) and focuses on the relationship that the photographer has with the programme as he plays within and against the 'game' of photography.

Early visual computer art can be described as essentially algorithmic, while work of the Paintbox-type, although utilising algorithms, foregrounds the intentional act of painting. Algorithmic art is the earliest and most fundamental artistic practice on the computer. The first practitioners of computer art were the programmers themselves, who at that time were predominantly mathematicians. Algorithmic art is a visualisation of mathematical and often randomised functions expressed in terms of computer algorithms. In theory, it is possible to deduce the algorithm from its visualisation. Visualisations of algorithms have since served mathematicians as a means to gain insight into algorithmic patterns. Whereas in early computer graphics, mathematics were employed to produce an optical effect or an artful decoration, they have increasingly become accepted as tools for mathematical research, a field that has, according to Michele Emmer, been termed 'Visual Mathematics'. (Emmer, 1993) The birth of fractal geometry is a good example of how important visualisation in mathematics has become. According to Benoit Mandelbrot: 'Fractal art … is indissolubly based on the use of computers. It could not possibly have arisen before the hardware was ready and the software was being developed.' (Mandelbrot, 1993: 11) However, even here, a 'photographic' way of working as described above in relation to Talbot forms an important element of the aesthetics that are sought. For Mandelbrot, 'To "fix" an unsatisfactory corner of a piece by a local patch [i.e. inserting something by hand] is not permitted.' (Mandelbrot, 1993: 15)

The elimination of human interference with the image is crucial to the German artist Manfred Mohr (for example, fig. 85), active since 1969, who co-founded the Algorists Group in 1996 in order to promote the idea of algorithmic art. In a 1975 text, he explicitly refers to Marshall McLuhan's concept of technology as an extension of the human nervous system (McLuhan, 1995), when he writes:

> 'Breakthroughs in human development are always accompanied by radical changes of attitude towards the so-called human values … It is evident that one should not create single forms and judge them by a traditional and subjective

aesthetic, but build sets of form where the basic parameters are relationships between forms with no aesthetical value associated to any particular form in the set. It is possible within this context to ignore the former "good" and "bad", now allowing aesthetical decisions to be based on statistical and "wertfreie" [value-free] procedures where the totality represents a quality of a quantity.' (Mohr, 1976: 94ff.)

This demand can be seen as critiquing the work of other artists working with algorithms at the time, like Frieder Nake (fig. 86), Georg Nees (fig. 87), or A. Michael Noll (fig. 88), who appeared to choose particular images over others. Such a choice, not being part of the algorithm employed, inscribes a foreign, i.e. human, aspect into the work, which according to Mohr hampers the aesthetic understanding of the algorithm.

Algorithmic artworks do not look like photographs, which might make it difficult to maintain the idea of a 'photographic practice' given that no camera is used and no photograph is produced. On the other hand, for a photographer, algorithmic computer practice appears surprisingly close to his own practice, except that the apparatuses employed are different. Göran Sonesson thus suggests that the notion of the 'technographic' should be used in order to extend our understanding of 'photographic' practice. A second definition of post-photography can, as a result, be developed from a focus on the technographic aspects of photography, which can be seen as photographic practice beyond the production of photographic images. (Sonesson, 1999)

Algorithmic art has predominately focused on the creation of images with little or no relation to 'what was out there in front of the imaging system'. (Mitchell, 2001: 30) Although algorithmic art is technographic, it shares with painting the possibility of working *from nothing*, an option that is not essentially photographic. Photograms may be seen as exceptions, in so far as they are considered 'photographic', while the image is created without reference to anything 'in front of the imaging system'. The first examples that are usually given of algorithmic art are oscillograms, like those produced by Ben F. Laposky and Herbert Franke in the 1950s. Franke's *Lichtformen* 1953–5 (fig. 89), for example, look very much like some of the photograms by László Moholy-Nagy (fig. 90, for example) and could be seen as related to his late Plexiglas sculptures, which he also photographed in motion (fig. 91). In fact, his *Light-Space-Modulator* of the 1920s (fig. 92) can be seen as photographic apparatus projecting photograms. According to Moholy-Nagy, 'this piece of lighting equipment can be used to arrive at countless optical conclusions' (Moholy-Nagy, n.d.), and functions as such in a way that is not dissimilar to the computer algorithms employed by Mohr and others.

In contrast to the technographic forms of algorithmic art and photograms, photography has a relation to the world from which the image is taken. (Mitchell, 2001: 56) It foregrounds the act of seeing (or learning to see) with the aid of an apparatus. Under the

heading of *Photographing the Invisible*, Fred Ritchin speculated in 1990 about what post-photography, or rather, 'hyper-photography' as he calls it, might be. His account, like so many of the time, has a utopian ring to it (cf. Coyne, 1999), but it has the advantage of thinking about post-photography from a position before the now predominant Paintbox. According to him, hyper-photography 'takes as its world anything that did, does, will or might exist, visible or not – anything, in short, that can be sensed or conceived'. (Ritchin, 1999: 116) To be sure, his definition does not differentiate between images *taken* and images *created*. It would thus allow for the algorithm to be the invisible world conceived by the artist. In his examples, however, he focuses exclusively on 'hyper-photography' in relation to some sort of input, making sure that the 'hyper-photograph' still tells us something about the world as it is. Nancy Burson's *Warhead I* (fig. 93), for example, can be included on the grounds that the percentages by which the portraits of Reagan (55%), Brezhnev (45%), Deng, Mitterand and Thatcher (less than 1%) are mixed represent 'the number of nuclear warheads deployable by each country'. (Ritchin, 1999: 121) The 'hyper-photograph' can also be an X-ray image or the visualisation of a sound.

Post-photography understood in these terms is a technographic practice based on a visible or invisible input, where the image has a diagrammatic relation to its source in so far as it visualises the source's data. The resulting image need not be a photograph; light, a camera, etc. need not be involved. Such a definition of post-photography is distinctly different from a post-photography designed to simulate an image's appearance as photograph. Focusing on Paintbox-type photographs ignores a certain process-based way of working that has been as central to photography as has the photographic image. Post-photography, as introduced through the computer, has, in effect, raised the question not only of where we see photography's past and future, but also what we take to be essential in its practice. With the move to the computer and the necessary re-formulation of photographic processes as algorithms, 'Photography, for 150 years basically a perceptual medium, can now become a largely conceptual one as well.' (Ritchin, 1999: 124)

Chapter 3: Post-Conceptual Art

3.1 The Universal Machine

Post-photography that does not appropriate the photographic medium as style is essentially photographic practice mediated through an apparatus. It is able to engage conceptually with this apparatus since the algorithms or rules that are employed are conceptual in nature: they can be expressed through sets of instructions – the programme – that the apparatus follows during their execution. The photographic camera is, in comparison to the computer, a limited apparatus because it allows only certain types of executions, all involved with the taking of a photograph. It has, however, been noted that photography, limited as it may be, can be seen as a predecessor of the computer. (Stocker, 2001: 35)

The computer, most importantly, has no limited purpose: it is designed to become any possible machine as long as that machine has been conceptualised in a succession of discrete instructions. The machine that the computer becomes when executing these instructions has a particular function, while the computer's only function is to become this machine, or any machine, in fact. The computer is thus an 'all-purpose' or 'universal machine'. (Davis, 2001)

Algorithmic art is the art of designing 'machines' that can be run on a computer for the production of art. This is the reason why in algorithmic art a single, concrete artwork that is produced by the computer is a mere possible outcome through which the 'real' artwork, the algorithm, can only be incompletely understood. A particular artwork can in fact be generated by a number of different algorithms; only if we know and can compare all possible artworks that an algorithm can generate can we understand the potential inherent in that algorithm. Algorists like Manfred Mohr, who was mentioned above in Chapter 2, insist for this reason that the artworks produced must be a *complete* representation of the algorithm for meaning to emerge. The material artwork in algorithmic art is secondary to the conceptual artwork of the programme, while the programme can only be the primary artwork through the conceptual framework offered by the computer.

According to Flusser in *Towards a Philosophy of Photography*, it is the ability of the photograph to surprise us – that is, to extend photography's possibilities – that makes the art of the photographer. (Flusser, 1984: 58) When John Hilliard made a *Camera Recording its Own Condition* in 1971 (fig. 94), he showed the possible space within which a photograph can operate: the photograph must lie somewhere between black (no light and therefore no detail) and white (too much light and therefore no detail). That this image looks similar to those that one would find in an instruction booklet describing exposure

settings is no surprise because the work foregrounds the apparatus over the photographic image. It can thus be considered conceptual. Another more recent algorithmic example is John F. Simon's *Every Icon* (1997) (fig. 95), where a web-based computer programme produces all the possible 'icons', i.e. images that can be represented on a 32 by 32 matrix of pixels. In theory – and time – the programme will produce all possible images, and those images that appear to represent something will in his opinion be nothing but a very small subset of the totality of all possible images. Simon estimates that the programme would need several trillion years to display all the possible icons.

Almost twenty-five five years earlier, Frieder Nake, one of the early German computer artists, referred to a similar, albeit hypothetical, programme in his book *Ästhetik als Informationsverarbeitung*, which would be a

> 'simple algorithm … that could create all objects in a class by going through all possible combinations. Such an algorithm would be as simple as it was useless, because, in the face of the gigantic size of these classes, it would take thousands of years before the first interesting object was created.' (Nake, 1974: 104, my translation)

The reason why Nake calls such algorithms 'useless' lies in the absence of any judgement concerning the aesthetic qualities of the images that could produce a surplus of meaning and, thus, 'use' for an audience. *Every Icon*, however, is as simple as the programme envisioned by Nake: it is nothing but the visualisation in binary format of a counter counting up to 2^{1024}. In fig. 95, for example, *Every Icon* has counted to 9868694593, the decimal value of the binary term 1001001100001110000101010001000001, as which fig. 95 can be read when every black pixel is expressed as 1 and every white pixel as 0. The upper-left corner of the grid, which is the start field, is the last digit of the binary term. Once the end of the first line is reached, *Every Icon* starts the second line from the pixel furthest left. Instead of having a 32 by 32 matrix, *Every Icon* actually creates a string that is 1,024 spaces long, and which for the purpose of forming an icon, has been split into 32 lines.

Counting is an activity that does not make a meaningful difference between numbers; numbers (if one excludes numerology) represent different values, but they do not have a meaning beyond this difference. Thus, the icons in *Every Icon* are assembled not in terms of their meaning, but as pure calculational possibilities. In Matthew Mirapaul's review of the work for the *New York Times*'s website Arts@Large in 1997, Simon is quoted as saying: 'There was a lot of talk at the end of the 80s when post-modernism was emerging about how we've reached the end of imaging, and I wanted to show that even in a simple 32 by 32 space, the possibilities for imaging were vast.' Mirapaul adds: 'Most of the images will have no value, a realization which in turn deepens one's appreciation for

the range of choices that artists must confront and discard daily.' (Mirapaul, 1997) The artist's 'hand', it would seem, which had vanished from the technographic image, has somehow survived in the sense of the artist's choice, which in the age of the computer can be made from a set of options delivered to the artist. The conceptual implications for the art, however, described in the previous chapter, that result from an engagement with processes of automation, are nullified when these processes deliver images only, without impacting on the processes by which the artist chooses.

Although writing his own algorithms, Joshua Davis, for example, makes a point of calling them his 'brushes', 'paints', or 'strokes', in order to maintain a position according to which the computer is a tool comparable to a brush and where he is an artist comparable to a painter. He also writes that he is 'in a constant state of surprise and discovery' (Davies, 2004: 142), which recalls Flusser's conception of the photographer. Flusser, however, stresses that a new discovery (of a new image, for example) is only really new if it 'discover[s] hidden virtualities in the programme'. (Flusser, 1984: 19) It is, according to Flusser, not the creation of a new image within existing possibilities that makes the art; it is the creation of new possibilities that are introduced through new images. When, however, a work like *Every Icon* demonstrates the huge but limited possibilities given in a pixel-matrix, it is clear that the realisation of one of these possibilities might be surprising, but will not question the parameters of the apparatus. On the contrary, such practice uses conceptual skills to programme the computer, while artistic practice is a-conceptually graphic. This is a common problem, which if not clearly addressed can create meaningless categories that ignore artistic merit, as in *Information Arts*, Stephen Wilson's 2002 encyclopaedic survey of anything artistic that has to do with the 'information society' (Wilson, 2002: 3) in which we live.

3.2 Information and Meaning

In a later text, Simon remarks: 'One thing that I have learned is that there are more possible images than we will ever be able to see or that the computer will ever be able to display, so we will continue to need creative human image-makers to pick the meaningful signal from the noise.' (Simon, 2004: 46) This implies that some images created by his software are more meaningful than others. However, it also implies that the difference cannot be identified by the computer programme, and that a human operator is required for this task.

So-called 'generative aesthetics', which held sway from the beginning of the 1960s to the early 1970s, but is almost forgotten today, took a different position. In this principle, the difference in meaning to which Simon refers was explicable within a theory of

information, according to which all images where formally equal but differed in the amount of information they contained. Understanding the notion of 'information' that is used to make this distinction will help us understand not only the historical but also the systematic context that has influenced artistic practice.

It is not difficult for a computer programmer to create a programme that executes a command like: 'Return the sum of 2 and 5'. A command like 'Return a number between 1 and 6', however, poses more complicated problems. The difficulty lies in the fact that the return value of the first command is unequivocal (namely 7), whereas the second is not (it could be any number from 1 to 6). To create random numbers, programmers have designed a special type of algorithm called a 'random generator'. These can produce random numbers only when fed with a 'seed'. A seed is a number taken from somewhere outside of the algorithm (usually the time, the temperature of the processor, or other accessible sources). However, this makes random numbers difficult to obtain. To work around this problem, so-called 'pseudo-random' numbers are introduced. These are calculated on the basis of irrational numbers (numbers that cannot be expressed as a fraction, thus having an infinite number of decimal places without ordering themselves into periodic sequences), which make them appear to be random, although pseudo-random sequences eventually start repeating themselves. It is, however, by no means always certain that random sequences created using a seed will not exhibit similar problems, making randomness on the computer a difficult issue.

Saying that 'sequences start repeating themselves' implies that a specific rule becomes apparent that can be used to construct, and thus, predict future sequences, making the sequence not random at all. The rule thus provides a shortcut to the sequence; that is, a shorter way to construct the sequence than following one number after the other. The informational content of that rule is shorter (and thus requires less memory space) than the actual sequence itself. The relationship of the sequence to its shortest expression is, according to Kolmogorov, a measure for the randomness of the sequence. (Bennett, 1999: 163) If the quotient is 1, it means that the shortest way to express a sequence is the sequence itself. Such a sequence can be considered to be absolutely random.

Claude Shannon has argued in *A Mathematical Theory of Communication*, 1948, that it is exactly such a random series that contains a maximum of information. This counter-intuitive argument becomes more understandable if one accepts the hypothesis that a message not only consists of information but also of redundant elements. Something is redundant if it does not add any further information to a message. Shannon claims, for instance, that approximately 50 percent of letters are redundant in the ordinary English language; that is, a text only containing (the right) 50 percent could still be understood.

(Shannon, 1948) Redundancy thus reduces the informational content of messages, of which artworks are considered to be a sub-class. Redundancy, however, increases the comprehensibility to humans of a message, due to the fact that the information a human can register in a given time span is, according to Abraham Moles, limited to about 16 bits per second. (Moles, 1973: 18) An artwork, for example, that requires an information intake above this value contains too much information and is considered too complex; if it requires significantly less, it is considered banal, because it gives hardly any new information (the image's content is mainly redundant). (See fig. 96 for a graph by Moles illustrating the distribution of the capacity to process given information across a population.)

'Entropy' is the measure that Shannon introduces for the quantity of informational content. Redundancy plus entropy equals 1. That is, all that is not information in an artwork or a message in general is redundant, in the same way that all that is not redundant is information. However, this equation also states that everything in an artwork can be seen as either entropy or redundancy and nothing else. An absolutely random artwork, which Nake classified as 'useless', would most likely be some kind of 'white noise', comparable to the left-hand image in fig. 97. For information-theorists like Moles, such artworks do not contain no information but rather, too much information. 'The lack of any spontaneous interpretation is from a theoretical point of view linked with too much informational content, whereas following the common psycho-aesthetic view, it is linked to a lack of structure, or inner organisation.' (Moles, 1971: 93, my translation) For this reason, entropy has been linked to disorder: the higher the entropy, the more evenly information is spread out and the less obstructed by a structure this spreading of information is (the house in fig. 97, right).

In summary, the informational approach to artworks locates two contradictory and supplementary properties in any work: redundancy and entropy. Information is identified with entropy and thus with randomness and disorder. Order, on the other hand, is a structure that is represented by an artwork's redundant elements. For humans, redundancy is necessary for the understanding of information.

