The work of art in the age of digital recombination

Jos de Mul

Artists, from the prehistoric painters who engraved and painted figures on cave walls to new media artists whose work depends on computer technologies, have always used media. Media, used here in the broad sense as 'means for presenting information'[1], are not innocent instruments. Ever since Kant's Copernican revolution, we know that experience is constituted and structured by the forms of sensibility and the categories of human understanding, and after the so-called linguistic and mediatic turns in philosophy, it is generally assumed that media play a crucial role in the configuration of the human mind and experience. Media are interfaces that mediate not only between us and our world (designation), but also between us and our fellow man (communication), and between us and ourselves (self-understanding). Aesthetic experience is no exception: artistic media are interfaces that not only structure the imagination of the artist, but the work of art and the aesthetic reception as well.[2]

In this paper I aim to contribute to this reflection by analyzing the way the computer interface constitutes and structures aesthetic experience. My point of departure will be Walter Benjamin's 'The work of art in the age of mechanical reproduction', first published in the *Zeitschrift für Sozialforschung* in 1936. In this epochal essay Benjamin investigates how mechanical reproduction transforms the work of art, claiming that in this ontological transformation the *cult value*, which once characterized the classical work of art, has been replaced by *exhibition value*. The thesis I will defend in this paper is, first, that in the age of digital recombination, the database constitutes the ontological model of the work of art and, secondly, that in this transformation the exhibition value is being replaced by what we might call *manipulation value*.

Before I turn to Benjamin's notions of cult value and exhibition value, I want to make a short remark concerning the scope of Benjamin's essay. Though the title of his work promises an analysis of art, the scope is actually much wider. It is also an essay on economics, politics and religion. And on a deeper level, connecting these and yet other domains, it deals with a fundamental ontological change, a transformation of human experience, closely connected to the mechanization of the reproduction of nature and culture. Likewise, the scope of my continuation of

Benjamin's analysis in the age of the digital recombination is broader than art or aesthetics. It deals with the digital manipulation of nature and culture that characterizes the present 'age of informatization' (De Mul 1999).

Cult value vs. exhibition value

Although Benjamin emphasizes at the beginning of his essay that the work of art in principle has always been reproducible, in principle he states that mechanical reproduction presents us with a new phenomenon. With the emergence of woodcut graphics, engraving and etching in the Middle Ages and lithography in the beginning of the 19th century, mechanical reproduction became a major artistic technique. However, it was only with the invention and the swift dissemination of photography and film that mechanical reproduction became the dominant cultural interface.

Before that time the work of art's dominant type was characterized by uniqueness (*Einmaligkeit*) and singularity (*Einzigkeit*) in time and space. The original work of art is here and now: 'Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be' (Benjamin 1969). There is only one *Mona Lisa*, and when we want to see this painting, we have to go to the Louvre in Paris (Figure 1[3]).

According to Benjamin the unique existence of the work of art determines the history to which it is subject throughout the time of its existence. This includes, for example, the changes which it may have suffered in its physical condition over the years as well as the various changes in its ownership.

> The traces of the first can be revealed only by chemical or physical analyses which it is impossible to perform on a reproduction; changes of ownership are subject to a tradition which must be traced from the situation of the original. The presence of the original is the prerequisite to the concept of authenticity. (...) The authenticity of a thing is the essence of all that is transmissible from its beginning, ranging from its substantive duration to its testimony to the history which it has experienced.

Another word that Benjamin uses to designate the material and historical authenticity and authority of the unique work of art is 'aura'. Because of this aura, the unique work of art can easily become an object of a magical or religious cult.

> We know that the earliest art works originated in the service of a ritual – first the magical, then the religious kind. It is significant that the existence of the work of art with reference to its aura is never entirely separated from its ritual function. In other words, the unique value of the 'authentic' work of art has its

> basis in ritual, the location of its original use value. This ritualistic basis, however remote, is still recognizable as secularized ritual even in the most profane forms of the cult of beauty.

