

MRI as Grid in the Sculptures of Marc Didou

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I first encountered the sculpture of Marc Didou in the context of the Festival of Science held in Genoa, Italy, Winter 2005, in an exhibition set up at two venues, the Martini-Ronchetti Gallery and the Museum Augustinus. There, I learned that the French sculptor had started working with Magnetic Resonance Imaging (MRI). Illuminated by a single source of light, a succession of layers without a recognisable form. The sculptures of the series *Oubli de la lune I, II, III* (2003-2004, marble and steel mirror) (Fig. 1, 2, 3 and 5) appear to be seen, at a distance, as abstract monoliths formed by a sudden and precise aggregation of layers, rhythmically fallen over from high one after the other, one on top of the other, anchored to an invisible mainstay. *Oubli de la lune I* is a static sculpture, yet it entraps movement in itself, in the marble layers, a movement of aggregation and of possible desegregation. Each layer is a necessary condition for the whole sculpture. From far away the layers all look the same: as viewers get closer to the sculpture, however, a variety of colours, lines and natural drawings appear on the veins of the marble.

Driven by a strong interest in the images produced by MRI, Didou's most recent work focuses on sculpture rather than on painting. This decision was motivated by an attempt to escape from a perceived automatism in his hand. Doing sculpture, however, exposed Didou to a similar risk of such tyranny. This is how Didou became interested in the production of images without the help of lenses and without human intervention, subsequently transforming his conception of sculpture. Such an exploration, coming after his encounter with MRI, forced a change in his art, which was formerly characterised by huge iron-made installations. Iron constitutes the red thread in Marc Didou's work: the property of the magnet constituting MRI to attract metals becomes the play between attraction and repulsion created by Didou in his last works.

The two elements which concur to shape his sculptures are firstly, the images produced by magnetic resonance imaging and, secondly, the drawings Didou obtains from them (Fig. 4). Before becoming representational objects codified by the

clinician, MRI images present themselves as a whole rhythmical order where no human intention is recognisable. Like Marey's chronophotography, MRI attempts to eschew any interference of the human hand or eye. Traditional materials like iron, wood, steel, granite, marble are remoulded not by the sculptor-demiurge - a myth that Didou rejects - but by MRI.

Didou entered the scientific laboratory to observe the way MRI images are created and displayed. Realising the artistic potential of both the MRI working procedure and of the images produced, Didou underwent a few MRI examinations and was granted the permission to collect his own images thereafter. Thanks to his particular use of MRI he is able to create another medium for his sculptures beyond more traditional materials and procedures. Didou neither uses MRI as a penetrating device which makes the body transparent to our gaze, nor is he interested in the analysis of the single brain images only. His interest lies in the rhythmical succession of MRI which becomes a sort of closet, a place for meditation before acting. Didou does not have a precise idea before he starts working: the starting point is wide open in order not to diminish his interest in the execution of the sculpture, that is, he is devoted to the process rather than the final piece.

The property of the magnet to attract metals, which is at the core of MRI functioning, prohibits placing any metal objects near or inside the machine. Several of Didou's sculptures are made of metal and play with the property of attracting and pulling away the viewer at the same time. Sometimes the metal used is bronze, other times it is iron: iron can be forged, bronze can be fused. Different procedures are used for different materials; materials are linked to concrete practices and from that they present aesthetic qualities, not vice versa. Even though his sculptures seem to be static, due to the materials used and the huge proportions, Didou's work is driven by concrete actions, each of them corresponding to a chosen material. He pays great attention to the *actions* of working materials: forging, fusing, scanning, cutting, lying down, listening, assembling, mirroring, polishing, reflecting, etc.. All these are the actions performed by Didou from the beginning of the process to the moment where the process has to be continued by the viewers.

Didou's concern is less with things seen than with seeing itself, with both the vision produced by MRI and with our seeing. Didou asks viewers to explore his sculptures through their bodily perception, making them aware of the active and ambiguous nature of seeing. MRI appears as a tracking vision, 'an anticipatory form

of seeing – a form of seeing that is always ahead of itself. As in a sport, when you have to look past the ball, not directly at it' (Crandall and Armitage, 2005: 20). Didou opens up the liberating force entrapped in this medical way of seeing. To track down and to be tracked down in a clinical gaze are respectively active and passive constraining actions. Nevertheless, they generate aesthetic possibilities unforeseen by the scientific community, and even by artists or a cultural theorist such as Paul Virilio (1994), who only consider medical imaging techniques negatively. The key elements that allow Didou to create his sculptures are not observation and then transcription as happened in classical art and laboratory observation, but stillness, blindness (inside the MRI scanner), suspension and, then, action.