The claim that the informational elements of an artwork would be located in its disorder provoked a response by Rudolf Arnheim in his essay *Entropy and Art* of 1971. (Arnheim, 1971) According to him, information has to be located in the structures of images. The example in Chapter 2 of the blue line that was drawn 'into' the memory space and whose structure is not known to the computer but only to the operator, is a good example of Arnheim's point that in the process of registering information, meaning is changed. As he says:

> 'A straight line reduced to a sequence of dots for the purpose of piecemeal analysis or transmission can be highly redundant; in the drawing of a geometrician, engineer, or artist it is not … In dealing with structure, as is constantly done in the arts, regularity of form is not redundancy.' (Arnheim, 1971)

Still, according to Arnheim, both the artist and the information theorist follow the same economic principle of finding the simplest solution to a problem. 'Any predictable regularity is termed redundant by the information theorist because he is committed to economy: every statement must be limited to what is needed. He shares this commitment with scientists and artists.' (Arnheim, 1971) Both, however, follow different economies. By rejecting information theory's approaches to art, Arnheim nevertheless accepts the validity of information theory, albeit in a different context. For Arnheim, the meaning of a work of art is what the work has to give in terms of information. Such information is bound to an inner structure and not a random meeting of separate pieces. The image on the right in fig. 96 could have been produced by intentionally drawing a house. It could also have happened as an unlikely chance event. For Arnheim, the grid-like structure of the image would already symbolise parts that are stuck together to form a house rather then elements that belong together. Using an informational approach to art implicitly claims that reality is equally composed of unrelated elements and chance encounters. 'Only in a world based exclusively on the chance combination of independent elements is an orderly pattern a most improbable thing to turn up.' (Arnheim, 1971)

Concerning the arts, Arnheim does not wish to separate information from meaning. Information theorists like Warren Weaver, on the other hand, radically distinguish information from meaning and are only concerned with the informational elements of things. For Weaver, the term 'information' must be kept distinct from the term 'meaning': 'In fact, two messages, one of which is heavily loaded with meaning and the other of which is pure nonsense, can be exactly equivalent, from the present viewpoint, as regards information.' (Warren Weaver's preface to: Shannon, 1948) For Arnheim's understanding of art, on the other hand, each message is clearly different. The two 'economies' (to use Arnheim's term) that can be identified are the economy of meaning and the economy of information. Arnheim's essay can be seen as a response to the socio-cultural shift towards an understanding of art as message, which can be split into its informational components.

It is notable, however, that Arnheim, who discusses the relation of structure and creativity in the second part of *Entropy and Art*, references Gustav Theodor Fechner for an explanation of creativity.

> 'Fechner conceived of the original state of all being as that of a comprehensive primordial creature, anticipating all existing things in intricate relations and movements, held together only by the force of gravity, and comparable in its

chaotic fertility to "a Brazilian forest" … What he describes is most clearly the initial stage of human creativity, when the mind is a disorderly storehouse of many possibilities – a state of affairs that has its external counterpart in the picturesquely overcrowded studios and studies of many creative persons.' (Arnheim, 1971)

Arnheim does not say so, but the state *before* structure appears and which he describes so colourfully is exactly how the 'economy of information' has to be thought about – not as structural reality, but as an active state of movement and possibility. The 'economy of information' is thus related to artistic creation and the avant garde in general, since it is this that best describes a state where the human imprint on any structure appears as nothing but possibility. Arnheim, too, needs this state – 'the overcrowded studios' – but he is interested only in the structures that leave the studio, not in the entropy by which avant-garde art maintains its own possibility. It is clear, however, that both conceptions are based on a Romantic understanding of a genius that creates and innovates.

Reflecting on the notion of 'information', Max Bense, German mathematician and philosopher at the centre of information theory in relation to art in the 1960s, crucially stresses that only innovative things have informational value, and that these things are the result of automated processes. Automation seen in relation to information produces innovation, which is the reason why Bense stresses that in relation to information, art and technology are identical, that art is an apparatus that uses creativity to expand and reproduce itself. What would in a different context be called 'the modern world', he calls 'civilisation' when he says:

> 'Each innovation equals an increase in civilisation in the form of information, although each automation is based on information that it consumes. Automation is thus arrested information and describes precisely in this manner a perfect state understood as precision. Automation and innovation, *intelligibilité* and *originalité*, technology and information … prove to be in this regard equally exclusive and inclusive partial processes of civilisation, and it seems that science on the one side and art on the other represent the perfect states of exclusion as well as inclusion.' (quoted in: Von Herrmann, 2004: 156)

Art is understood as a rule-based, that is, institutionally automated, process, which maintains itself as it innovates and includes, and thus learns and transforms civilisation into its body. It is thus not surprising that some commentators have even identified the function of computer software with that of the avant-garde, in the sense that: 'software codifies and naturalizes the techniques of the old avant-garde'. (Manovich, 2002) This is, however, not a question of a particular style shared by the avant-garde and software, but of the relationship that both have to information.

Such explication of a perceived historical process, that of modernism, and the active function of art, coincided with art's own realisation of its institutional role in the form of Conceptual art. While Conceptual art was able to create a momentum beyond the

paradigm of information, late modern informational theories of art got stuck in their own definitions and quickly became outdated in the first half of the 1970s. They can be used, however, to interrogate the notions of information and meaning around Conceptual art, as well as process and practice.

3.3 Conceptual Art

'Information', which occupies the field of the possible and the new, is according to such information theory separate from 'meaning'. Duchamp's ready-mades, often taken as examples of the first Conceptual artworks (e.g. Wood, 2002), demonstrate the possible withdrawal of meaning in an object that is allowed to be indifferent through its status as information. The snow shovel or the urinal are propositions of *possibility* that resist meaning. (McEvilley, 2005: 88) Although any object can become a ready-made, not all objects deliver themselves as information, since some could, in fact, *mean* something. What makes the ready-made successful is its possibility as art and *not* its reality as object. That success, however, is threatened by the ready-made becoming meaningful as art object, disallowing it as a proposition of possibility. Sherrie Levine's bronze *Fountain* (1989) (fig. 98), for example, may be seen as critiquing this transformation by fulfilling it, while Maureen Connor's *Untitled* (1989) (fig. 99), which consists of 'Duchamp's' bottle rack with underwear attached, does not. Although it references the ready-made turned sexualised consumer object, it also makes one think about the status of sexuality in Duchamp's work; it questions the bottle rack's status as ready-made by making it consequential to Duchamp's thinking. Although the historic relation between Duchamp's work and what was later called 'Conceptual art' is questionable (Colpitt, 2004: 41), his ready-mades nevertheless indicate a shifting definition of art against individual practices (such as painting), which may be seen repeated in the later generation of Conceptual artists.

Before moving on to a discussion of Conceptual art, it might help to follow the lead of Thierry de Duve and stay for a moment longer with Duchamp's contribution, for de Duve, too, uses *Fountain* in his description of the closure of modernism. By calling *Fountain* 'art', one repeats, according to de Duve, modernism's pattern of adding the new to the collection of what one has already chosen to be art. This addition is always a rupture, since the new is only new – and, therefore, informative – if it has not been predicted by what was already counted as art. 'Each time the sentiment of your dis-sentiment makes you add a new, unexpected, and overwhelming thing to your critical collection, you shake up the set of references to which you have been referring this or that work until then.' (De Duve, 1996: 69) This motion is identical to the idea expressed

above about art that consumes with its institutional structures the innovation provided by a 'creative' avant-garde, which as it unsettles and informs also stabilises 'the economy of information' that is rooted in entropy and disorder. By offering a ready-made object as a token of art's future as radical possibility, Duchamp wagered on art changing beyond recognition. By accepting *Fountain* as art, any shielding criteria that had protected art against the notion of 'information' (taste, for example) had to be left behind, rendering the institution of 'art' questionable.

Innovative and avant-garde artists challenge art. However, as they do so, they are at the same time stabilising it; modern art needs the avant-garde to do exactly that. Modern art is already constituted in relation to its future as possibility, a process that, according to Rosalind Krauss, 'involved tying back one's perceptions of art in the present [the avant-garde's delivery of the future] to what one knew about art in the past'. (Cited in: Colpitt, 2004: 34) All innovations and all provocations have to be something *possible* that can deliver 'information' to the institution of art. Seen from art's perspective, that realm of information is indeed surprising when it breaks into the institution, and therefore must be *in extremis* unstructured by a reality guaranteed by the institution. *Fountain* delivered maximum information, and once the work was accepted as art (and thus made reality), it completely changed art: nothing could be excluded anymore, since everything had become potentially art. As a result, art, as Duchamp wagered, has become a game of the possible, which it had originally asked the avant-garde to supply; or, more simply put, it has become a game played with the possible: information. Having become a game, art has also turned instrumental, since now only the understanding of the game is what matters. Such 'guided thinking' has replaced the 'creative artist'.

As de Duve has written, Alfred Stieglitz's photograph of *Fountain* was at least as important to the reception of the work as the original material object (fig. 100). (De Duve, 1996: 89ff) It was the photographer, accused of the naivety of modernism, who 'signed-off' *Fountain* as art by photographing it. But he had misunderstood how much of his own ground was being challenged. The artwork as necessarily dormant possibility, which is key to de Duve's argument, was thus *made* only by the photograph. Without the photograph, the censored *Fountain* would not have been seen; with the photograph, it became an event, but only as a suggestion of possibility. The function of photography, one could speculate, again with reference to Flusser, has always been its ability to suggest a world of possibilities, 'the world of information', rather than to depict a world of realities. In a letter to Stieglitz dated 22 May 1922, Duchamp expressed his inclination for photography over painting, which runs against Stieglitz's own desire for photography to become like painting: 'I would like to see it [photography] make people despise painting until something else will make photography unbearable.' (Quoted in: De Duve, 1996:

140) Getting Stieglitz to create a painterly photograph of the urinal in dramatic shadow, placed in front of a painting as background, only to expose painting and with it art to what photography meant to Duchamp – namely, the realisation of art as possibility – is one of Duchamp's greatest ironic achievements. With *Fountain*, art was exposed to the 'world of information' that it had already joined by demanding originality from artists. (Krauss, 1986b: 157)

Conceptual art of the 1960s as envisaged by Joseph Kosuth in *Art after Philosophy*, for example, follows Duchamp's lead, except that now art is explicitly anchored within the informational paradigm. The history of art, including its 'masterworks', is considered irrelevant if it cannot be activated and thus become informational in any given present: 'Art "lives" through influencing other art, not by existing as the physical residue of an artist's ideas.' (Kosuth, 1999: 165) Only as information does art *function* as art. Art is a concept, in need of execution, in order to 'live'; that is, to form a '*proposition* presented within the context of art as a comment on art'. (Kosuth, 1999: 165) Art is active speculation about its own potential. According to Kosuth, this speculation is necessarily conceptual because it functions only in regard to the *concept* of art. The form that such speculation takes should, therefore, be of no importance, but Kosuth prefers language as a form because he believes that language protects against 'appearance' and 'morphology'. (Kosuth, 1999: 164) Language, however, has subsequently proved not to be *pure* enough, since it too, 'appears'. John Baldessari has stated:

> 'Unless you can prove me wrong, any artist who has ever used language has had to get more and more visual to say the same thing, to the point where it becomes all about the visual spectacle and the meaning is lost. They have to keep upping the ante. That's why I stopped using words in the work.' (Quoted in: Godfrey, 1998: 351)

Language, it seems, can describe the process necessary for art to function, but it is not identical to that process. It should, however, be noted that the concept of language in analytical philosophy, to which Kosuth is sympathetic, has had a great influence on the development of programming languages. (Drucker, 2004: 256)

3.4 *Information* and *Software*, 1970

Two key exhibitions, both held in 1970, can be cited to describe the notion of 'information' in Conceptual art. The first, curated by Kynaston McShine, is tellingly called *Information* and opened in July at the Museum of Modern Art in New York. The second, curated by Jack Burnham, opened in September at the Jewish Museum in Brooklyn under the heading *Software – Information Technology: Its New Meaning for Art*. Some artists, like Hans Haacke or Robert Berry, were represented in both exhibitions, while the later

Software show made a point of including technological projects in order to illustrate the cross-over between Conceptual art and information technology. (For a discussion of this see: Shanken, 2002)

There are many works in *Information* that can illustrate the artists' coming to terms with 'the world of information' as a lived fact. For *Service Area* (fig. 101), for example, Vito Acconci had his mail forwarded to the museum for a period of three months, where it was deposited in a clear Plexiglas box and collected by the artist at varying intervals. Information, here in the form of letters, was something that was delivered and had to be actively received. Hans Haacke's *MoMA Poll* (fig. 102) asked each visitor the question: 'Would the fact that Governor Rockefeller has not denounced President Nixon's Indo-China policy be a reason for you not voting for him in November?', presented as a questionnaire through which he both collected statistical information on the visitor's opinions and informed those who might not have been aware of Rockefeller's position. The information polled was represented visually by presenting the ballots for and against in two transparent ballot boxes. Haacke also demanded in the proposal printed in the catalogue that the ballots should be 'counted photo-electrically [so that] the state of the poll at any given time during the exhibition is available in absolute figures'. (McShine, 1970: 57) The poll was regulated bureaucratically, to meet Haacke's request that the tickets should be marked, ballots counted, and irregularities reported 'immediately'. In this way, he ensured that the activity of 'polling' was as real to the museum as it was to the visitors. Mel Bochner's contribution to *Information*, his *Measurement Series: By Formula (Circle)* (fig. 103), created a diagrammatic experience of the exhibition space, blending the formulas that accompanied his construction with the architecture of the space.

Science, both as application and appearance, was central to the exhibition, making art's propositional speculations about itself that Kosuth had demanded more scientific than artistic in nature. Adrian Piper's *Three Models of Art Production Systems* (fig. 104), for example, claims to be art at the same time as it speculates on its own conditions in a formulised scientific manner. 'System I' describes the transformation of an information input through the artist's consciousness into a separate art product. 'System II' describes a similar process, except that the art product stays within the artist's consciousness and has to be 'conveyed through external communication forms'. (McShine, 1970: 111) 'System III', which appears to be the most advanced system, does not differentiate in terms of a system between art products and input material; the active consciousness does not create but only 'recognize[s] and distinguish[es]'. According to this (ideal) system, there is no difference between information and art; all that happens is a mutual transformation of 'the world of information' and the 'active consciousness'. Crucially, though, the artwork-cum-scientific system has no interest in setting up a general taxonomy of 'art production

systems': it tells the reader that 'other models may be constructed', making what might have been taken for science an artwork.

Ira Joel Haber's *Information Wall Work* (fig. 105) uses the grid layout as an ordered information structure that can present arbitrary information, such as the 'Presidents of the United States', taken from a 10-cent booklet published by the government, as an 'example of information the public can obtain inexpensively'. (McShine, 1970: 58) The grid, i.e. the informational structure, which was designed in four rows of nine presidents, is not fixed: 'If this work is to be repeated after Richard Nixon leaves office, then the only possible arrangement would be one row of thirty-seven pages.' The system by which the presidents are organised and ultimately understood is thus nothing but a number game.

It is difficult to ascertain the opinions of each of the artists represented in the exhibition regarding the function of information in their work. As much as the show embraces the paradigm of information, the irony with which the individual artists approached the idea seems to demonstrate that the 'new' place of art in terms of information also threw up the question: '[W]hat does it mean to formulate the question of art's urgency and utility under the sign of information?' (Meltzer, 2006: 124) It would, however, be wrong, as Johanna Drucker suggests, to see the swing to information in Conceptual art as 'mark[ing] the end of Modernism'. (Drucker, 2004: 254) What she rightly sees as the paradigmatic shift from production to conception is still rooted in production: conception, it must be made clear, *produces* information. A certain hesitation towards the meaning of information that can be seen in a show like *Information* is not necessarily due to the question of information, but to the question of the continuation of production within information.

The second exhibition, *Software*, has been key in the bringing together of Conceptual art and information technology. In the show, information technology was employed mainly to create an experience 'without the mental cues of art history'. (Burnham, 1970: 12) Computer technology was presented as an alternative basis from which to experience that which would in a different context have been called 'art'. Burnham saw the space in which art operates as conflated with the space of technology, and believed it was valid to show the work of the artists who had just exhibited in the Museum of Modern Art, where the 'cues of art history' were given, in this different technological context. The Conceptual art in question was made to function as a *hinge* around which these contexts could be substituted. *Software*, like *Information*, demonstrates the relation of Conceptual art to the theory of information. Burnham's premise is that information must be experienced in order to inform; that is, 'to change someone's mind about something'. (Burnham, 1970: 12) Crucially, he stresses that art history gets it wrong if it believes that the site of information

lies in the already institutionalised past. (This argument is similar to the positions of Bense and Krauss cited above.) 'The objective of art history and most retrospective disciplines is to counteract the natural effect of time on information by turning the past into a form of information which remains relevant in the future.' (Burnham, 1970: 12f.) Art and technology, rather, are the primary models for information, a belief that the exhibition sets out to demonstrate.

Burnham's position in relation to the history of art is repeated symbolically in John Baldessari's *Cremation Piece* (fig. 106), where he burned his 'accumulated paintings' made between 1953 and 1966 and displayed the ashes behind a commemorative plaque. In so doing, he left the history of his work, and with it, previous forms of practice, resolutely behind. A second work, *Painting for Kubler*, 1969, reads:

> 'This painting owes its existence to prior paintings. By liking this solution, you should not be blocked in your continued acceptance of prior inventions. To attain this position, ideas of former paintings had to be rethought in order to transcend former work. To like this painting, you will have to understand prior work. Ultimately this work will amalgamate with the existing body of knowledge.' (Burnham, 1970: 33)

In this work, Baldessari critiques the very mechanisms that he employed in *Cremation Piece*: a rethinking of existing work and its transcendence through new work, which needs to relate to the '*ideas* of former paintings'. The burning of the paintings disallows material engagement and therefore allows only their *idea* to be accessed.

If Baldessari burns the work retrospectively, Les Levine sees the 'burning' of the work as the actual site. In his *Systems Burn-off X Residual Software* (figs 107 and 108) he showed 1,000 'randomly distributed' copies of each of the thirty-one photographs he had taken at the *Earth Works* exhibition at Cornell University in Ithaca, New York, in 1969. According to his text in the catalogue, the reality of an art event is unimportant in comparison to the material 'burn-off' it creates. The subsequent re-construction of a possible event through its residues is the new site from which he operates. In a comment that recalls Baldessari he states: '[M]ost of the art that is produced today ends up as information about art.' (Burnham, 1970: 61) The works of Baldessari and Levine adopt a process of stripping themselves from a traditional 'real' encounter with art, which they nevertheless repeat to a certain extent in the gestures they employ.