In a footnote Benjamin introduces the concept of *cult value*, and he connects it with its aura. In this context he also gives an intriguing definition of the latter concept:

> The definition of the aura as a 'unique phenomenon of a distance however close it may be' represents nothing but the formulation of the cult value of the work of art in categories of space and time perception. Distance is the opposite of closeness. The essentially distant object is the unapproachable one. Unapproachability is indeed a major quality of the cult image. True to its nature, it remains 'distant, however close it may be.' The closeness which one may gain from its subject matter does not impair the distance which it retains in its appearance.

When we – anachronistically – apply a key concept of the new media studies to Benjamin's analysis, we might say that the auratic work of art acts as an interface between the sensible and the supersensible, that is: between the physical materiality of the work of art and its meaningful history. Although it may be close in its material presence – we could even touch the *Mona Lisa* if there were no glass separating it from its visitors in the Louvre – and as such it brings us in close contact with its history, at the same time we experience the historical tradition in which it is embedded and from which it derives its meaning as an unbridgeable distance.

It is important to notice that in the auratic work of art the sensible and the supersensible, the material signifier and the spiritual meaning, are inseparably linked with one another. As such, the auratic work of art, as Gadamer states in *The relevance of the beautiful* in connection with a short but illuminating discussion of Benjamin's essay, can be conceived of as a *symbol*.[4] The destruction of an auratic work destroys the distant presence of its history as well. For that reason the destruction of an auratic work of art is generally understood as an act of blasphemy – independent of whether it has a religious content or not.

It is also important to notice that for Benjamin the experience of aura is not restricted to historical objects such as works of art. Benjamin also applies the concept of aura to natural objects. When we watch a mountain range on the horizon or a branch casting its shadow over us, we also experience the aura – in this case: the natural history – of those mountains, of that branch. We could also think about the historical sensation we experience when we look at, or touch, a fossil, for instance the skeleton of a dinosaur.

One of the basic claims of Benjamin's 'The work of art' is that in the age of mechanical reproduction by means of print, photography and film, we experience a radical loss of aura:

> That which withers in the age of mechanical reproduction is the aura of the work of art. This is a symptomatic process whose significance points beyond the realm of art. One might generalize by saying: the technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions it substitutes a plurality of copies for a unique existence. And in permitting the reproduction to meet the beholder or listener in his own particular situation, it reactivates the object reproduced.

One might say that mechanical reproduction of images brings things closer, spatially and temporally. In order to watch the Mona Lisa, I no longer have to travel to Paris, I can look up a reproduction in an art magazine or on my mobile phone with an Internet connection, immediately, here and now (Figure 2). Uniqueness and permanence of the auratic object are being replaced by transitoriness and reproducibility.

In a reproduction of the *Mona Lisa*, the reproduction still refers to the original work of art – something Andy Warhol smartly capitalizes on in his reproductions of Leonardo's famous painting (see Figure 3). Actually, in the media of mechanical reproduction the whole distinction between original and copy loses its meaning. No copy of a photo or a movie is more original than the others. Whereas traditionally things were first produced and then reproduced, in the age of mechanical reproduction things are being made directly with an eye to reproduction: 'To an ever greater degree the work of art reproduced becomes the work of art designed for reproducibility' (ibid).

According to Benjamin, together with the aura, the cult value of artworks will gradually vanish. For emotional or economical reasons one can, of course, try to conserve the cult value. For example by printing a photograph in a limited edition, having the photographer put his signature on it, or by promoting an actress as a unique movie star. Actually these 'cheats' only confirm the loss of the aura of the work itself. That does not mean, however, that the mechanical copy doesn't have value at all. Rather, in photography and film, the cult value gives way to *exhibition value*, which is precisely situated in the endless reproduction of the copies. This especially becomes clear in the case of celebrities like Paris Hilton, who do not have any unique talents but are just 'famous for being famous'. In the same vein, the success of politicians strongly depends on how mediagenic they are, that is: on their exhibition value. The fact that in the USA even a B-film actor like Reagan can become president is an ironic illustration of Benjamin's foresight.