MRI maps a previously framed area of the body, that is, an area which is already transformed in an image. The procedure of creating MRI images using mathematical functions of transformation is an action exercised onto the image rather than onto the object to imagine (for instance a part of the brain). This modernist use of the grid, which can be recognised retrospectively in Marey's practice, is an auto-referential mapping system of surfaces, not a form of pictorial representation: 'It is a transfer in which nothing changes place. The physical qualities of the surface (...) are mapped onto the aesthetic dimensions of the same surface' (Krauss, 1979: 52).

MRI is a form of mapping the image onto itself using a modular and repetitive structure which can be considered as a grid. Images are re-constructed out of K-space, the virtual place where MRI data are stored. The density of the various parts composing an MRI image are represented in K-space, obtained by mapping the spatial information onto a frequency scale, a procedure called 'frequency encoding' (Prasad, 2005). K-space influences the final appearance of an MRI image. Information in the centre of K-space is responsible for the contrast in MRI images, whereas the spatial resolution of the image is given by the data present in the outer edges of K-space. Grid systems are also used for interfacing MRI with other imaging techniques.

One of these grids, the Talairach, is a coordinate system used to describe the location of brain structures that become 'activated' in neuroimaging. Because MRI scans vary due to differences both in brain features (size and shape) and in slice orientation, it is useful to 'normalise' a brain (that is, to translate, rotate, scale and warp a brain) to roughly match a standard template image. Location of brain structures are reported using the Talairach digital grid. This coordinate system uses

three numbers (X, Y, Z) to describe the distance from the anterior commissure, the 'origin' of Talairach space. Before the Talairach, functional images like PET and fMRI were treated as if they were optical images in the guise of X-rays. The optical reading of functional images is a visual comparison between a paper atlas and a brain scan. The anatomical landscape of a brain scan is confronted with the physiological version of that same landscape inside the brain: comparison happens in the mind of the researcher. With Talairach, brain and scan become digital grids (a set of values in a coordinate space) rather than regions to be correlated (Beaulieu, 2002).

In its precise geometrical order, the grid eliminates the centre, any hierarchical order, any reference and inflection (Krauss, 1979). The grid has the task of showing both the viewer and the artist a self-sufficient point of origin which does not refer to anything else. But this experience of originality is a fictitious one.

According to Krauss:

The canvas surface and the grid that scores it do not fuse into that absolute unity necessary to the notion of an origin. For the grid follows the canvas surface, doubles it. It is a representation of the surface, mapped, it is true, onto the same surface it represents, but even so, the grid remains a figure, picturing various aspects of the 'originary' object: (...). The grid thus does not reveal the surface, laying it bare at last; rather it veils it through a repetition (1979: 21).

Although Didou pays attention to the anatomical details present in an MRI single image, these details are not taken as indexes of structures or functions, but they are taken as abstract forms that need to be overlaid one on the other respecting a hinge. In this sense, his work follows the way MRI and fMRI images are read even in the laboratory where they are interpreted as maps of the distribution of neuronal activity rather than as photographic snapshots. To each voxel forming the three-dimensional grid of an MRI image corresponds a tonality of gray colour. These are not univocal values, however, as they have always to be read against the sequence which created the impulse. Didou transforms the colour-variations into variations of full and empty spaces. He then traces the outlines of the image on paper boards and places these tracings on plates, polystyrene sheets or slabs.

In the series *Oubli de la lune I, II and III* (Fig. 6, 7 and 8), a third element comes into play beside the viewer and the sculpture: a steel mirror. Spectators are

pushed to interact with the space shared by the three elements that compose the installation: the sculptural piece, the mirror and the image reflected. Being at a distance, the viewers' gaze sees the sculpture as a succession of marble layers without a recognisable shape; successively, as soon as the viewer looks into the mediating and distorting mirror, the formless material sculpture dissolves in an immaterial image with a precise form: a face. Through the mirror, the artist can walk through the sculpture backwards, turning the sculpture into a process rather than a finished work, and thus reconstruct the origin: the artist's body and the MRI grid. Anamorphic mirrors are temporal passages allowing viewers to walk through the process of creating a *work* of art. The mirror obliges the viewer to maintain a distance, and avoid a physical encounter with the sculpture.

The same 'distance' is present when the artist lets MRI start the sculpture. Stillness and blindness inside the scanner allow Didou to operate a sort of phenomenological epoché, letting the machine speak for itself and suspending his hand's prejudices before starting to work. Within the MRI scanner the unnatural dimension of being suspended opens infinite possibilities. The artist is immobilised and exposed to the visual rhythm of the magnetic sound. In the shade of the artist's blindness MRI dictates the neutral succession of transcripts. The physical constraints, the gesture of putting into brackets the idiosyncrasies of one's hand, the cadence of the sound and of the MRI succession of images constitute Didou's grid, which becomes the centre for creative possibilities. MRI as a grid becomes a cage where the artist voluntarily puts himself and where he sometimes decides to return in a double search for an absolute beginning and for a dissolution of the tyranny of his hand.

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