The more technical examples in the exhibition were not concerned with such mourning for the history of art. Through them, the exhibition was turned into a laboratory where the audience could experience information systems as if they were art. One could, for example, sit in a chair and sense an image through vibrators attached to its back rest. (Smith-Kettlewell Institute of Visual Sciences, *Vision Substitution System*, fig. 109) One

could also hear the sound of various radio stations quietly played back through the glass panels at the front of the museum. The installation was arranged in such a way as to play only those stations whose receivers on the roof of the building were in sunlight. This turned the façade of the Jewish Museum into a space in which the constellation of the work could be experienced. (Theodosius Victoria, *Solar Audio Window Transmission*, fig. 110)

The most spectacular and elaborate display, however, must have been *Seek* (fig. 111) by Nicholas Negroponte and MIT's Architecture Machine Group. *Seek* consisted of a glass cage on a table, in which 2 x 2 inch building blocks were arranged, but were constantly disturbed by live gerbils let loose in the cage. A computer-operated arm above the cage attempted to maintain an order that was constantly under threat by the living system, the gerbils. Unaffected by considerations relating to the history of art, these installations played games and created experiences that demonstrated the productive forces hidden in life that can only be brought to the fore through designed processes. As Shanken says, the works exhibited in *Software* 'demand that the viewer examine the process of processing information, *while in the process of doing so*'. (Shanken, 2002: 435, his italics)

A Conceptual practice as exemplified by these two exhibitions is a practice that creates concepts with which to interrogate a given context, turning occurrences in that context into possible rather than real events. Technology, one could generally speculate, is the ability to make a reality *possible*. Being able to think of a reality as information is an indicator by which we know there is a possible world at hand. In relation to art, Conceptual art, like Dada and Fluxus is by necessity also anti-art; that is, it disrupts the worlds of reality in an attempt to free art for information and to make art possible. (McEvilley, 2005)

3.5 Post-Conceptual Art

Conceptual art delivers a world of possibility. It might question the institutions that are necessary to achieve this, in particular, the museum, but it does still operate, as illustrated by Baldessari and Levine, in relation to art as reality. Post-conceptual art, on the other hand, operates from within the world of information. It can take for granted the world of information that was achieved by Conceptual art. Its practice, therefore, need not negatively focus on an art it works against, but can focus on information as its material. Comparable to Lyotard's use of the prefix 'post' in 'post-modernism' (Lyotard, 2001: 79), Post-conceptual art is not necessarily what comes after Conceptual art, but rather, an element in Conceptual art that can be more or less pronounced: namely, the working with or against information rather than its production.

The work of Robert Smithson may be seen to represent such a Post-conceptual practice.

Some of the notions introduced above overlap with the concepts that Smithson puts forward, while in other cases he pursues distinctly different ideas. What was introduced as 'meaning' in the above discussion in relation to Arnheim, and which has successively also been termed 'redundancy', 'automation' and 'institution', is called 'action' by Smithson. 'Action' is for him an 'anthropomorphic measure', as he says in a different context, which, being modelled on a human idea of history, produces 'progress'. (Smithson, 1996: 37) As much as Smithson is indebted to Duchamp, Conceptual art and the function of technology, which is the production of information, he nevertheless sees this production as an action. Technology, for example, is for Smithson akin to biology (Smithson, 1996: 35) in that it performs actions of life. In *Entropy and the New Monuments*, 1966, he quotes Sol LeWitt's comment: 'I am not interested in idealizing technology' (Smithson, 1996: 12), since technology, through producing information, is nothing but an extension of biological and human actions. (This is, by the way, the same Sol LeWitt who equates the concept with the machine in his *Paragraphs on Conceptual Art*. The machine is necessary but not central.) (Lewitt, 1999: 12) As long as Conceptual art is productive, one might say, it shares with technology the human dependency on progress. In *Information* and especially in *Software*, one can see art hesitating between the production of, albeit often useless, information or its display and the usage of information as material for the work.

Smithson thus insists on thinking about information physically. His use of the notion of 'entropy' is much closer to the second law of thermodynamics, which states that the entropy of a closed system increases over time, than to its usage in relation to information technology through which the term was introduced here. He acknowledges this relation when he states that the truth or falseness of a message has no implication in informational terms; i.e., 'falseness is devoid of moral implications'. (Smithson, 1996: 18) The 'world of information', one can thus say, with its

> 'nullification [of action, for example] has re-created Kasimir Malevich's "non-objective world", where there are no more "likenesses of reality, no idealistic images, nothing but a desert!" But for many of today's artists this "desert" is a "City of the Future" made of null structures and surfaces. This "City" performs no natural function, it simply exists between mind and matter, detached from both, representing neither. It is, in fact, devoid of all classical ideals of space and process. It is brought into focus by a strict condition of perception, rather than by any expressive or emotive means.'(Smithson, 1996: 14)

The 'City of the Future' is no modernist city. Rather, it is the 'Martian landscape' (Smithson, 1996: 45) that Smithson photographed in his *Monuments of Passaic*, 1967 (fig. 112).

The first stage for a Post-conceptual practice is the upholding of human detachment from the work, while at the same time becoming free in order to develop a practice within such

detachment. Naturally, the danger is to re-inscribe 'natural action' through a practice that either foregrounds technology or backgrounds the artist's human actions. Smithson's work evades this danger by 'mak[ing] some kind of point right away [that] stops any kind of possibility'. (Smithson, 1996: 51) This 'making some kind of point' is a practice that engages with the world as possibility (that of information) by making *real* points 'right away', without repeating reality as humanised meaning. Smithson's reality is on the scale of the universe as it happens at a concrete and specific point as the material reality of the artwork.

The best examples for this are his *Non-Sites* from 1968 (figs 113 and 114), installations that consist of (1) maps, photographs and documents (2) collected mineral samples, and (3) containers, in which these samples are held. All of these elements are set up as a real, albeit fragmented, point referencing a site in its absence. As Smithson remarks: 'The bins or containers of my *Non-Sites* gather *in* the fragments that are experienced in the physical abyss of raw matter.' (Smithson, 1996: 104) The 'abyss' is a direct reference to Michael Fried, who in a 1967 article on Morris Louis had compared the untouched canvas with an 'infinite abyss' in front of the artist. (Smithson says: '[T]he quality of Fried's fear (dread) is high, but his experience of the abyss is low.') (Smithson, 1996: 104) The *Non-Sites*, on the other hand, are much greater in scope, since they are reactors 'gathering in' not a picture, but raw, that is, physically real, matter.

In one instance, in Bangor-Pen Angyl, Pennsylvania, Smithson reports how

> 'Banks of suspended slate hung over a greenish-blue pond at the bottom of a deep quarry. All boundaries and distinctions lost their meaning in this ocean of slate and collapsed all notions of gestalt-unity. The present fell forward and backward into a tumult of "de-differentiation", to use Anton Ehrenzweig's word for entropy… I collected a canvas bag full of slate chips for a small Non-Site. Yet, if art is art, it must have limits. How can one contain this 'oceanic' site?' (Smithson, 1996: 110f)

The *Non-Sites*, with their containers and references, are attempts to make art right at the limit of a human action by giving an experience of the very specific reality of the site, which is also the site as limit. As he says in *Fragments of a Conversation*: 'That's why my things don't offer any kind of freedom in terms of endless vistas or infinite possibilities … I see it as inevitability; of going towards the fringes, towards the broken, the entropic. But even that has limits.' (Smithson, 1996: 190f)

It is not enough to contemplate information as theoretical possibility and to disregard the possible in the face of the made or chosen object. Post-conceptual art must develop specific solutions for containing information as information, which is reality in formation, as opposed to the redundancy of a reality already formed. Information theory and generative aesthetics extended into Conceptual art can be used to project an art that is not indebted

to art's history; however, only post-conceptually can a practice be developed that truly engages with what the 'world of information' actually means. Un-photographic post-photography is an opening into this world, which can only post-conceptually be seen not as a conceptual and thus informational but as a visual question.

Chapter 4: Figure

4.1 The Outside Way of Seeing

Michelangelo is quoted as saying:

> 'In Flanders they paint with a view to external exactness … They paint stuffs and masonry, the green grass of the fields, the shadow of trees, and rivers and bridges, which they call landscapes, with many figures on this side and many figures on that. All of this, though it pleases some persons, is done without reason or art, without symmetry or proportion, without skilful choice or boldness and, finally, without substance or vigour.' (Quoted in Alpers, 1983: xxiii)

In her influential *The Art of Describing*, Svetlana Alpers cites this passage as the starting point for her discussion of what she calls the 'northern mode' of painting. According to her, Michelangelo was not wrong in his observations about northern art, but misses the point through failing to understand that this particular type of painting has an aim different from that of the 'southern mode', which is 'the art of describing'. Alpers lists some of the characteristics of the 'northern mode of painting': 'the frequent absence of a positioned viewer … a play with great contrasts in scale … the absence of a prior frame … a formidable sense of the picture as surface … an insistence on the craft of representation' and the difficulty of tracing any stylistic development within this mode. (Alpers, 1983: xxv) She describes these characteristics as dependent on the development of a new type of picturing, which she identifies with Kepler's conceptualisation of vision.

Jonathan Friday also bases his theory of photography on such Keplerian pictures; he follows Alpers in contrasting these with Alberti's idea of the picture as window. (Alpers, 1983: 42ff.; Friday, 2001: 352f.) According to him, a Keplerian picture is best described by imagining Alberti's window, through which the image-world can be seen as having moved so close to the eye that the eye becomes part of the image representing what the eye sees. (Friday, 2001: 353) In a sketch by Jacques de Gheyn, *Old Woman and Vine* (figs 115 and 116), such an 'attentive eye' (Alpers, 1983: 89) is actually drawn as part of the image. However, at the same time as the picture represents what the eye sees, it is emptied of all those characteristics that Michelangelo misses, which are considered to be a surplus added by the artist: paintings in the northern mode depict the world 'as it is', which is, normally, 'without symmetry or proportion'. It is this 'lack', Anne Hollander claims, that makes the images appear 'as if the artist has left the meaning to be provided by the viewer' (Hollander, 1991: 17), triggering a direct emotional response similar to the experience in the cinema, her main concern.

Alpers's argument is based on optics. It is the camera obscura, lenses, mirrors and

microscopes that have permitted such a way of picturing. The eye, as it were, conflates with the image through an optical apparatus, which the image, nevertheless, leaves behind in order to appear as a representation of vision. The 'eye' that is created with the aid of the apparatus is a 'dead eye' (Alpers, 1983: 36), however, and not real and embodied. Jonathan Crary supports this argument, quoting from Descartes's *La dioptrique*, 1637, where the philosopher proposes the use of the lens from a real eye in the aperture of a camera obscura to demonstrate that the image one sees within it is that seen through one's own eyes. (Crary, 1992: 47)

This real or metaphorical removal of the eye from the body, which allows the eye to become part of the image, stands for what I would like to call the 'outside way of seeing'. The outside way of seeing is not *exclusively* represented in the northern mode of painting, although this mode may, if we are to believe Alpers, be seen to articulate the idea for the first time in a coherent history. As Norman Bryson has remarked, it is also important to recognise an inner relation between the southern and the northern modes of painting, between Albertian and Keplerian pictures, in particular with respect to perspective when compared to Baroque art and what he calls 'the insertion of embodiment into the optical field'. (In a discussion recorded in Foster, 1988: 25) The outside way of seeing is, however, strictly disembodied, but can also be seen extended into modern or even contemporary practices as a particular visual mind-set.

The notion of 'information' that I have developed in the previous chapters from a process-based understanding of photography foregrounds the conceptual function of the apparatus against the photograph's appearance as image. Conceptual art, on the surface the most radical anti-visual practice, completes the shift from optics to information, giving the image a secondary, non-essential status. This is true, however, only if one assumes at the same time that images do not only fall short in relation to concepts but also to information. Yet such a case cannot be made, as a look into the history of the outside way of seeing proves. Underlying the northern mode of painting there is already a concept of the image as information. The concluding chapters of *The Art of Describing* are very telling in this respect, since they are concerned with the importance of maps (Chapter 4) and text (Chapter 5) for paintings in the northern mode. A drawn map is the spatial representation of information, which can, should the need arise, seamlessly shift into text. In a painting, text is always on a different register and made to 'melt' with the image only as *tromp l'oeil* effect, as in Pieter Saenredam's *Interior of the Mariakerk in Utrecht* , 1641 (figs 117 and 118), where the text is written in three different colours by three different 'hands'. On a map, text and image are as one; both are visualisations of information. The grid, which has become so central to the organisation of maps, and more recently, computerised images, should thus be understood less as the mapping of

space and more as the spacing out of information. Rosalind Krauss is therefore right to reject in her text *Grids* from 1979 the representational mapping of space through the grid, which makes the grid an *extreme* perspectival device, in favour of the surface itself as a map. (Krauss, 1986b: 10) In other words, the grid activates that surface for information if not as information already.

Grids, as they appear in modern art (for example, *Untitled*, 1965, by Agnes Martin, fig. 119), may in this respect be seen as pictorial realisations of the principle that underlies the outside way of seeing: information. However, even in earlier examples of modern art, where one might not necessarily suspect it, the paradigm of information can be traced. Norman Bryson's account of Realism, for example, which he gives in *Vision and Painting: The Logic of the Gaze*, is in effect an explanation of Realism in terms of information. Realism, his argument goes, is convincing not because it is in any way closer to a perceived reality, but because it utilises entropy, i.e., a surplus of information. (Bryson, 1983: 56) Because it is a surplus that has no apparent necessity with regard to the image's meaning, a Realist painting can obtain a 'lifelike appearance' (Bryson, 1983: 60) at the same time as this appearance is deeply charged with a false ideology of perception, Bryson's central argument against the ideas put forward by Ernst Gombrich in books such as *Art & Illusion*. (Gombrich, 2002) In perception as conceptualised in the Western tradition, says Bryson, the body is removed as vision is re-inscribed as the disembodied, albeit seeing, 'gaze'. Whether Bryson's 'gaze' is comparable to the outside way of seeing as it has been introduced here is questionable, since he differentiates the gaze from the embodied 'glance', which alone is active and has duration. For Bryson, even the gaze cannot be thought beyond the body; the history of the gaze, while suppressing the glance and, ultimately, life, is always already the – albeit negative – history of the glance. (Bryson, 1983: 122)

It would seem that the question of meaning in relation to information that has concerned us in regard to Arnheim's intervention quoted in the previous chapter re-arises here, with Bryson taking Arnheim's side, since for both thinkers the idea of information is not able to penetrate what we think meaning is if it does not actively suppress, as in Bryson's argument, the body as the site for such meaning. On the other hand, Bryson's rejection of perception makes this alliance difficult to maintain, since Arnheim's conception of creativity includes perception. (Arnheim, 1971) Bryson's 'body' must thus be sought beyond what Crary has called 'the observer', which is the nineteenth-century conception of an active or even creative human who achieves meaning by processing information, a conception to which Arnheim, by basing his idea of creativity on Fechner, had also subscribed. (Crary, 1992: 141ff) Bryson, however, does not offer any positive definition. The body, it seems, is necessarily not visible, whilst at the same time being the only point

of reference for his discussion of both gaze and glance. (Bryson, 1983: 163ff) A reviewer consequently complained: 'Bryson writes about nobody.' (Ebitz, 1987: 158)

In Chapters 2 and 3, I remarked that the disappearance of the artist's hand or, rather, its replacement by technological apparatus, is key to the understanding of 'information' in the artistic realm. A consequence of such a claim could be that the development of the notion of 'information' is technologically driven by the machines available for its production. This is, however, a disputed question. Geoffrey Batchen's *Burning with Desire*, for example, speculates on the reasons for the apparent delay in the invention of photography given that key techniques were already in place a number of years before. It is not, he argues, the readiness of the apparatus, but the desire towards its usage that is important. (Batchen, 1999: 24ff) His approach, which is explicitly indebted to Michel Foucault's method of 'archaeology' (Cf. Foucault, 1989), is shared by Crary, who questions Alpers's foregrounding of the optical instruments available within seventeenth-century Dutch society. (Crary, 1992: 34ff) Although I will not be able to answer or even contribute to such historical questions, it is nevertheless important to state that what I call the 'outside way of seeing' may have an optical or technical element, but is conceptual in nature. From the point of view of information, it is the concept that is productive and not its materialisation in a particular machine or instrument.

There is a certain a-historical aspect to this approach: technology might develop, whilst concepts simply change. Technical images conceptual in nature differ tremendously in regard to the technology employed for their production, while in relation to the concepts of imaging, which Martin Jay calls 'scopic regimes' (Jay, 1988), this may not be the case. Photography, for example, which has been the point of reference throughout this text, shares its place in relation to the outside way of seeing with current imaging techniques such as MRI scanning (fig. 120), or past inventions like the eighteenth-century physionotrace, a device for the drawing of silhouettes (figs 121 and 122), or any number of devices for the construction and perception of anamorphic images. (Figs 123 and 124) Photography can also be extended beyond such narrow technological perspective into the drawings of da Vinci (fig. 40) and even other, less scientific, observations like John Ruskin's study of leaves (fig. 125) or Dutch documentations concerning the images found in an apple tree (fig. 126). Notably, many examples of my own research (see Chapter 1) do not depend for their meaning on the usage of technology; precise digital prints (such as fig. 39) are not distinct from hand-made images (like fig. 7, for example). Rosalind Krauss's notion of the 'post-medium' is related to this. Clement Greenberg's focus on 'opticality', says Krauss, which he used for a definition of modern painting, had become a medium itself, making the traditional medium obsolete as a criterion for the criticism of and criticality in art. (Krauss, 2000: 29f.)