Benjamin's essay has melancholic undertones. When he states that the aura emanates for the last time from the early photographs in the fleeting expression of a human face, he not only mourns the loss of the 'incomparable beauty' and 'melancholy' of these early photographs, but also the notion that we experience the human being itself as losing its aura. However, at the same time – and this shows the fundamental ambiguity of the essay – Benjamin also expresses his belief that the 'mechanical media' possess a fundamental democratic and even revolutionary potential. Not only do they enable 'access for all', they also enable the progressive artist to 'politicize the arts' and mobilize the masses against the fascist 'aesthetization of politics' (ibid.). By now we know that mass media can indeed mobilize masses, though more often in the direction of the shopping mall than in the direction of the government building.

The development of mechanical reproduction can neither simply be hailed as cultural progress nor simply doomed as cultural decline. Mechanical reproduction discloses the world in a new way, bringing along both new opportunities and new dangers. We should keep this fundamental ambiguity of the development of media in mind when we turn our attention to digital recombination.

Database ontology

No other text has been quoted so often in new media studies as Benjamin's 'The work of art' (Davis 1995; Harvey 1989; Thomson 1995; Gumbrecht and Marrinan 2003; Benjamin 2005). This is not surprising, as his prophetic vision only seems to have gained in relevance in the age of digital recombination. However, although the computer is still a mechanical machine, we should not simply equate digital reproduction with mechanical reproduction (and for that reason I prefer the phrase 'digital recombination'). Although the computer can simulate all kinds of classical mechanical machines and media, such as a typewriter, a sound recorder, or a device for the montage of images, it has some unique medium-specific characteristics that justify the claim that it represents a new stage in the development of media.

Understood as a medium, the computer is not one but many. Artists use computers in many different ways to produce, store, display and distribute so-called 'new media art'. As a means of production, for example, computers enable them to create digital images and sounds, to build interactive installations, to design multimedia websites, or to program self-evolving art forms. However, the thesis I want to defend is that on a fundamental level all media art works share some basic characteristics. Although concrete media art works may differ from each other in many different respects – and for that reason show a family resemblance rather than a single essence – on a fundamental level they all share the four basic operations of persistent storage, an integral part of almost all computer software. This ABCD of computing consists of the operations Add, Browse, Change, and

Destroy.[5] Together these four operations – which correspond to the structured query language (SQL) commands Insert, Select, Update, and Delete – constitute the dynamic elements of what we might call a *database ontology*.

In a basic sense the word 'database' can refer to any collection of items that is ordered in one way or another. In computing, a database can be defined as a structured collection of data records that is stored in a computer, so that a software program can consult it to answer queries. With the four basic operations all possible combinations of records can be retrieved in principle. Database ontology is dynamic, because the data elements can be constantly combined, decombined, and recombined.

In reality, not all databases are that flexible. The traditional 'flat' paper database, a phone book for example, is rather inflexible. The alphabetic order of the names is fixed, and to update the list you have to reprint the entire book. A card-index box, consisting of cards with a limited number of fields for the input of information (for example name, address, and phone number) would already be more flexible regarding updating. Reorganizing this database – for example to group the records per country for a mailing – is possible, but would consume a lot of time. Although an electronic version of a flat database – a spreadsheet – could speed up the sorting of the data, it remains inflexible with regard to the creation and exploration of structural relationships between the data.

From the 1950s on new types of electronic databases have been developed, the hierarchical model in the 1950s, the network model in the 1960s and the relational model in the 1970s. The last model, which is based on predicate logic and set theory (Codd 1970), contains multiple tables, each consisting of a 'flat' database of rows and columns. The relational database as a whole is multidimensional, and for that reason its complexity cannot be represented on a flat plane and often not even in a three-dimensional model. One of the strengths of the relational model is that, in principle, any value occurring in two different records (belonging to the same table or to different tables) implies a relationship between those two records. Relational databases are extremely flexible, because they enable the users to define queries that were not anticipated by the database designers.

The current development of database models shows a tendency to even more flexibility and a rapidly growing range of applications. Database applications nowadays span virtually the entire range of computer software, ranging from mainframe databases for administrative purposes and multimedia encyclopedias on cd-roms to search engines, wikis and other Web 2.0 applications on the Internet.