The research of Martin Kemp in books such as *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat* (Kemp, 1990) or *Seen/Unseen* (Kemp, 2006) should be mentioned in this respect, since he primarily approaches images not through their context (such as art or science) but through their similarity in respect to the outside way of seeing. However, he does not describe it in these terms, and his research does not focus on contemporary artistic practice.

4.2 Process-Vision and Picture-Vision

Images that relate to the outside way of seeing are conceptual in nature, and since they can potentially be just drawings, may or may not be created with the aid of an apparatus. As the discussion concerning post-photography in Chapter 2 has revealed, not all images that are made using an apparatus such as those of photography or image computation are actually concerned with this apparatus; what has been called 'photographic style', for example, appropriates an appearance independent of the way in which the image was made. Those images can be called 'conceptual' only *within* their pictorial appearance – in the way Newman proposes in the case of Jeff Wall, for example (Newman, 2007) – but not 'conceptual' as understood here: that is, concerned with the process of their creation. The pictorial element, it must be said, creates conditions that allow for those aspects of the image that are not part of the picture to disappear. The outside way of seeing thus has to be understood as non-pictorial as much as conceptual in nature.

The definition of the conceptual as productive (Chapter 3) allows for the visualisation of differences between images made with the aid of apparatus. Since there is no clear material distinction between photographs and paintings in post-photography, what they are *visually* is decisive. The two types of post-photography that were mentioned, the un-photographic photograph and the photographic un-photograph, indicate two different visual tendencies, where the former foregrounds the image as picture, while the latter foregrounds the image as process. Images as pictures allow the visualisation of *what* something is, whereas images as process allow the visualisation of *how* something works or is made. Corresponding to such aspects in terms of the image are what I would propose to call 'process-vision' and 'picture-vision' in terms of vision. On a map, for example, we directly see how points in space relate; we can read-off distances or compare topographies (fig. 20). In photography, we can very often see how the photograph is made – where the camera stood, for example (fig. 127) – and if we cannot, as when reflections are used (fig. 128), we are stimulated to wonder. In relation to algorithmic art or visual mathematics, it is the more or less explicit pattern in an image that shows how particular algorithms work. The simplest example would be the very first computer image of a bouncing ball on

a Whirlwind computer in 1949 (fig. 129). All of these examples emphasise process-vision to various degrees.

Picture-vision, on the other hand, is perhaps most pronounced in painted portraits, where the appearance of a particular person, i.e. what that person looks like, is of importance. (Fig. 130, for example.) In post-photography, picture-vision is alluded to when image elements are combined in order to achieve a particular composition or mise-en-scène. (Fig. 131) Picture-vision is here often cinematic, as in the work of Gregory Crewdson, for example, where the compositions seem to present arrested narratives. (Fig. 132)

The northern mode of painting, like photography, can in its essence be exclusively identified neither with process- nor with picture-vision. Both have a potential for the cinematic, for example, which to Hollander is crucial for Dutch art, since 'the art of describing' prepares for emotive subjectivity (Hollander, 1991: 51); both can also function as maps and the visualisation of information highlighting process-vision. What can perhaps be identified both in the northern mode of painting and in photography is their ability to combine both modes of seeing and not to exclude the one in favour of the other. Process-vision and picture-vision are independent; i.e., they can appear together or not, in different or even proportions. Certain works of art where both types of vision are pushed to an extreme without the one undermining the other may possibly be considered masterpieces. In Diego Velásquez's *Las Meñinas*, 1656 (fig. 133), for example, the process of painting is made visible to a degree that puts the viewer into the painting at a place that is at the same time the centre of the composition. Although, Jeff Wall's *Picture for Women*, 1979 (fig. 134), to give another example, does not pull the spectator into the image in exactly the same way, the mirror that is used conflates the viewer with the picture surface, creating a perfect composition while indicating all the elements that are necessary to understand how the photograph is made.

Las Meñinas has been used by a number of authors, most prominently Michel Foucault at the beginning of *The Order of Things* (Foucault, 1989), as a case in point for various theories of representation. When I mention *Las Meñinas* in this context, it is, however, not to add to such theory, but to indicate that discussions about representation are not necessarily satisfactory with regard to process-vision. Craig Owens, who gives a good summary of the debate, makes it clear, for example, not only that Alpers's understanding of *Las Meñinas* in terms of the southern and northern modes of painting stays within a *pictorial* discussion, but also that this discussion is, in effect, not a discussion about vision but about representational systems as introduced by Foucault. He is, however, satisfied with such an understanding, which produces a subject beyond its own representation (Owens, 1992: 106), a move similar to the question of the body as discussed by Bryson

and mentioned above.

Owens does, however, talk eloquently about process-vision in a separate context. Through a discussion of the mirror and its function in terms of representation, he arrives at an analysis of photography, and of Walker Evans's photograph of *Cary Ross's Bedroom* (1932) (fig. 135) in particular, as 'an image of the photographic *process*'. (Owens, 1992: 26, my italics) Further, and most importantly, he stresses that although such an observation may be due to the photographic apparatus, this would not 'account for the photograph's capacity to *internally* generate and organize meaning'. (Owens, 1992: 26, my italics) His short discussion of the photograph as text, *Photography en abyme*, (Owens, 1992: 20), sets out to explain that a photograph uses process-vision, since otherwise the function of photography would not be *seen*. Crucially, this is *internal* to the photograph and as such visible; its understanding is not dependent on making explicit the underlying photographic apparatus.

Process-vision is essential in relation to the outside way of seeing. The particularity of images made according to the outside way of seeing would without such a notion always have to fall back on material technology without focusing on the conceptual visual implications. It has been very productive for David Hockney, for example, to look at Ingres' drawings in relation to the camera lucida (figs 136 and 137), where he identified its use due to the size of the head in relation to the body, for example. Being able to link process-vision to a possible apparatus may have helped Hockney to investigate these works, but it does not visually change our experience of them. In other words, the drawings stimulate a particular way of seeing despite the fact that Hockney could be wrong or could have failed in his quest for an explanation. When looking at work such as that carried out for this PhD, or work quoted in support of it, a particular visual attitude is called for that sees the conceptual implications carried by this work as being visibly present in the work, which is possible only through process-vision as described. The process that we see is paramount, and may or may not be compared to the process employed in the production of the work.

4.3 Enantiomorphism

The mirror can function as an object that is part of the composition of an image; it can also stimulate our understanding by setting up a functional relationship between an object and its reflected image. This relationship may be part of the composition – and it often is – but it need not be understood exclusively in such terms. The mirror, as it were, processes images and activates these images as information. When Owens discusses Evans's photograph (fig. 135) in terms of the mirror – the mirroring within the image

between the two beds and the mirroring that the photograph provides of the bedroom –
he prepares us to accept the fact that we will not be able to make a distinction between
reality and its image, since the reality that is seen through a mirror is always already an
image. The bedroom, emphasising the function of the mirror in its arrangement, was for
this reason 'a photograph even before Evans exposed it'. (Owens, 1992: 26) Taking this
attitude to an extreme, Owens quotes Smithson's experience in Passaic, where the

> 'Noonday sunshine cinema-ized the site, turning the bridge and the river into
> an overexposed picture. Photographing it with my Instamatic 400 was like
> photographing a photograph. The sun became a monstrous light-bulb that
> projected a detached series of "stills" through my Instamatic into my eye. When I
> walked on the bridge, it was as though I was walking on an enormous photograph.'
> (Smithson, 1996: 70)

Reality in this description is taken and accessed by Smithson as already a mirror-image.
His engagement with such experience of reality may be the reason why mirrors play such
a central role in his work: in his various *Mirror-Displacements* (figs 138 and 139), in
some of his *Non-Sites* (fig. 140), his *Four-Sided Vortex* (fig. 141), or in his *Enantiomorphic
Chambers* (fig. 142), for example.

Smithson's *Enantiomorphic Chambers*, which exist today only in the form of a replica,
consist of two metal-framed chambers that appear similar in style to his *Untitled*
sculptures from the mid-1960s (such as fig. 143). Both chambers are identical, except
that one of them has been turned through 180 degrees and hung at a distance on the
same wall. The metal frame is painted blue, while some of the openings are covered by
green glass. 'Hidden' inside each is a mirror, fixed perpendicular to the wall in such a way
that one mirror is parallel to and reflects the mirror in the other chamber (see fig. 144
for a construction plan). The use of the word 'enantiomorphic' is confusing in the title,
because it suggests that one chamber is enantiomorphic to the other, which does not in
fact appear to be the case. The most common example given for 'enantiomorphism' is
that of our hands, where the one hand can be transposed into the other only by turning it
inside out like a glove, or by mirroring it. A simple rotation through 180 degrees, which
produces a mirror image for *some* objects (namely those that have an axis of symmetry
that is turned into itself through the rotation), does not strictly speaking make the object
and its image enantiomorphic. Ann Reynolds's explanation of enantiomorphism, for
which a simple mirrored image suffices, is therefore not convincing and may obscure
some of the implications of the work mobilised through the title. (Reynolds, 2003: 61) In
any case, utilising mirrors within the chambers naturally creates enantiomorphic images
of the spectator who steps into the installation.

The use of the term 'enantiomorphic' already makes clear that a particular transformation
happens between object and image, leaving a 'spatiotemporal gap', as Jennifer Roberts

calls it, due to the fact that an object needs to pass through a dimension higher than itself if it is to complete a *material* enantiomorophic transformation. (Roberts, 2000) Enantiomorphic structures, as they are known in the sciences, for example, do exhibit different properties and, thus, function differently. As Ellen K. Levy remarks:

> 'Smithson's sculpture features two identical but reversed chambers, whose internal mirrors duplicate the symmetry of their side-by-side positioning. Each of Smithson's mirrors reflects the other half of the sculpture. As a result, the mirrors reflect each other in a manner suggestive of complementarity in DNA strands. Using mirrors, Smithson recalls enantiomers (isomers) that are identical except that they are positioned in reverse of each other. The function of such isomers is dependent on their orientation because the mirror-image state can exhibit different properties in nature.' (Levy, 1996)

Such a reading suggests that the above-mentioned mirror exchange between world and image, which Owens introduced with reference to Evans and Smithson, might *appear* to create identical worlds, when in fact those worlds *function* differently. As Smithson writes:

> 'Two asymmetrical trails that mirror each other could be called enantiomorphic after those two common enantiomorphs – the right and the left hands. Eyes are enantiomorphs. Writing the reflection is supposed to match the physical reality, yet somehow the enantiomorphs don't quite fit together. The right hand is always at variance with the left … A mirror looking for its reflection but never quite finding it.' (Smithson, 1996: 131)

Smithson developed the idea for the *Enantiomorphic Chambers* through his thinking about stereoscopic vision. He drew a first draft of his chambers into a diagram of a stereoscope in his copy of James P.C. Southall's *Introduction to Physiological Optics* (fig. 145), which seems to correspond to the only remaining model that the artist made (fig. 146). It is important to remind the reader that Crary's explanation of the 'observer' as mentioned above points to the stereoscope as a key technology for the physiologically understood human of the nineteenth century. Here, the human visual apparatus is able to form a single vision from the two different images delivered by the eyes. While in the first draft and model the mirrors were supposed to throw the gaze outwards, away from the centre, disallowing the illusion of a single, fused image, the final chambers offer a more abstract version, since the chambers do not even attempt to mimic the stereoscope functionally. All that remains is the 'metaphoric' shell of the metal frame (Levy, 1996), while the mirrors are attached facing each other so that the only place to stand is right in the middle of the installation. Here, however, one cannot see both mirrors at the same time, since one's own body is in the way. If the expected infinite reflection between two mirrors happens, therefore, it happens without the viewer. Krauss writes: 'It is not just the viewer's body that cannot occupy this space, then, it is the beholder's visual logic as well; *Chambers* explores what must be called a kind of "structural blindness".' (Krauss and Bois, 1997: 76) Since this

process of understanding happens in the viewer, that which 'sees' is turned on its head. As Smithson writes in an essay entitled *Pointless Vanishing Points* from 1967: 'It is as though one were being imprisoned by the actual structure of two alien eyes.' (Smithson, 1996: 359) What is 'alien' is the installation as enantiomorphic to *our* vision. It is the sculpture itself that is like us – but not quite – and is completed through our exclusion. 'It's like a set of eyes outside my personal set, so it's a kind of depersonalization', said Smithson in an interview with Dennis Wheeler. (Smithson, 1996: 208) The *Enantiomorphic Chambers* are, comparable to Evans's photograph discussed by Owens, mirrored within (the one chamber mirrors the other), but also mirrored outwards (the 'alien' eyes mirror our eyes). Mirroring is here, however, not understood as perfect reflection but as enantiomorphic transformation.

Smithson records an 'after thought' to *Enantiomorphic Chambers*: he is photographed looking down with his hands in his pockets between the chambers. As he says, this demonstrates the: 'Stopping of sight not by brutal opposition, but by lowering the "head".' (fig. 147) The enantiomorphic relationship between the not-looking subject and the reflecting, 'seeing' object corresponds to Smithson's *Sites/Non-Sites*, where the non-site mirrors a site removed. (Cf. Smithson, 1996: 193) The non-site is not an exact mirror-image, but an enantiomorph of the site.

To give a brief summary: this chapter started out with a human, albeit, 'dead' eye as metaphor for an 'outside way of seeing'. The outside way of seeing was primarily understood as process-vision, making visually accessible conceptual propositions that are internal to the way in which images function. The outside way of seeing was described as disembodied without being fully able to leave the body behind. The discussion made clear that process-vision could not be understood within representational systems. Only with a move towards completely functional images, such as mirror images, could vision be approached beyond such systems. An analysis of Robert Smithson's understanding of the mirror image as enantiomorph made clear that an object and its reflection are different with regard to their inner function. In an 'after thought' to his *Enantiomorphic Chambers*, Smithson proposes that process-vision understood as enantiomorphic reflection does not require the human subject to see, which means that the outside way of seeing has been located completely beyond the human gaze. Process-vision is captured in a structure that we understand, but cannot visually access with our body. The exclusion of the body is a fait accompli, which can be lamented and possibly traced, but which can also be left behind in exactly the gesture demonstrated by Smithson: head lowered, hands in pockets. This is only 'anti-vision' (Krauss, 1986a) as long as vision is still defined through the body; it is a truly liberated outside way of seeing, however, since vision now has its own site in the work independent of the body. For this, an extension of the notion of the 'mirror' was necessary. Reflection does not create an exact same image, but rather an

enantiomorph, which is the same with a difference. One could also call it the work's inner resistance, if one wanted to relate this issue to the discussion of post-conceptual art given at the end of Chapter 3.

What now follows is a discussion of structures that encapsulate what I have called 'process-vision', i.e. conceptual, visual, reflective and strictly disembodied work shielded from perception, but open to an understanding of the processes of the work.

4. 4 Chokes

Chokes (fig. 57) is formally very different from my other work since it is the only work carried out in this research that is time-based. Because of its symmetrical layout, it may be seen as similar to Smithson's *Enantiomorphic Chambers*, allowing me to introduce, however, a difference in my work. Everything in *Chokes* is symmetrical: the arrangement of the lights, the switches and even the code that operates the installation. There is not a single a-symmetrical element in *Chokes*, making the installation almost a structural copy of the *Chambers*. Functionally, however, the installations are very different. The *Chambers* function, in my opinion, symmetrically even when not engaged by the spectator; I cannot really 'see' the enantiomorphic element, since all I see, or rather imagine, is mirrored reflections evenly distributed across both sides of the installation. Enantiomorphism is visually engaged only when the spectator enters the field; but he or she can experience the notion only in relation to his or her presence, and is physically prevented from doing so. In *Chokes*, however, enantiomorphism is exercised by the installation; it *functions*, despite its symmetrical layout, from the outset exactly according to the definition Smithson has given, and which was quoted above: namely, that the reflections do not quite fit together. The reflections are the mirroring flickers of the fluorescent tubes, which initially fail to synchronise. Despite the conceptual symmetry, then, *Chokes* produces a functional a-symmetry, which is, crucially, independent of the spectator; i.e., the installation does not need any *experience* for its effect. Put in relation to the outside way of seeing introduced in this chapter, it is clear that the distancing required is not radically completed in Smithson's *Enantiomorphic Chambers*. One may therefore say that a residue of, albeit, negative subjectivity remains with the spectator and thus outside Smithson's installation.

A central element must without doubt be the use of light as opposed to mirrors. Smithson mentions light when he talks of the sunlight exposing the image-world in his Passaic text, but he does not really tap into light in his activity. In fact, it has been claimed by M.H. Abrams that there was a shift from mirror to light in the nineteenth century (Abrams, 1958), for it may be that the mirror is too passive a device to stand for the now

active and creative human subject *making* meaning. Light on its own carries a material ability to affect light-sensitive surfaces, such as photographic film or the retina of the eye. The mirror seems to be the wrong metaphor for expressing photography's essential characteristics, in particular, since it remains on the level of the resemblance of the image to reality. Light, on the other hand, creates the crucial *functional* link that goes beyond the image as picture.

An idea for a second, not yet realised, installation involves two conventional light bulbs, placed next to each other on a board. One bulb will rhythmically and regularly switch on and off every second or so, while the second will use the same rhythm, but switch randomly. Sometimes the lights will be experienced as synchronous, while at other times they will appear to be out of sync, despite the fact that the frequency remains constant. The symmetry here is less radical, since the programme that operates both lights will address the lights differently: only one will use a random generator. The installation, on the other hand, will be much simpler and will focus on the essential elements without the need to ensure their essentiality by falling back on the technical apparatus. In effect, what is sought, again, is the conceptual principle and not the material reality of the apparatus.