However, the impact of databases is not restricted to the world of computing. Databases often function as *material metaphors*. This happens when they evoke acts in the material world (Hayles 2002). Examples of these are biotechnological databases used for genetic engineering, or databases implemented in industrial ro-

bots, enabling mass customization. In addition, databases may create a surplus of meaning, on top of their instrumental function (cf. Van den Boomen, in preparation). In that case the database functions as a *conceptual metaphor* which structures our experience of ourselves and of the world.

The psychologist Maslov once noticed that for those who only have a hammer, everything appears to be a nail. In a world in which the computer has become the dominant technology – worldwide more than 50 billion processors are doing their job – everything is becoming a database. As Manovich states, databases have become the dominant cultural form of the computer age (Manovich 2002, 219).[6] They are 'onto-logical machines' that shape both our world and our world view. Benjamin argues in his essay that in the age of mechanical reproduction, everything becomes an object for mechanical reproduction. This has contributed to what is sometimes called a mechanization of the world view. In the age of digital databases, everything – nature and culture alike – becomes an object for recombination and manipulation.

Let us take genetic engineering as an example. The evolution of life on earth is no longer regarded as a natural history determined by the struggle for life and the survival of the fittest (as in classic Darwinism), but rather as one possible (contingent) trajectory through the gene pool. Actually, this biological database contains an infinite number of virtual organisms and life forms (trajectories), which in principle can be actualized. Although not yet as spectacular as in Spielberg's *Jurassic Park* or in science-fiction films such as *Robocop*, our world is increasingly being populated with life forms created with database technologies. Why not, for example, create a mouse with a human ear on its back or design a fluorescent rabbit to watch it (Figures 4 and 5)?

Unlike *Jurassic Park* and *Robocop*, these examples are not the products of mere digital imaging. The mouse with the engineered human ear implanted on its back is the result of a medical experiment, carried out by Charles Vacanti at the University of Massachusetts Medical Center in 1995, whereas the fluo rabbit was 'created' by the Brazilian artist Eduard Kac, who commissioned the 'transgenic' bunny from a French lab, where scientists injected green fluorescent protein (GFP) of a Pacific jellyfish into the ovum of an Albino rabbit (Vesna 2007).

Both Vacanti's and Kac's experiments have lead to heated ethical debates. In the case of Kac's fluo rabbit, the question was also raised whether this 'work' can be called a work of art. In this sense the rabbit provokes similar questions as did, about ninety years ago, Duchamp's ready-mades, such as *L.H.O.O.Q.*, a cheap postcard-sized reproduction of the *Mona Lisa*, upon which Duchamp drew a mustache and a goatee (Figure 6). Both Duchamp's *L.H.O.O.Q.* and Kac's fluo rabbit raise the question of whether they are a work of art since they both employ a new, seemingly non-artistic medium of production as a means for artistic expression, questioning the very distinction between artistic and non-artistic objects. While this may elucidate the reason for posing this aesthetical question, it does not

provide an answer to it. As Benjamin's essay suggests an answer, we will return to it once more.

Database aesthetics and politics

In 'The work of art' Benjamin remarks that there is no timeless answer to the question of whether a particular object should be regarded as a work of art. An object that was once an instrument of magic could later come to be recognized as a work of art. In the same way, Benjamin suggests, 'by the absolute emphasis on its exhibition value the work of art becomes a creation with entirely new functions, among which the one we are conscious of, the artistic function, later may be recognized as incidental' (Benjamin 1969).

Whereas in the age of mechanical reproduction it was already becoming difficult to distinguish between the artistic and non-artistic functions of the reproduction – hence, for example, the aestheticization of politics and the politization of art which plays such an important role in Benjamin's essay – in the age of digital recombination, the distinction seems to get blurred altogether. Let me illustrate this by discussing a recent database work of the Dutch computer artist and video jockey Geert Mul. Commissioned by the Dutch Photo Museum in Rotterdam, he built the interactive installation *W4 (WHO, WHAT, WHEN, WHERE)*.[7] This installation consists of a database containing 80,000 photographs from the digital archive of the museum and four posts that function as a filter (Figure 7). With the help of the functions who, what, when and where, the user can explore the entire digitalized collection. For example, one can investigate all photographs of flowers made in Germany in 1936. Or all pictures of the *Mona Lisa* made between 1900 and 1920. The installation can be regarded as an interface designed to enable the visitors to display the collection. Every visitor of the museum becomes a curator, able to create her own exhibitions. At the same time it is a powerful interactive artwork which transforms the visitors into VJs who create rhythmic compositions of photographs.