The key element in both of these installations is the autonomy of the work, which is achieved, so to speak, *after* the process that Smithson described in his 'after-thought'; i.e., *after* the spectator has lowered his head and vision has been relocated to the 'pair of alien eyes' through which the work now sees. Once the outside way of seeing has become a truly outside phenomenon, resident in the work and not in the audience, the associated *experience* of non-vision or blindness on the part of the spectator is of no relevance to the meaning of the work. The resistance, difference or delay that is part of process-vision and that was introduced in Smithson's work is not dependent on the spectator, but can be materialised within the work. Process-vision can thus be achieved within the art object itself. Each work can as a consequence address particular modes of resistance within its concept; that is, elements of difference created by the transformative function of reflection, a function that was introduced as an enantiomorphic element in Smithson's work. These resistances are post-conceptual: the conceptual thinking of the world as radical possibility cannot address the fact that an image created by a programme, for example, does not structurally represent the code. Inherent to the idea of production that the last chapter closely linked to Conceptual art, is a belief according to which the product is *fully* dependent on its conceptualisation and, as such, a perfect reflection of that concept. If, however, the reflection escapes its concept, we cannot consider this escape to be part of the conceptual makeup of the work. Post-conceptual work has to be conceptual *and beyond*. Opposed to the conceptual and even space of functional possibility is a real

unevenness independent of the spectator's position or makeup.

4.5 Figure

In my work, light plays a crucial role. The blob-shaped figures (many of which were introduced in Chapter 1) are responses to the question of light. The shapes are often developed from photographic source material, although there is a relation between such shapes and light even when photography is not involved. When Alpers calls seventeenth-century Dutch paintings 'Keplerian', she does so with reference to Kepler's conception of light necessary for his optics. Details such as the hand of the painter in Jan Vermeer's *The Art of Painting* (figs 148 and 149), for example, are according to Alpers, 'assembled out of tone and light'. She quotes Laurence Gowing, who writes:

> 'Vermeer seems almost not to care, or not even to know, what it is that he is painting. What do men call this wedge of light? A nose? A finger? What do we know of its shape? To Vermeer none of this matters, the conceptual world of names and knowledge is forgotten, nothing concerns him but what is visible, the tone, the wedge of light.' (Quoted in Alpers, 1983: 37)

Without wanting to discuss Gowing's use of the word 'conceptual', which is very different from my own, it is these shapes, wedges or blobs – which indicate light in an image – that are my concern. Even in cases where such shapes are dark, as in Ansel Adams's *Grand Canyon from Point Sublime*, 1942 (fig. 150), the shadow is a sign of light. Many of my works are 'negatives', where blacks represent light. (*Negative Light*, fig. 14, for example) In terms of shapes on an image, shadow and light are identical. As Goethe says in his *Farbenlehre*: 'Colour itself is a degree of darkness.' (Quoted in Crary, 1992: 70) Without degrees of darkness, there is nothing to be seen.

The most minimal gesture in the research work is the addressing of a shape and its separation from its surroundings. Something coherent must be seen in a shape for this to take place. Light, since it can only be seen as degrees of darkness, has a structure. The outline that holds the shape together singles out such structure, visible as darkness. Being the border of the shape, the outline delimits the shape. In the final work, however, the outline may or may not be precise. Some works, such as *Coffee Stain* (fig. 19), for example, make a fairly clear statement concerning the limits of the shape, while others, like *The Premier Rose* (fig. 11), are less decisive. The final outline is, as it were, dependent on the inner structure of the work.

The work mirrors the shape that was appropriated from a particular image. Because no mirror ever leaves an exact copy, the work leaves a non-identical image of the image: an image transformed. The works are thus transformations and not representations of the original light. They do not show what the light actually is – its inner property, for

example – but realise a potential that is seen and activated in the transformation. It is possible to speculate on what the light might have been before its transformation, but this will be nothing but a speculation, since the work reflects and thus transforms a potential and not a reality. The work reveals with the information a potential in the image that it transforms and changes. This inner transformation also means that the work cannot be undone, since a second, reverse transformation might simply create another, different image.

The original shape on the appropriated image is not yet a figure. The shape becomes a figure only through its transformation, making the transformation part of the figure. What I call 'shape' is thus a physical property, while the notion of 'figure' is a shape in transformation. Information in photographs can be taken as sheer records of shapes. For Gerhard Richter, for example, 'photographs are almost nature'. (Quoted in: Chevier, 2000: 45) Reading such a statement, one has to keep in mind the fact that Richter sees photography as the delivering of information and not as the natural picturing of nature, i.e. its figuration, as discussed in Chapter 1. The shape in a photograph understood as information is thus too natural to be a figure. The photograph, for Richter, is incomplete in relation to the figure. The transformational procedures he employs in paint are meant to complete the photograph. As Jean-François Chevrier puts it: 'The painting, in short, fulfils the photographic *tableau*.' (Chevier, 2000: 35) Richter's painterly fulfilment, however, is as Guy Tosatto points out, also 'an abyssal reflection of pictorial narcissism'. (Tosatto, 2002: 7) This is not the place to discuss Richter's paintings in detail. Many of them, including his abstract work, however, utilise shapes and with them, light, in a fashion reminiscent of Vermeer (see figs 151 and 152 for example).

Richter's 'patches of light' may be less easily addressed as figures in his more 'photo-realistic' work (although he rejects this term) since here he also engages with the picture's representational aspects. The figures, however, come to the fore in his abstract works, where as Tosatto says:

> 'his experiments really become fascinating [as] he tries to reveal painting's capacity to *figure* – though in a non-illusionist way of course – *something* of reality: a personal, sensible experience of a reality in constant movement, in perpetual metamorphosis, which it is only possible to qualify as *abstract*.' (Tosatto, 2002: 13)

The figure is for Richter, according to this view, always interwoven with the capacity of painting, which is his definition of his own personal practice. In order to generalise, we could say that it is not only painting's capacity to figure, but any practice's capacity to figure that is revealed when information is transformed.

The visible structure of a shape, which triggers the outlining of that shape, becomes

meaningful only as transformation. The outline, having become part of the figure, can thus address a shape only as the result of a transformation; i.e., as a figure. Outlining is, however, also part of a practice, which is, when a shape is outlined, outlined just the same. In other words, as a practice engages with the making of works, these works also transform the practice. It is in this sense that Richter's paintings address painting as practice at the same time as they address light in paint. To generalise again: a reflective practice of figuration transforms both itself and its material in the work. The transformative reflection of a practice in the work is an important aspect that deserves additional discussion. This will be provided in the following chapters.

As mentioned above, Richter's notion of 'photography' is limited: it is seen only from the point of view of what photography is to him. It would be impossible to explain why photography as a practice should be excluded from such transformative processes on the grounds that it provides information. It has been noted in the case of Smithson's photographs, for example, that they are not just documentations but also active agents in their own right. (Owens, 1992: 28) Looking at photographs of his *Asphalt Rundown* (fig. 153), for example, which has also been captured on film, it is evident that the solidified movement of the asphalt is re-addressed through photography's ability to freeze time. The photographs transfigure a figuration important to Smithson, who said about the piece in an interview with Dennis Wheeler: 'it sort of stops just before it hits the bottom … [S]o there you have the sense of something very definitely in time, yet the moment gives you that sense of timelessness.' (Smithson, 1996: 216) A similar phenomenon is present in the film of *Spiral Jetty* (fig. 154), where the use of the helicopter and its circling above the site transfigures the jetty itself. (Cf. Smithson, 1996: 148)

Extending such understanding to Gabriel Orozco's photographic works, it is important to note that he sometimes, but not always, photographs, i.e. documents, an artistic intervention, but that the definition of 'artistic intervention' shifts in the practice and extends to his photographs. As he says in an interview with Briony Fer:

> 'I didn't like the way documentation came to look like the leftovers of a party … This is an important difference for the status of the photograph in my work from that of Conceptual artists in the 1970s … The point is more about making something present.' (Fer, 2007: 57)

His work is a good example in this context, since the figures with which he operates are very similar to mine. He often photographs patterns (fig. 155) or shapes (fig. 156) in a way that isolates and activates the figure. However, the many games-related pieces (figs 157 and 158), where the size and the position of the shapes he uses indicate a quantitative order, are not brought together with his photographic work, since here the images are not quantified into values of brightness or colour as they are in my practice. Photography, as

it were, appears to be something to play with, but not something that is already playing when light is mapped to colour. Regardless of this, the figures in his work often indicate the processes he employs, enabling process-vision as introduced above. One of the several images of Orozco's *Yielding Stone* (1992) (fig. 159) may be given as an example of his take on process-vision activated in photography. In this image, the *Yielding Stone* lies at the end of a gutter, whose iron grid pattern is visibly imprinted into the plasticine of the 'stone'. A chevron above gives the direction in which the stone was rolled across the gutter and the direction in which it may continue to travel. The outside way of seeing is, however, as in Smithson's *Enantiomorphic Chambers*, still connected to the concept of the human body; Orozco creates a relationship between the *Yielding Stone* and his own body, as if to underline the fact that the presence of the body in the work is still an issue, since the amount of plasticine he used was equal to his own body weight. (Fer, 2007: 57) The issue of the body may also relate to the sense of 'presentation' one has in his work; that is, the preparation of material for a perceiving audience rather than a reflective enquiry that happens on the side of the work. The following chapter will expand on this matter.

The way in which *Chokes* (fig. 57) functions when in action was associated in Chapter 1 with states of instability. The state of instability is energetic and fluctuates across the installation. Stability with both lights permanently on or off is always a possibility, but the point where this possibility might be realised is completely in flux. A flicker of the one light might be the beginning of a stabilising sequence, although it is impossible to tell. Nevertheless, as in a ping-pong game, the action passes between the lights and is also interrupted by them as they not only follow each other's command, but also their own pattern of ignition. Possible stability hovers between the lights, 'waiting', as it were, for its reality. *Chokes* is literally animated by electricity, light and a programmed code. The way in which it moves between its fixtures can also, on a more abstract level, be visually thought instead of being acted out materially. The figure *Chokes* describes can also be an image.

The figure is already present in the *Potato Prints* (fig. 7). It emerges as instability from within the shape of the blob, mainly because the grid is overpowered by the individual printed marks, which seem to come out of the ground towards the viewer as if pushed forwards. That sense is even more pronounced in *The Premier Rose* (fig. 11), where a few larger marks (in particular on the upper-left side, see detail fig. 161) show an enormous depth, as if the figure had to move forwards due to lack of space. The instability of the grid is key to the dynamics of the figure, which is continually moving beyond the grid. The relation between the printed marks, which are also blob-shaped and which are situated within the larger blob outline of the figure, is repeated between the figure-blob and the ground. The movement instigated by the figure does not stay contained within the blob,

but affects the ground on which the blob is printed. The figure thus happens across the blob and the ground in an active relationship. When the ground, as in many other pieces (such as figs 14, 22, 37, or 38), is not delimited by a frame, the force of the figure can spread into the 'empty' space of the wall, in the sense that the wall can become figure. This exchange is most prominently worked with in the photo murals (fig. 24), where the figure is in the ripped-out negative of the foreground that is seamlessly connected to the ground around the murals. The relation of the shape to the ground is most important since the figure needs a space in which to occur, within a shape and between the shape and the ground.

The relation between the ground and the shape dominates the *Reconstructions (City Trees)* series (figs 33, 34, and 35), since the size of the drawn images had to be reduced, partly because of the delicacy of the relations within the shape, but also because the ground provided needed to be sufficiently large for the figuration to take place. In comparison to the *Potato Prints* (figs 7 and 8), where movement is rather fuzzy, the *Reconstructions* are much more organised in terms of movement. Each drawing has strong developmental trajectories, across the figure, but also within the figure, which open and close space. The outlines are more compact than in the *Potato Prints*, where the printed marks have gaps between them, while the ground within the figure seems to connect subterraneously with the ground around it. It is as if each line had some power over the ground beside it, but not enough to prevent the ground from coming through.

While the ground is in some way contained by the material paper or wall in the two-dimensional works, in *Treetops Remodelled* (figs 41 and 42) the ground is invisible space between and around the plastic structure. The figure deforms the space as it follows some of the forces at work within the construction. The figure converts space in a movement that happens simultaneously across the work. These movements are, despite their flux, the stable parts, while around them space and time become confused.

Chapter 5: Reflection

5.1 Reflection

At least from the time of Plato, art's contribution to knowledge was not considered to be an issue, because, if anything, art was thought to obscure human knowledge. In the *Republic*, it was considered downright dangerous. As Plato writes:

> 'We are therefore quite right to refuse to admit him [the poet/painter] to a properly run state, because he wakens and encourages and strengthens the lower elements in the mind to the detriment of reason, which is like giving power and political control to the worst elements in a state and ruining the better elements. The dramatic poet produces a similarly bad state of affairs in the mind of the individual … by creating images far removed from the truth.' (Plato, 2003: Book X, 605 b-c)

Such a negative attitude to art's cognitive implications defined its status as an outsider in the realm of knowledge right up until modernism. It was only after Immanuel Kant's differentiation of aesthetic from logical judgements that art was given a genuine basis from which to operate. But, as Jean-Luc Nancy remarked, it cannot be said that it was one of Kant's objectives to develop a theory that allowed for the emancipation of art. (Nancy, 2003: 220f) On the contrary, Nancy believes that Kant, although building the right foundations, proposed a critical system designed to enclose art and lay it to rest. The result of Kant's 'third critique' was thus the opposite of what he might have envisaged. By giving art its own domain, as based on aesthetic judgements, he in effect unleashed the Romantic Movement, which, according to Isaiah Berlin, 'is the largest recent movement to transform the lives and the thought of the Western world.' (Berlin, 2000: 1)

If one does extend this Romantic tendency backwards into the works of Kant, one could argue that art as research became possible only with Kant, in the sense that his philosophy created the foundations for a distinct place for art through aesthetic judgement. That Kant focused on such judgements in the first place can be seen as a direct result of a crisis inherent in Christianity. As Friedrich Nietzsche described in *Gay Science*, God was put into doubt by Christianity itself, through its emphasis on the human conscience, which is, in effect, the human capacity to judge whether or not an act was executed in accord with or against the will of God. (Nietzsche, 1988a: Fifth Book, § 357) Once this capacity, Nietzsche argued, had grown strong enough, Christianity not only put the acts of humans into question, but also the principle by which they were guided: God himself. The question of knowledge as created by judgement could only become central from the moment – to use Nietzsche's words – when God was dead.

In his lecture *On Science and Art in Relation to Academic Studies*,1803, Friedrich Wilhelm

Joseph von Schelling claimed that art as 'science', i.e. as a producer of knowledge, made sense only if art produced 'intellectual intuition' (intellektuelle Anschauung). (Schelling, 1985: 570) According to him, there are two kinds of art. The first aims at the production of a beautiful deception, in which case it is not seen to contribute intellectually. The second, which Schelling calls 'holy art', can reveal what remains hidden to the senses (a non-sensuous, intelligible quality). This latter understanding is, according to Schelling, directed against the common understanding of art because it recognises intellectual intuition as 'necessarily immediate appearance resulting from the absolute'. (Schelling, 1985: 570, my translation)

For Schelling, writing in the wake of Kant's separation of imagination and understanding, this second type of art allows the absolute, the ideal, to be present in the real; that is, in the sensible artwork. The naming of the ideal, however, requires the use of philosophy, since it is beyond art's capacity to make its own processes explicit. (Schelling, 1985: 573) The relationship between art and philosophy is such that art needs philosophy should it aspire to the domain of the ideal, which is, as it were, the domain of the free subject.

Walter Benjamin's dissertation *The Concept of Criticism in German Romanticism*, 1919, takes the notion of 'reflection' as developed by Friedrich Schlegel and Novalis as a possible definition of that 'intellectual activity'. Before I go into a discussion of this, I would like to make clear that I am aware that the picture Benjamin develops of early Romantic philosophy is biased. (Cf. Menninghaus, 2002) I am not, for the purpose of my argument, interested at this stage in a critical textual analysis that might question some of Benjamin's readings. Rather, I view the interpretational liberties that he undoubtedly takes as another step along the trajectory that has brought us the reality of art-driven research.

Benjamin grounds early Romantic philosophy on Fichte's work, up to his *Concerning the Concept of the Wissenschaftslehre*, 1794 (Fichte, 1997), and the reception of his work by the key Romantic thinkers. According to Kant, aesthetic judgements are somewhat removed from logical judgements and, as such, open up a sphere that is non-conceptual and thus beyond philosophy. If that were the case, one would either have to give up the notion of unity across the different domains of judgement, or claim that what was introduced as 'intellectual activity' was at play even when concepts were lacking.

The early Fichte, according to Benjamin, opted for this second possibility and tried to devise a system that could unify the different types of judgement, mounting 'reflection' as the centrepiece of such a system. Thought is assumed to be at play in both aesthetic and logical judgements. Since the types of judgements, following Kant, are seen as essentially different, thought cannot easily form the uniting principle. How do we know that it is the same faculty of thought that is at play in both? According to Fichte, unity across the

faculties of judgement is achieved only when thought thinks itself and becomes reflective. If art occupies a different sphere from conceptual understanding, we can only claim that both domains share the same root when art, without the aid of philosophy, is seen to be reflective. Thus reflectivity is an integral component of art as much as it is of conceptual understanding.