What makes this installation both a brilliant example of human-computer interface design and an autonomous work of art is its *manipulation value*. In the age of digital recombination, the value of an object depends on the extent of its openness for manipulation.[8] For a contemporary scholar, a 'databased' version of the collected works of a philosopher is of much greater value than a traditional paper edition, because it enables her to execute all kinds of sophisticated searches, to investigate implicit relationships between the texts, and to make new recombinations of existing texts (De Mul, 2008). The aesthetic quality of a work strongly depends on the elegance of the structure of the database and its user interface.[9] As soon as the database play becomes a goal in itself, the database becomes an autonomous work of art. As *W4* shows, a database can be both an instance of applied user interface design and an autonomous work of art.

As the number of recombinations of a database is almost infinite, the work of art in the age of digital recombination brings about a return of the aura. Especially in those cases where the user is enabled to change the contents of the database and to insert new elements in the database, each query becomes a unique recombination. And as a consequence, the digitally recombined work of art regains something of its ritual dimension. It becomes an interface between the sensible and the supersensible again, now no longer located in the history of the work, but in its *virtuality*, that is: the intangible totality of possible recombinations. In the domain of culture we could think, for example, of websites such as *Mega Mona Lisa*, where vistors are being invited to create and discuss their unique own version of Leonardo's *Mona Lisa* (Figure 8). In these versions we witness 'the return of the aura'. However, it is a return with a twist: what we experience is a series of 'original, auratic copies' (Davis 1995). The return is also twisted because digitally manipulated objects are even more transient than mechanical reproductions. Because of their manipulability, digital objects seem to be inherently unstable, like the performing arts process rather than product (cf. Bolle 1992).

As already noted, database ontology is not restricted to the domain of culture, but applies to nature as well. In both domains database ontology shows a post-historical character. In the age of digital recombination, dinosaurs are no longer exclusively extinct species, they have become a future possibility as well.[10] Again, the result will be a series of 'auratic copies'. After all, as they will appear in a drastically changed environment, they will unavoidably be a different species.

Like Benjamin we may ask how such digitally recombined works can function as political works of art. Digital recombination as a means of production is no less political than mechanical reproduction. Power, political power included, is becoming increasingly dependent on the ability to manipulate information. One of the most prophetic claims in Benjamin's essay is that in the age of mechanical reproduction, the success of political leaders became increasingly dependent on their exhibition value. However, in the western world Ronald Reagan was probably the last president who could still mainly rely on his exhibition value. In the age of digital manipulation, politicians are becoming more and more dependent on their manipulation value. We could think of Bush's intended manipulation of computer-mediated elections, or the rhetorically motivated recombination of images in Geert Wilders's propaganda movie *Fitna*, but also of the non-criminal everyday recombination of data in order to create, control and evaluate financial, economical and social policies.

Yet for a work of art to be political, it is not enough to be digitally recombined. Digitally recombined works of art differ from other digitally recombined objects because they have a reflective quality as well. A work of art challenges its recipients by directing their attention to the medium itself. Works of art are not political because they manipulate politics, but because they reflect (on) the politics of

manipulation. Only insofar as the fluo rabbit makes us reflect on such media politics can it be called political art.[11]

A work that invites the spectator to political reflection is Geert Mul's *Match of the day* (2006), part of an art works database series, entitled *Split Representations*. In the case of *Match of the day*, 'a computer collects images from about thirty international satellite television channels at random intervals. During the night, image-recognition software analyzes the recorded images. It compares television news with television commercials. The software compares every image with every other single image stored in the computer, checking 5000 specified characteristics in each image. After 1,000,000,000 comparisons, the computer generates a list. Images that share the most characteristics appear in pairs at the top of this list. The artist then selects a few pairs of images out of the hundreds of pairs of images, which according to the computer make a good visual match. In a daily e-mail-series subscribers receive this selection: the match of the day' (Figure 9, Mul 2006).