Applying Fichte's approach to Schelling's concept of art, one can speculate that the 'non-sensuous, intelligible quality' might lie in the concept of 'reflection'. It both unites the human faculties and allows them to be distinct. Such unity is possible only if reflection functions regardless of what it reflects: reflection has to be a strictly formal process. However, what reflection reflects is not just this or that but acts of intelligence when this or that is *thought*. Reflection is in itself formal, making reflection the application of a form onto a form, or, to put it in Benjamin's words 'reflection [is] the re-forming – and nothing but the re-forming – reflection of a form'. (Benjamin, 2003a: 20)

Reflection is thus the relation of two layers of consciousness, through which immediate and certain cognition is given, since both layers are ultimately layers of the same capacity of reflective thinking. Through reflection, the knowledge we have of the world is re-formed into (or identified as) our engagement in the world as an 'act of freedom', as Fichte calls it (quoted in: Benjamin, 2003a: 21), and is independent from the conditions through which it arises. Only as result of an independent reflection can knowledge be true, since it is not partial, nor affected by circumstances, but has a general validity.

There is, of course, no need to stop here: reflection can continue to reflect to ever higher degrees (a reflection of a reflection of a reflection and so on), which shows that an aspect of infinity is built into the concept of reflection along with the idea of immediacy. Fichte – and this is where he and Romanticism parted ways, according to Benjamin – believed that infinite reflection weakened the subject, because if its ground (the act of freedom) was not found in the first reflection it would not be found at all, or, worse, continuing to reflect would infinitely displace the ground. For Fichte, the immediacy of reflection as based on the absolute subject's act of freedom was possible only if, although having the potential, it did not continue to reflect infinitely.

Thus for Fichte, it is the integrity of the subject of reflection that delimits reflection: the 'I' that reflects is really at the heart of his philosophy. Romanticism, however, according to Benjamin, would not 'trade' the 'I' against reflection, but would rather take reflection as the central phenomenon and build everything around it regardless. But how could it make reflection infinite at the same time as preserving the self that Fichte saw as under threat from such infinity? The answer is that the Romantics had to 'tweak' the concept of infinity away from Fichte's temporal definition of an infinite regress that reduced the

self to nothing, and towards a spatial definition of a totality, in which every member continuously reflected.

If one can call the 'self' the subject of reflection and the 'I' the human form of that subject, for Fichte the 'I' was the only form that the self could take. For the Romantics, however, the concept of the 'self' expanded onto everything; i.e., all things were now seen as reflective selves. Art in Romanticism is seen as realising exactly that: reflection beyond the limits of the 'I'. (Benjamin, 2003a: 40)

5.2 Subject-Work

In early Romantic philosophy, an artwork takes the place of the subject. In *The Literary Absolute*, Philippe Lacoue-Labarthe and Jean-Luc Nancy refer to this as the 'subject-work'. (Lacoue-Labarthe and Nancy, 1988: 115) Its subjectivity lies essentially in its reflectivity, which cannot, however, be thought of as being removed from other subject-works, since the infinity of reflection connects everything with everything else.

The artwork thus carries a relation to the absolute in so far as its reflection, objectively speaking, reflects everything, and subjectively speaking, has the power to reflect everything. The artwork is in effect beyond its representation as either subject or object. When Lacoue-Labarthe and Nancy refer to the artwork as 'subject-work', they do so in order to emphasise its qualities against the subject-artist and the object-work. The bringing together of subject and object is not, I should stress, done along the lines of perception, as Maurice Merleau-Ponty proposes in *The Phenomenology of Perception*. (Merleau-Ponty, 1962)

Benjamin highlights the fact that if a thing is seen only in relation to itself as an object, it loses its relation to cognition, because as object-only it cannot reflect. (Benjamin, 2003a: 58) The Romantic theory of understanding is engaged in a play of difference. The result of a reflection is not identical to its source; their relation is the same but on different levels of reflection. Benjamin quotes Schlegel in saying that the move from one level to the other has to be thought of as a 'jump' (Sprung). (Benjamin, 2003a: 27) Only the identification of these levels of reflection denying the 'jump' produces the notion of the 'object', in which reflection is lost.

Reflection is the process of difference within thought. It can occur within the thinking human subject, but it can also extend to other things, subject-works as it were, since they are also seen to be reflective. I can reflectively relate to my own thoughts as much as I can relate to a thought inherent in a subject-work. The subject-work, however, can at the same time reflect the reflective being that is I. Knowledge of myself is therefore

always already dependent on a reflective other, for some of its knowledge of me forms part of what I see when reflecting the thought inherent in the subject work. This process of difference is directed towards the absolute, which would be the immediate knowledge of everything through something else. Benjamin clearly states that this ultimate goal of reflection is nevertheless not the norm, not even in artworks, but cannot be excluded along the trajectory towards absolute reflection.

An artwork can thus be situated between two poles: that of absolute reflection and that of first reflection (or 'Ur-Reflection' as Benjamin calls it). As he says:

> 'In order to differentiate between the two, one would have to assume that the absolute reflection captures the maximum, the ur-reflection the minimum, of reality, in the sense that although both carry the whole reality … this [reality] would be unfolded to its highest clarity in the first [absolute reflection], not unfolded and murky in the other [ur-reflection].' (Benjamin, 2003a: 31)

The quality of an artwork can be judged by 'placing' it on that scale. This 'placement' is, following Benjamin, the work of the critic.

Although art criticism forms the title of Benjamin's dissertation, it is not exercised therein. In an early text from 1914/15, *Two Poems of Friedrich Hölderlin – Dichtermut – Blödigkeit*, Benjamin asserts that the judgement of an artwork must be derived from itself; not, however, from the way it solves a particular challenge, but from the 'seriousness and scale of the task' it poses. (Benjamin, 2003b: 105) By focusing on the ambition of the work, criticism looks in effect at the work's reflective potential rather than its objective qualities. Benjamin sees in art criticism a complementary reflection that follows the ambition of the work, which it seeks to complete in an act of cognition.

The ambition of the artwork is not an objective quality. Rather, we can only speak of an 'ambition' once the artwork is accepted as reflective and exposed through reflection as subject-work. Critique brings out the best in the work, which – since it is the result of a reflection – must be genuine understanding.

5.3 The Figural

When we talk of a 'figure' in the domain of art, we generally imply a human figure, the body. As mentioned at various points in this text, within the 'world of information' (Arnheim), the body has become somewhat of a problem in relation to art because the body both as perceptor and creator has been seen to supply meaning to the otherwise meaningless processing of information. At the same time, however, once reality is understood in terms of information, the body as the site for meaning cannot exist, in the sense that the difference that meaning makes to information cannot be fathomed by information itself.

Thus, if the body is considered to exist and play a role in relation to art, it must be, as was remarked by Bryson, 'suppressed'. (Chapter 4) Alternatively, the body, whilst still being accepted as a site of meaning, can also be technologically overwhelmed by information; i.e. diluted and integrated into its fabric, like the 'immersive environments' in the domain of 'new media'. (Hansen, 2004) In both cases, the body is given as the source for meaning that otherwise cannot occur. On a more historical level, Georges Didi-Huberman makes clear that the 'body' is a problematic notion because it is overburdened by a function that it received from Humanism as established in the Renaissance, where the bodily human was instrumental in the generation of meaning. (Didi-Huberman, 2005: 218ff) It is the human's disappearance with which Foucault so clearly confronted us at the end of *The Order of Things* that may make possible a discussion of the body beyond its human limitation. (Foucault, 1989: 387) In the present study, the body is not of central concern, although its questioning is a necessary part of the wider implications derived from a theory of information that demands a more in-depth discussion than this short text can provide.

The artwork understood as subject-work may in respect to reflection be seen as related to the human subject. The human subject can provide the model through which the subject-work can be thought, but it cannot – naturally – provide a body. The 'body' of an artwork is its materiality, but that is as far as it goes. The material artwork is limited to certain types of activity when understood as subject-work. It may prove productive, as far as the question of meaning is concerned, to stick with such transformative and reflective activity as is essential without extending this concept straight into a literal 'body'. The figure, or rather, following Jean-François Lyotard, 'the figural', could provide for such reflective activity, which can be seen at work both in 'the body' and in artworks understood as subject-works. These, however, do not necessarily require a human body for the generation of meaning.

It is easiest to understand the figural through Lyotard's discussion of Sigmund Freud's notion of the 'dream-work', which transforms a 'dream-thought'. (Lyotard, 1991) Such transformation is necessarily spatial and, as such, open for vision. Lyotard invokes a picture similar to Robert Smithson's concept of 'enantiomorphism' when he writes that the transformation has to go through 'a depth' (a further dimension), since a 'simple planar movement' would not suffice. (Lyotard, 1991: 23) Depth, however, is not to be found in discourse, but only in vision, since something has to be moved above or below something else, which can be imagined visually only. It appears, though, that the relation to Freud's theories is not necessary for a conception of the figural, as Lyotard's own later writings reveal. In *Que Peintre*, he says, for example, that 'the visible, or rather the visual, is not at all dependant on a montage of desire … it has nothing to do with the plots

stemming from sexual difference'. (Quoted in Tomiche, 2002: 14) A second aspect, which Didi-Huberman introduces in a different context, is the importance of the *meaning* that Freud has for philosophy and not the particular psychoanalytic concepts he proposes. With Freud, a 'split' inherent in the subject becomes obvious (Didi-Huberman, 2005: 6), which relates Freud's thinking to the idea of 'reflection' as the doubling of thought (as it has been introduced here), making it unnecessary to repeat Freud's own theory. It is for these reasons that I will leave out a discussion of the figural in terms of psychoanalysis and will focus on its general inner and thus visual workings.

In *Discours/Figure* (Lyotard, 2002: 271),[2] Lyotard conceptualises three different types of 'figures': (1) The 'image-figure' as figurative representation, such as when opposed to a ground, the most conventional use of the notion of the 'figure' in art theory; (2) the 'form-figure' as the constitutive principle, such as the constellation or the gestalt of a image-figure; it 'is present in the perceptible, it may even be visible, but is in general not seen' (Lyotard, 1984: 57); (3) the 'matrix-figure', which is invisible since it is the differential principle of disruption of the binary relation of the visible and invisible and indeed any binary relation. The matrix-figure's 'formal condition', as Krauss says, is a 'rhythm or pulse'. (Krauss, 1988: 65) Writing about the artists of the 'optical unconscious', such as Max Ernst or Marcel Duchamp, she states: 'the pulse they employ is not understood to be structurally distinct from vision but to be at work from deep inside it'. (Krauss, 1996: 217) It is this third and final aspect of the figure as matrix that Lyotard derived from Freud and which is often taken as Lyotard's definition of 'the figural'. (For example in Slaughter, 2004: 234) Such definition, however, risks separating the figural from the figure along the lines of visibility. David Carroll's point seems to be more appropriate, according to which 'each of [the three aspects of the 'figure'] is a *complication* of the *visual nature* of the figure'. (Carroll, 1989: 39, my italics)

It makes sense to split the 'figure' into these three different aspects in order to understand the particularities that come to the fore when focusing on each. However, the integrity of the notion has to be preserved because its strength lies in its ability to understand the 'figure' in its complexity, in particular when the figure obtains prominent status concerning the visual understanding of an image or artwork such as that proposed in the previous chapter.

The 'progress' of the artworks and the research so far that has been accompanied by this text could be seen to correspond with Lyotard's differentiation of the figure if understood as developmental; i.e., if the matrix-figure were seen as a 'higher' form than the image-

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[2] Unfortunately, much of this had to be taken from secondary literature since Lyotard's *Discours/Figure* is still not translated.

figure. Such a correspondence could look like this: (1) *Remember Me* (fig. 1), the research question, is most figurative because human portraits were used and represented. The figurative elements, however, were described as 'covering up' visual concerns. (2) The research was, therefore, firmly defined as having to take place within the constructive elements of the figure (such as the grid, for example), for which the outer and inner forms were crucial. (3) In this form, however, the figure was experienced as ambiguous and unstable, *moving* beyond its constitutive process.

Following such a progression, the research would have 'discovered' the matrix-figure and with it the figural within post-photographic practice. Reflection, as introduced above through Fichte, Schelling and the Romantic philosophers, would suit such a progress perfectly well, where a reflective practice moves towards totality and the absolute; i.e., true understanding.

It is undeniably possible to look at the research like this. Chapter 1, the most practice-oriented part of this study, is perhaps also the one that most clearly describes the research as a progression towards a notion comparable to Lyotard's 'figural'. Chapter 1 gives an account of studio work carried out for this research and is as such already a reflection, which is, as we have seen, a transformation of the work. The text is thus from the outset caught in its reflective devices, making it difficult to talk of progress in the work in advance of a text. In fact, Lyotard's work, at least of the early period, can be seen as an attempt to resist the dominance of the discourse over the visual. (Jay, 1994: 543ff) If the figural were to be taken as the practice's underlying text, much of his work would be undone, because it would re-inscribe the discourse back into the visual. This is not only a question of a written text but also of the studio: discourse, written or not, may have informed practice all along, since discourse is as firmly established in art as it is in philosophy.

Reflection being, as described, a transformative process, cannot fully mirror itself. If it attempts to do so, it will create an image of itself, a speculation. That this speculation would zoom in on the differential and thus reflective matrix-figure if seen as a development from the image-figure and the form-figure would be no surprise, because the ultimate speculation of a reflective practice will be in its own image. At the same time, however, such practice would also be limiting itself within its reflective practice as reflection became the only point of interest, which will in time be nothing but reiterated. Difference in practice is thus levelled at the same time as practice as difference is 'discovered'.

A progressive understanding of 'reflection' may thus be counterproductive to the establishment of an artistically defined notion of research. In effect, when the figural introduces the visual to reflection, it challenges us to understand reflection visually. The visual has to affect the common notion of reflection as discourse-based. Aware of this,

Lyotard does not just introduce the figural as an explanation of the visual. He sees that the discourse needs to be questioned in relation to its own dependency on visuality. Discourse, as it were, needs to quite literally *make space* for the visual in reflection. Once this is achieved, research such as that carried out for this PhD need not repeat discourse's temporal, i.e. progressive, function, but can deliver artistic results in their own right. The three aspects of the figural thus need to be seen as principally simultaneous; in other words, their difference does not make the figure within the practice go forwards, but rather, it causes it to go inwards into its inner workings. Principally, a figurative work excludes neither form-figure nor matrix-figure. Artistic reflective practice can thus be seen not as progression but as transgression, working towards an understanding that was always already visible.

5.4 Deconstruction

The 'figural' is the notion that Lyotard uses to describe visuality. It breaks down into the three aspects of image-figure, form-figure and matrix-figure, the latter being the most essential because its movement, or pulse, approximates best the inner workings of vision. Lyotard arrives at the figural by deconstructing the opposition between discourse and the figure, between writing and art. To explain Lyotard's method of deconstruction in *Discours/Figure*, Rodolphe Gasché goes back in his text *Deconstruction as Criticism* (Gasché, 1979) to an account given by Jacques Derrida in *Margins of Philosophy*. 'Deconstruction', according to Derrida, 'cannot limit itself or proceed immediately to a neutralization: it must, by means of a double gesture, a double science, a double writing, practice an overturning of the classical opposition *and* a general *displacement* of the system.' (Derrida, 1999: 329) In other words, deconstruction does not happen in a single step. If it did, deconstruction would only offer some sort of negative take to an original proposition, a critique that would stay within the system that created the proposition and its negation in the first place. According to Gasché, Lyotard first reverses the hitherto dominant order that places writing before art, by privileging the visual through the notion of the 'figure'. *Discours/Figure* already starts boldly as a 'defense of the eye'. (Lyotard, 2002: 11) The second step is more difficult to explain since the now privileged term of the 'figure' has to be displaced or 'reinscribed' (Gasché, 1979: 184) into the 'discourse', making the 'discourse' re-appear as a transformed term. Anne Tomiche reminds us that this may be seen as a double negation (the negation of a negation), which only logically reduces itself to zero, while on an 'affective level' this reduction does not take place. (Tomiche, 2002: 11)

To explain this, Gasché goes back to Lyotard's discussion of Merleau-Ponty's *The Visible and the Invisible*. (Merleau-Ponty, 1968) In his last and unfinished book, Merleau-Ponty discusses reflection as a physical and not logically idealised process. As he says: 'The reflection recuperates everything except itself as an effort of recuperation, it clarifies everything except its own role.' (Merleau-Ponty, 1968: 33) Negation understood as critical reflection, which displaces as it reflects, thus cannot be undone, i.e. traced back. When in *Discours/Figure* 'discourse' reappears as the result of such double reflection, it is a positive term, but it is not the same term it was before undergoing the deconstructive procedure. It has, so to speak, 'experienced' its dependence on the figure as its dependent other. 'Discourse, in this way, appears surrounded and undercut by the figural' (Gasché, 1979: 184), questioning the idea of 'progress' in discourse. The notion of the 'figure', on the other hand, also had to be effected in order to be able to occupy a place within the discourse, which Lyotard indicates by shifting the term 'figure' to the notion of the 'figural'. The figural functions in a similar way to Derrida's notion of 'différance' (Derrida, 1999) as 'the principle of disruption that prevents any order from crystallizing into full coherence' (Jay, 1994: 564), except that the figural carries in its name a closer relation to the visual and ultimately to art.

Deconstruction may also serve to describe the practice of artistic research employed in this PhD. Put simply, the present research delivers a deconstruction of photography, defining what has been called 'post-photography' not as the digital successor of analogue photography but rather as a realisation of photography's dormant potential. Chapters 2, 3 and 4 each indicate a particular step in the deconstructive operation. Chapter 2 describes the dominant model of photography that privileges the picture over the process. The picture as photographic image is taken as essential to the definition of photography today. The process, on the other hand, is defined as the application of rules or algorithms in the widest sense, making the process in extremis almost non-photographic. (Indeed, the notion of the 'technographic' was used in support of a generalised 'photographic' process.) Chapter 3 facilitates the 'overturning of the classical position' (Derrida) by radically privileging the process over the picture within the notion of 'information'. Information is thought of as procedural, while images only appear as random possibilities, having no essential qualities. The end of Chapter 3 indicates the 'displacement' of the image (or the artwork in general) that is carried out in Chapter 4. In Chapter 4, the process is reinscribed into the picture (or the work) through the function of vision, which can see process in a picture. Even more radical, the visual picturing of the process was described as a property of the work rather than the perceptual performance of the spectator. This crucial step was argued for through Robert Smithson's *Enantiomorphic Chambers* (fig. 142) and the reversal of vision that they produce when themselves becoming 'a pair of

alien eyes' (Smithson). The notion of the figure was used to describe pictures or works in general that have themselves become reflective agents.

Now that the work is reinstated, albeit 'surrounded and undercut' (Gasché), by the process, the deconstructive operation is complete. If one wanted to complete the circle, what before had been called the 'picture' would now be called the 'figure', to indicate that the figure is not only an element of the picture but has affected the picture itself. In a textual context, such as in the present study, this process is indeed complete because the various images, pictures or artworks all appear as figures indicated by the label 'fig.' in the text and underneath the work. One may think in this respect of Marcel Broodthaers's *Museum of Modern Art, Eagles Department* (figs 162 – 164) and other related works, where the label (and the 'fig.' that is often written on the label) indicate the transformation of the work into the figure. Such a reading is opposed to Krauss's understanding of the labels in Broodthaers's works in her book *A Voyage on the North Sea*. As she says:

> 'Every material support … will now be levelled, reduced to a system of pure equivalency by the homogenizing principle of commodification, the operation of pure exchange value from which nothing can escape and for which everything is transparent to the underlying market value for which it is a sign. This reduction was given manic form by Broodthaers as he affixed "figure" labels to random sets of objects, effecting their equivalence through the tags that assign them as either "Fig. 1," "Fig. 2," "Fig. 0," or "Fig. 12."' (Krauss, 2000: 15)

Her explanation stays, so to speak, within the first step of deconstruction, which is a mere reversal; i.e., indicating the loss of meaning in 'random sets of objects'. Despite this, she quotes Broodthaers himself in the latter part of the book: 'A theory of the figures would serve only to give an image of a theory. But the Fig. as a theory of the image?' (Quoted in: Krauss, 2000: 33) However, even with this knowledge, Krauss is not able think of image as figure. In relation to Broodthaers's work on Mallarmé, who was very important to both Lyotard and Derrida, Krauss states that the 'figs' that Broodthaers uses 'question rather than imitate the calligraphic status of Mallarmé's pages' (Krauss, 2000: 51), still refusing to think radically of the image as figure.

Krauss's difficulties in arriving at 'the Fig. as a theory of the image' whilst focusing on Broodthaers's artwork may have a structural reason, because as *artist* Broodthaers cannot strictly speaking put forward a theory of the image, but only a speculation, i.e. a *question*. Artistic practice stays caught in artistic practice and is not able deliver the 'final' reflection; i.e., the ultimate transformation of the work into a theory. Artistic research, on the other hand, attempts to transform what can only be speculative in art into a theory proper. However, it can do this only if art is not discourse's limited other. As both Lyotard's and Derrida's deconstruction of writing show, art can have a place in writing but only if both art and writing realise their differential relationship.

Concerning theory, this research could join forces with Didi-Huberman's position recently expressed in *Confronting Images* (Didi-Huberman, 2005), where he sees a figural understanding of images as central to their liberation from art, as established through a historical category in the Renaissance. Didi-Huberman, in particular in his book on *Fra Angelico* (Didi-Huberman, 1995), is mobilising Pre-Renaissance images in terms of figuration with results that often come close to my own research. I would in particular point out the visual function of the blobs, or 'blotches' as he calls them, which are 'operators of conversion'. (Didi-Huberman, 1995: 21) These 'multi-coloured zones … exist between the background and the foreground.' (Didi-Huberman, 1995: 34) They are 'critical figure[s], the introduction of a crisis into every semblance.' (Didi-Huberman, 1995: 56) And further: '[T]he primary virtue of dissemblance consists of imitating, not the aspect but the process.' (Didi-Huberman, 1995: 96) However, the religious context plays its part, and it would have to be the concern of a different text to delimit religion in relation to the figure. Fra Angelico's paintings are, consequently, 'helping a believer visually to move away from the visible'. (Didi-Huberman, 1995: 224) What remains to be addressed is not so much the Christian understanding of the image (or its Renaissance counter-model), but the contemporary function that an image as 'figuring figure' (Didi-Huberman, 2005: 141) can have, in particular when it comes to knowledge in relation to artistic research and not knowledge about art. (Didi-Huberman, 2005: 82)

5.5 Against Writing

Lyotard's own philosophy after *Discours/Figure* is a good case in point regarding what happens when the *question* of artistic speculation is *answered* by theory. Using his example, I want to indicate that the theory extended by research from artistic speculation needs to stay within visual parameters (the figure) in order not to subordinate art to writing.

As mentioned above, the three aspects of the 'figure' can be seen as a progressive development towards the matrix-figure or, alternatively, as simultaneously at play in any figure. I have opted in my research for the second possibility, but I believe that Lyotard, in particular in his later writings, may have increasingly seen the matrix-figure as dominant. Two reasons guide this impression.

Firstly, building on the way in which the matrix-figure is situated at the limit of visibility, Lyotard appears to have become more convinced that the matrix-figure is what enables vision, while both the image-figure and the form-figure are visible without enabling seeing. Thus the three aspects of the 'figure' are not of the same order. Moreover, he favours that which makes vision possible over that which is visible when he writes:

'Recognition from the regulatory institutions of painting – Academy, salons, criticism, taste – is of little importance compared to the judgement made by the painter-researcher and his peers on the success obtained by the work of art in relation to what is really at stake: to make seen what makes one see, and not what is visible.' (Lyotard, 1992: 102)

Instead of questioning the opposition between seeing and enabling to see, Lyotard discerns in the matrix-figure the origin for seeing in the temporal order of cause and effect. He indicates that research in the person of the 'painter-researcher' must take care of what he considers vision's foundation.

Secondly, he identifies what he believes to be vision's basis in Barnett Newman's speculations on the sublime in the artist's 1948 text *The Sublime is Now* (Newman, 1992), and attempts to define postmodern art through the concept of the sublime. The sublime is the notion that Kant reserves for sentiments that cannot be contained in any sensuous form. (Lyotard, 2001: 78) In *Answering the Question: What is Postmodernism?* Lyotard distinguishes two approaches. The first, he calls 'modern aesthetics', which nostalgically presents totality as that which is unpresentable. The second, 'postmodern aesthetics', 'would be that which, in the modern, puts forward the unpresentable in presentation itself'. (Lyotard, 2001: 81) Modernism, as it were, utilises negative, empty form-figures, whilst postmodernism discusses the matrix-figure that underlies any figure.

Defined as such, the question of modernism or postmodernism is secondary to the question of the sublime, in so far as both are ways to cope with the unpresentable that made Lyotard choose the category of the sublime in the first place. From where, however, has the question of the failure of presentation entered the scene? The achievement that comes with the figural, so it seems, lies in the spatialisation of reflection, allowing the visual to claim reflective status. However, at the same time as he introduced the visual to reflection, Lyotard took care to establish the visual qua matrix-figure as invisible.

Despite the fact that Lyotard attempts to make the sublime in both cases, modern and postmodern, operational for an artistic practice, his preference for the matrix-figure extends into a theory of the sublime form as a threat against visual practice, which finds itself either limited by the unpresentable totality or by the similarly unpresentable figural. If Lyotard's assessment is correct, postmodernism only realises modernism's hidden dystopia, and is of no different quality, since both carry within themselves essential limits. Jacques Rancière is thus right to say:

'From this moment onward [Lyotard's realisation of the postmodern as sublime], postmodernism came into harmony with the mourning and repenting of modernatist thought, and the scene of sublime distance came to epitomize all sorts of scenes of original distance or original sin.' (Rancière, 2004: 29)

And this is also where, according to Martin Jay, Lyotard dropped 'the complicated

"defence of the eye"' (Jay, 1994: 580) with which the figure was supposed to uproot the discourse. Didi-Huberman, on the other hand, makes clear that the visual should not be equated with the invisible. As he says: 'This is why … we are using the *visual* and not the invisible as the element of this constraint of negativity within which images are caught, catch us.' (Didi-Huberman, 2005: 143)

It appears as if a serious critique of Lyotard's essential Romanticism is necessary. It may be said, as he does, that the sublime rather than the beautiful has been underlying modern art. (Lyotard, 1992: 93) This could, however, be just another way to confirm the importance of the Romantic movement to which Berlin referred. By linking the working of the visual to the totality of things, as Romanticism does, the figure's visual reflective transformation is made subordinate to a concept of totality that is necessarily beyond the eye. From an artistic position, however, this totality is nothing but a speculation, whereas the visual operation of a work, the figure, is a factual experience. Romanticism may have 'opened' the path to the figure, but it also philosophically mined it, just as Lyotard does, finally, when subordinating the figure to a conceptual gain. Truth, according to such a Romantic position, can never really be operational in the work, and even if it were, it would only relate to a conceptual totality beyond the work's reach, reducing art, dialectically or not, into philosophy. For this reason, Alain Badiou, for example, proposes to open up the category of the single artwork into multiple works, extending reflection beyond the unity of the single work. Thus, resisting the extreme expansion into philosophy that now appears only as a shortcut to truth, Badiou can see truth at work in art. 'Philosophy', as he says, 'does not itself produce any effective truth'. (Badiou, 2005: 14) This issue deserves an extensive discussion, which is unfortunately beyond the limits of this PhD.

According to the position adopted in the present study, the unity of the visible figure in all three senses of the word has to be maintained against a philosophy – if necessary – that might challenge practice to declare *what* it is that it does. Answering this challenge seems to resolve in an objectification that flattens the reflective depth achieved in the subject-work. This may, following Badiou, need to be seen as extending into a constellation of subject-works. Against Badiou's negative understanding of philosophy in relation to art, I would maintain that philosophy should be required to respond reflectively; i.e., to accept the challenge of transformation posed by the work within its own domain: in other words, as philosophy. Writing has the extraordinary ability to take up art's serious visual and reflective proposition for an additional transformation. Only writing, in approaching the work from the outside, can create the reflective coherence of the work, giving the work at the same time a discourse, which we have started to call 'artistic research'. Without philosophy's respect for art and the achievements of visuality, nothing is gained.

Chapter 6: Artistic Research

6.1 Against Art

For artistic research to claim its proper institutional place, art's relation to knowledge needs to be made explicit. Many artists quite naturally claim that they 'do research' when developing new work. An artist may, for example, source new materials, look at the history of a particular practice, or experiment with new modes of production whilst calling all of this 'research'. True, whatever we do, we learn something, but this does not mean that the practice is a 'research' practice. Looking at the historical account given in the last chapter, there seems to be a strong tendency towards an emancipation of art in relation to knowledge that spans from Plato's dismissal to Kant's acceptance and Schelling's differentiation between types of art, which opened up the possibility for artistic research. Even before anybody ever thought about that notion, artists and philosophers have looked at the inner workings of art, foregrounding reflection and more recently, figuration, as organised processes from which, now that the category has been invented, a step into research proper can be taken.

The philosophical challenge that comes with this step, however, is extraordinary, since much of our occidental worldview is based on an exclusion of art, even if at times the opposite has been claimed. Nietzsche was probably the first philosopher radically to experience the shock of such a challenge, which made him question the whole of Western philosophy beginning with Plato, calling the point that was reached when truth as understood by Plato was 'abolished', 'the end of the longest error'. (Nietzsche, 1988b: 80f) The problem, quite simply, was that Plato was unable to imagine a place for art within the category of 'truth' that his philosophy imposed, despite the fact that a will towards locating an appropriate register for art is more than apparent in his writings. In an astonishing section of the *Republic*, one can almost feel Socrates's disappointment when he has to conclude that art should be 'renounced', even though he has just sung Homer's praises. Socrates sets up a challenge, to which I think we are only now responding:

> 'However, let us freely admit that if drama and poetry written for pleasure can prove to us that they have a place in a well-run society, we will gladly admit them, for we know their fascination only too well for ourselves; but it would be wicked to abandon what seems to be the truth [namely, that art should not be admitted]. I expect you feel the fascination of poetry yourself, don't you,' I asked, 'especially when it's Homer exercising it?'
>
> 'I do indeed.'
>
> 'It is only fair, then, that poetry should return if she can make her defence in lyric and other metre.'

'Yes.'

'And we should give her defenders, men who aren't poets themselves but who love poetry, a chance of defending her in prose and providing that she doesn't only give pleasure but brings lasting benefit to human life and human society. And we will listen favourably, as we shall gain much if we find her a source of profit as well as pleasure.'

'Yes, we shall gain a lot.'

'But if they fail to make their case, then we shall have to follow the example of the lover who renounces a passion that is doing him no good, however hard it may be to do so.' (Plato, 2003: 607 c-e)

As far as Socrates is concerned, art must make a case for itself, but strangely, it cannot do so, since he requires 'defenders, men who aren't poets themselves' to speak on art's behalf. In other words, art is so far removed from the truth that a process of translation must be set in place through which Socrates can understand what he already knows: namely, that art *works* and may have a relation to truth. We artistic researchers are, to a certain degree, still in the process of convincing the world to accept art when it cannot think *what* the truth is that it can deliver.

The history of art has, of course, been strongly affected by the place into which it has been relegated. It would be naïve to think that art, not only as imagined by Plato, but also as practised today, could simply make a case for its own relevance and get on with living happily ever after. Before this can happen – assuming that it ever can – art must strip itself of the assumptions that have been affecting it. In other words, a fundamental critique of art is necessary, and this must come initially from the experience of the work, its figuration, which will then need to make its impact on the discourses of art and philosophy. Socrates can only be convinced about art's validity if art has the reflective ability to affect his own discourse so that he is finally able to *see*. If art, however, remains in philosophy's shadow, Socrates will continue to see nothing but good reasons to reject it.

The last chapter ended with a demand for writing to be used but not imposed on art so that art may retain its own reflective stance. This final chapter starts with a demand for art to wake up to the question of its own place. Art has, unfortunately, become a generalisation applied to all sorts of practices that are not considered to be fully logical. Robert Musil, for example, has wondered what sort of times we are living in, when a race horse can be said to have 'genius'. (Musil, 1955: 46) Typing in the words 'the art of' into any internet search engine will deliver plenty of examples of what the same current thinking considers 'art' may extend to, ranging from 'shaving' to 'losing'; even within the more elitist world of the 'fine arts' there is such an undifferentiated range of reflective or

unreflective practices that the category of 'art' *must be given up* in order to define 'artistic research', since otherwise an endless task of art criticism would first have to be exercised before any sensible characterisation could be made.

6.2 Supplementation

Given both the historical problem and the institutional reality, it comes as no surprise to learn that when practice-led research was established in the United Kingdom, the traditional order between art and knowledge was preserved: art was there to create, discourse was there to reflect, and no challenge was made to this assumption. In the institutional context, two definitions of 'research' are central. The Arts and Humanities Research Council (AHRC) states that 'creative output' on its own cannot be seen as research. Rather, it 'expect[s] this practice to be accompanied by some form of documentation of the research process, as well as some form of textual analysis or explanation to support its position and to demonstrate critical reflection.' (AHRC, 2004) The Research Assessment Exercise (RAE), moreover, states that research should be an 'original investigation undertaken in order to gain knowledge and understanding'. (RAE, 2001) The AHRC's definition is somewhat ambivalent, since on the one hand it does not accept artworks as research, while on the other it downplays the function of writing, suggesting that it is there only to 'document', 'support' and 'demonstrate'. As much as the definition seems to accept a secondary emphasis on text, it is still clear that 'research' is looked at only in relation to the text, since this is where critical reflection is to be found.

Thus, despite the fact that artistic practice on its own cannot be seen as research, it is nevertheless its source, while the written elements need to *supplement* this practice for it to become research. The necessary supplementation of art by writing when it comes to research, however, denies reflective artistic practice the status of research; art can create new forms, but it is not considered an adequate discourse to give meaning to those forms. Textual reflection, on the other hand, not being the site of 'creativity', must maintain a discourse that is hardly compatible with, let alone reflective on, an *artistic* account, since the chief models of discourse applied to art are taken from philosophy or art history.

At the same time, the RAE definition, according to which research has to be 'original', makes explicit the idea that 'knowledge and understanding' are 'gained' progressively, putting even greater pressure on art to create novelties to be absorbed by discourse. Thus the choice between progressive and transgressive research that was discussed in Chapter 5 is institutionally biased by discursive demands that are not necessarily artistically relevant. This particular study has offered a reflective model for both options, progressive as well as transgressive, placing itself at the limits of what is deemed to be acceptable by preferring

the latter. However, it is the progressive model, which emphasises art's creative over its reflective significance, that is institutionally assumed and reaffirmed. This has, as Didi-Huberman makes clear, been inherited from a particular emphasis on the human during the Renaissance, which is today, to say the least, questionable. (Chapter 5)

Such progressive humanism is not just being questioned in the debate on research methodology. The question, in fact, goes all the way through to the practical artistic concerns that triggered the present research in the first place: the status of the picture, the process and the site of meaning. Much of the supplementation that makes art the mute source of meaning has been criticised within artistic practice. Art & Language, for example, have launched a series of outspoken reflections on the state of art that have attempted to provoke a different way of thinking. As they wrote in their account of their own practice, *Provisional History*, in 1982:

> '[W]hat perhaps united the founder members of Art & Language more than anything else was an intuition that, under the specific circumstances of art at the time, the production of a first-order art was a virtual impossibility, unless assent was given to those fraudulent conceptualizations by means of which normal art was supported and entrenched. Defensible work must first and foremost entail a critique of those conceptualisations – the development of a 'second order' discourse in terms of which the normal discourse and production might be described and explained.' (Harrison and Orton, 1982: 21)

One way in which they responded to their own concerns was to integrate their critical writing into art installations, such as in the famous *Index 01* (fig. 165), shown at Documenta 5, Kassel, in 1972, for which the artists used previously published material along with new manuscripts, organising their texts in eight filing cabinets.

However, although this sounds like the beginning of artistic research triggered by the concerns surrounding Conceptual practice, in effect this is not the case; there is no straight history connecting Conceptual art with artistic research. According to Art & Language's position, as cited above, art can only maintain its primacy if it engages with the discourse that has been unwittingly produced by traditional practice. If, however, that discourse is supplemental or 'second order', placing art first as the originator of meaning, then it would be repeating rather than questioning that discourse, due to the very fact that the concept of art as primary has remained in place. Exhibiting the discourse as Art & Language did in *Index 01* does not undo the discourse's supplemental function. If anything, it complicates it.

As the example of Art & Language testifies, the supplementation of art is not only a problem in regard to discourse but also in regard to practice. It is only when art *shapes* discourse, i.e. within post-conceptual practice, that the supplementation of art can be undone, making it necessary to formulate artistic discursive forms. In the present study,

artistic research is understood as such an artistic discursive form that aims to challenge some of the preconceptions inherent in the institutional definitions of practice-led research.

6.3 Artistic Research

The general debate around 'practice-led research', apparently the notion of 'research' currently preferred by the AHRC (Biggs, 2006: 185), may be seen to repeat the order in which discourse supplements practice. On the one hand, there are those who believe that art, being a reflective practice, is already a form of research. Graeme Sullivan's book *Art as Research*, for example, sets out to prove that the main requirements for any research, namely 'rigor and systematic inquiry' (Sullivan, 2005: xi), are already part of artistic practice. Once these are made explicit, he believes, 'studio-based inquiry in the visual arts will have greater institutional credibility'. (Sullivan, 2005: xiii) There are also those, on the other hand, who believe that practice needs to be made accountable for the research it delivers in order to discriminate between a general artistic practice and a more specific artistic *research* practice. (Cf. Biggs, 2006: 193) This is of particular importance when it comes to the assessment of a PhD. Such a position, it appears, does not contest the fact that artistic practice in general may loosely be seen as research; it only takes issue with the lack of criteria with which to evaluate whether research has taken place in a particular practice or not. As Victor Burgin states:

> 'The question of whether visual art production constitutes research is not a significant issue. The substantive issue for visual arts departments now is the widespread inability or disinclination to clearly distinguish between an art work and a written thesis, a tendency to obfuscate or ignore the differing specificities of two distinct forms of practice.' (Burgin, n.d.: 6)

It is certainly true that, as Henk Slager says, 'In the topical practice of visual art, artists increasingly consider their activities a form of research.' (Slager, 2004: 12) It is dangerous, however, to equate this tendency with an institutional definition of research, since once these doors are opened, criteria that were developed for the assessment of research may slip into the judgement of art. In fact, Simon Sheik warns that on a European level, the introduction of artistic research, together with what he calls the 'Bologna process', which is the standardisation of education within the European Community, will 'merely substitute a system of discipline with a system of control' (Sheik, 2006), where institutional regulations may exercise an impersonal stranglehold on artistic practice in art schools. In relation to European policy, Hermann Pitz adds that 'if we go on with PhD programs as a norm to give quality to artworks, then we have a problem'. (Pitz, 2006: 26) Christopher Frayling is also sceptical and wonders why, apart from 'Research [having] become a status

issue', artists want to call their practice 'research with a big "r" at all.' (Frayling, 1993: 5)

Art and research should be kept distinct for two reasons. Firstly, at a time when the notion of 'artistic research' is being shaped, an indiscriminate notion of practice as research would reduce the intellectual demand that the notion of 'research' puts on artistic-research practice. Secondly, if art and research are kept distinct, there will be no need to speculate on what art is and thus to qualify art that is allowed *not* to respond to the question of research; research does not and, indeed, should not, be used to regulate art.

When stepping into the paradigm of 'research', an artist must thus look at his or her work not as art but as research, and develop its place in this context. It is here that the question of supplementation really matters. The fact that research is seen as distinct from art, a step that privileges discourse, does not mean that it is clear what that discourse is or how it functions. Burgin, who seems to link research with a particular practice of writing, goes as far as to recommend that the written component of a PhD, even that with a 'practical emphasis', should be looked at 'on its independent merits'. (Burgin, n.d.: 9) He does not clearly state which model of writing he proposes, but indicates in reference to a BA (Hons.) course he designed at the Polytechnic of Central London in 1973 that history, sociology, semiotics and psychoanalysis may guide the writing. (Burgin, n.d.: 3) Michael A.R. Biggs, who does not keep practice and writing as distinct as Burgin, develops a model whereby the 'experiential content' of a work needs to be *represented* in research. As a consequence, he adds, 'it should be the purpose of art and design research to disembody the content from the experience and thereby render transferable what was formally subjective and non-transferable'. (Biggs, 2006: 200) Idealistic notions of subjectivity, such as those employed in this thesis, are not deemed acceptable since they would impact on the objectivity of the work, which he needs to see as empirically accessible for its 'defence'. (Biggs, 2006: 183) Writing is not in any of these cases affected by the artistic status of the research. The more an artistic practice plays a part in the research outcome, as positions such as Biggs's seem to demand, the more it needs to be told what is deemed acceptable, while a position such as Burgin's, by separating artistic practice from writing, allows practice a freedom, albeit one without consequence.

It may be important to note at this point that the officially preferred notion of 'practice-led research' by definition suggests that practice leads research, and also that research is distinct from, and not affected by, the practice. In preferring the notion of 'artistic research', I am trying to convey an idea of research not articulated by the above-mentioned positions, so that the research as a whole can be charged with artistic, and in my case, visual concerns.

Stephen A.R. Scrivener similarly argues for research to be artistically defined. If it were not, 'a shift to research in the arts could be extremely damaging as it has implications for academic competence, through its graduates in the non-academic world, and through them for the general health of the arts'. (Scrivener, 2002) According to his argument, art, in contrast to other disciplines, has not developed a professional class in charge of the transformation of the discipline; every artist contributes to the transformation of art without necessarily being aware of it or being defined through it. (Scrivener, 2006: 160) Academic artistic research is, according to him, an experiment that is being carried out at present, in which the transformation within the discipline of art is institutionalised through the creation of research degrees. (Scrivener, 2006: 165) Such a professional research class would 'put into question what it means to be a professional artist'. (Scrivener, 2006: 178) Scrivener's position thus confronts the discipline of art with what appears to be artistic research as an academically institutionalised avant-garde that would have a transformational function in relation to general artistic practice.

Some elements of his argument are comparable to mine, in so far as he believes that reflective artistic practice is transformational. He also makes clear that he wants to use this element for a definition of artistic research. The idea, however, that the purpose of research would be to transform a discipline or to 'return the discipline to its own principles', as Katy MacLeod and Lin Holdridge suggest (MacLeod and Holdridge, 2006: 8), is at odds with my position, because that which research is reflectively transforming is principally itself. Scrivener appears to understand transformation as historical progression that gives purpose to such a 'new' research class. This may be a limiting position. He is also not very explicit when it comes to the impact that artistic transformation as research practice may have on writing.

Norman Bryson focuses on the question of writing in his introduction to *Always Both Faces* when he writes: 'While enormous attention is paid, rightly, to the axioms of the field and to renovating the critical foundations for thinking about visual art, relatively little attention goes into investigating what might be the axioms of writing at the doctoral level.' (Bryson, 2000: 9) In his opinion, 'the dead hand of the institution lays itself over the hand that writes'. (Ibid.) He, much like Burgin, understands writing as a different practice, except that for Bryson, writing should interact with studio-practice, in the end making it difficult to tell 'which is "first" and which is "second"'. (Bryson, 2000: 10)

MacLeod's and Holdridge's book *Thinking Through Art* (MacLeod and Holdridge, 2006) demonstrates that much has changed since Bryson expressed his concerns, since many of the examples they have assembled over the last few years show how writing has become a concern within artistic research. Their notion of 'research as art', developed

from Frayling's 'research for art' (Frayling, 1993: 5), deserves particular mention in this context. Basing their argument on Stephen Melville's notion of 'the work', they indicate that the articulation of the work *as* work is an important aspect of what it means to be 'a work'. As Melville says: '[W]riting would belong to such work as a part of its unfolding, a continuation of the conditions of its appearing.' (Melville, 2001: 19) Such writing needs to be affected by the work. In fact, the work as it appears in the writing is the work transformed, since only as transformative writing can the work appear *as work*.

It is of crucial importance to keep this position distinct from any form of 'triangulation', such as expressed in *Art and theoria* (Davey, 2006), Nicholas Davey's contribution to MacLeod's and Holdridge's reader. His position is similar to Biggs's as cited above, since both believe a 'subject matter' to exist that is communicated in studio practice and which can be 'triangulated' by writing. Such positions assume an invisible, addressable centre, much like a Platonic idea, which different modes can reflect. Reflection in such a case may be imperfect, it seems, but it needs to have an element of transparency, without which nothing prior, such as the work, could be indicated. 'Triangulation' is impossible, however, when – as pointed out in Chapters 4 and 5 – reflection transforms the work, since it does not leave any 'subject matter' behind that could be referred to in the context of writing.

It is thus the question of *how* something works that has concerned me in this PhD, and this reappears in relation to writing in this final chapter. This thesis has transformed or reconfigured my work, and by doing so has made the work accessible as the work it now is. Most important for me is that the research would finally be successful only if all of its concerns could ultimately *be seen* at work without recourse to any metaphysics whatsoever. If such reflection is possible, it should include the reader, whose understanding needs to be affected should understanding happen at all.

The most important difference that I have found between my own methodological position and that of those whose work I have read in this respect is the distinction I make between art and research. I would challenge the assumption that in defining my research practice I should at the same time make general comments about what art is, as if art necessarily had to do with the 'development of knowledge and understanding'. If artistic research is seen as at play in art in general, those forms of art that have different emphases may be misunderstood. I would much prefer to leave it open for artists to speculate about art in the context of art, while I hope I have forwarded a theory of artistic *research* appropriate to the knowledge and understanding called for by my initial question: 'What does it mean to see like *this*?' when confronted with particular post-photographic images. (Chapter 1) Thus my own definition of 'artistic research' is that research is the conscious creation of an artistic practice mobilising what it can for that practice to come alive.

6.4 Seeing like This

A blurred patch of colour is, at the end of this PhD thesis, still a blurred patch of colour. However, the interrelation of patches of colour in different works, as well as their contextualisation in technology, art history and philosophy, have proposed a transformed understanding of what that patch means visually. In the text, this change was indicated through the notion of 'the figural', which replaced terms such as 'patch', 'blob' or 'blotch'. In the practice, the shift must be seen as having occurred when the figure was outlined and thus separated from the source material at the same time as constructive, procedural elements emerged in the space of the figure itself.

The Potato Prints (fig. 7), The Premier Rose (fig. 11) or Sudeley Castle (fig. 25) are examples of different modes of figuration that all nevertheless describe what figuration is and how it works visually. This PhD shows that it makes sense to speak of or to see a figure within the most basic and even automated artistic gestures. The meaning of seeing figures on this level is first and foremost directed against a reduced and narrow understanding of figure as body, a position that makes it necessary to see the human body in such figures or to not see figures at all. On a more positive note, however, it is also directed towards the visibility of transformative reflection within shapes that become figures. Thus the meaning of 'seeing like this' when confronted with Remember Me (figs 1 and 2) is that meaning had already occurred before the question was asked. This meaning is inherent to the visual event, but only if we understand the seeing of a figure as reflectively related to its figuration.

Moreover, figuration that is not the result of a perception can be seen at work beyond blobs or patches of colour in pieces such as Chokes (fig. 57). Here, figures are produced through the programmed interrelation of flickering fluorescent tubes. In time rather than space, these flickering figures are 'outlined' by comparatively long periods of stable light conditions when both lights are on or off. More than a pattern of flicker, Chokes performs a responsive relation between the two lights, allowing for an unpredictable experience of a programme caught in a randomised system.

In Chokes as much as in the Potato Prints, figuration is a visual principle. Figuration need not be visible to be at play, although it does need a visual register within which it can be understood. During the course of this PhD, seeing has been expanded through practice into visual thinking, with the result that a research interest has established itself as research practice, making it easier to see and to respond to figures, but also making it easier to see how even the most figurative work is a reflection of figuration. As a consequence, a whole history of art opens itself up, which, from today's point of view, has been obstructed by restrictive notions of art that prefer human form within practice. Thus a visual thinking

that ambitiously places itself beyond such limits needs to be developed. I hope that from this point onwards my research can shed some of the conceptual restrictions that were necessary for the ambition to expand, but which now appear as arbitrary restrictions.

6.5 Conclusion

I was almost tempted to call this conclusion an 'introduction', for at least two reasons. Firstly, the research project has *completely* transformed my practice, which only now, at the end of the thesis, appears to be being introduced. Secondly, as far as this piece of writing is concerned, it is as if everything is turned on its head: to conclude with a section on method implies that the beginning, which in more conventional, i.e. scientific, PhDs, seems to be so firm, is in many ways only arrived at in the end. In fact, the conscious making of a beginning is probably the best definition I myself can give of 'research'. This, however, *is* a conclusion.

The organisation of the present text into the six chapters 'Studio', 'Post-Photography', 'Post-Conceptual Art', 'Figure', 'Reflection' and 'Artistic Research' should have made apparent two simultaneous, albeit contradictory, movements. The first is an *expansion* of a concern that starts with a very specific blob or patch of colour on an image and its reworking in the studio, moving through photography and Conceptual art into general questions of philosophy and the notion of 'knowledge'. The second is a *contraction*, which makes the concern even more specific in an expanded context, ending with a very particular stance on research practice. This is achieved due to the fact that each chapter initially declares its context before tracing the concern at hand into the context's own depth. Each chapter thus ends with a result that is always displaced by the next chapter, in whose foreign context the concern reappears.

The concern, as it turns out, that originated from a particular visible pattern has been transformed in the course of the research into a practice. From this point of view, it is not a written theory that is used to supplement a practice, but rather a practice that has come into being by taking hold within a discourse. The first steps were necessarily deconstructive. They had to break the representational primacy of the pictorial image in order for the image as figure to appear. The emerging philosophical speculation, however, needed to be constrained at this point, since the deconstructive process was not there to discover a philosophical truth. Lyotard, whom Gasché credited in *Deconstruction as Criticism* as having understood that deconstruction cannot become a desire fulfilled (Gasché, 1979: 205), must be seen as failing on this account in the period following Gasché's text, when Lyotard moved on to a theory of the 'sublime'. My own insistence on the visible, aided by Didi-Huberman's art-historical research, is in essence an insistence

on figural practice. It is from this point that the specificity of my artistic research practice is developed against artistic or philosophical speculations. The slippage that seems to have occurred in Lyotard's work from a *how*-question of discourse into a *what*-question of figuration could thus, I believe, be prevented by embracing the *how* as artistic-research practice.

Such research practice sits uneasily within the institutional regulations as shown in the current chapter. It is only during recent years that enough work has been done to give credibility to artistic practice in the domain of research. It is clear, however, that people's opinion about the function of art plays a huge part in what they expect artistic research to be. This may be the reason why art appears to be so closely linked to research, despite the fact that the question concerning the category of art creates more problems than solutions. It is, however, necessary to contextualise the artistic-research practice that has been developed within methodological discourses; without such a step, research would always also appear as art. At the same time, it is deemed important to make an institutional point about the validity of the present approach, hopefully transforming not what people believe art is, but how they define artistic research.

We are now witnessing the first instances whereby organisers of scholarly conferences are accepting practical submissions. The European Conference of the Society for Literature, Science and the Arts (SLSA), *Figurations of Knowledge*, to be held in 2008 in Berlin, offers a strand for practical projects. In its 'call for papers' the organisers state:

> 'Over the past few years, there have been increasing calls for art to be granted a claim to understanding and research. The arts, it is said, can generate and formulate knowledge in their different disciplines – music, theatre, literature and dance etc. – which is equivalent to the production of scientific findings, or which accompanies and supplements these. Most of those advocating this approach insist on the different nature of this knowledge and on the fact that artistic research cannot be transposed to the traditional forms of representation in science. We share this view and, at this year's SLSA conference, therefore wish to introduce a new format or stream. The results of artistic research are no longer to be presented in talks and slide shows, i.e. secondary formats, but in the form of original contributions: an exhibition, a concert or a theatre performance, as an alternative to a scientific talk.' (SLSA, 2007)

Such initiatives are a sign of a changing culture where artistic research *practice* is allowed to figure. At the same time, the organisers appear to repeat art's position as primary in assuming that writing, i.e. 'scientific talk', cannot sensibly relate to the knowledge 'produced' in practice. Returning, however, to an original practice not affected by writing now appears to be impossible, as this thesis suggests. Thus, oddly, the exercise to be carried out in response to such a call needs to prove that practice has become a form of writing. It may, however, be able to do this only by *including* a deconstructional text, since otherwise it would include traditional writing in absence.

The final point to make is thus that artistic research cannot do without writing as long as writing is the norm. Differential and reflectively transformative artworks need to affect the writing at the same time as they need to be affected by the writing for the work to become research. The AHRC is in the end right to demand writing, but only if writing is allowed to happen in practice. In this way, what may look like the simplistic supplementation of art by writing has all the potential to generate true artistic research practice.

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