By combining television news with television commercials, the matches of the day represent the current socio-economic situation of the western world. On this level it is a representation and manipulation of politics. However, the recipient also gradually becomes aware of the politics of representation and manipulation. 'The computer does not "understand" the images, it just applies pixel statistics. For the human eye visual similarity is something else than pixel statistics. Because of our inability to "see" without interpretation we attach "meaning" to everything we see. This becomes especially evident when similar images appear to have a different or even contrary meaning. The "matches" found by the computer and selected by the artist, trigger sensations of poetry, humor, beauty or disgust' (Mul 2006).

Gradually, we become aware of the inapproachability of the workings of a technology that we have invented. And we might even start to reflect on the non-human and maybe even inhuman character of this new medium. Or on the possibility that it will gradually outstrip our skills to add, browse, change and destroy. And that we might become the ultimate object of digital manipulation. In 'The work of art' Benjamin worries about the fact that mechanical reproduction alienates human beings. Realizing the possibility that we might be the first species that creates its own successors in the evolution of life and by doing so makes *itself* redundant, Benjamin's worries may soon become an object for nostalgia.

Notes

1. We should realize that the concept 'media' covers many different categories by which we define media and differentiate them from other media. Even when we restrict ourselves to so-called 'new media', the word 'media' might refer to a variety of different things, such as material carriers, production technologies or distribution apparatus.

2. This view does not imply media determinism. 'Technology does not determine society: it embodies it. But neither does society determine technological innovation: it uses it' (Castells 1996, 5). In other words: media develop in a constant dialectical interplay with other cultural domains, such as science, economy and politics, and cannot be abstracted from human action and decisions.
3. The illustrations are available online: http://www2.eur.nl/fw/hyper/illustrations.htm.
4. 'I propose that the symbolic in general, and especially the symbolic in art, rests upon an intricate interplay of showing and concealing. In its irreplaceability, the work of art is no mere bearer of meaning – as if the meaning could be transferred to another bearer. Rather the meaning of the work of art lies in the fact that it is there' (Gadamer 1986, 33).
5. These four basic operations are also referred to with the acronyms CRUD (Create, Read, Update, Delete) and ACID (Add, Change, Inquire, Delete).
6. Manovich defines the database as 'an *unstructured* collection of images, texts, and other data records' and claims that 'the database in its most purest form' is 'a set of elements *not ordered* in any way' (Manovich 2002, 219, 238, italics JdM) and for that reason opposes the database to the cultural form of the narrative, which 'creates a cause-and-effect trajectory of seemingly unordered items' (ibid, 225). I would argue, rather, that narrative and database structure our often chaotic world in a different way. Whereas a narrative is linear and structures the world through linking events (predominantly past) by narrative causality, the non-linear tabular structure of the database enables the user to manipulate future events. The narrative is not so much an antagonist of the database, but rather one particular trajectory through a database, as Manovich himself acknowledges: 'The "user" of a narrative is traversing a database, following links between its records as established by the database's creator. An interactive narrative (which can be also called a hypernarrative in an analogy with hypertext) can then be understood as the sum of multiple trajectories through a database' (ibid., 227, cf. De Mul 2005).
7. See http://www.geertmul.nl/Geert_Mul/NederlandsFotomuseum.html.
8. A similar point has been made by William J. Mitchell: 'If mechanical image reproduction substituted exhibition value for cult value as Benjamin claimed, digital imaging further substitutes a new kind of use value – *input* value, the capacity to be manipulated by computer – for exhibition value' (Mitchell 1994, 52).
9. Cf. Daniel 2000: 'A "conception" of the "beauty" of a database is not located in the viewer's interpretation of a static form but in the dynamics of how a user inflects the database through interaction with its field or frame. A database incorporates contradiction; it is simultaneously recombinant and indexical, precise and scaleable, immersive and emergent, homogeneous and heterogeneous. It is a field of coherence and contradiction. The aesthetic dimensions of the database arise when the user traverses this field of unresolved contradictions. (...) Continuously emergent ontological states resolve as new subfields from each interaction and are integrated into the field – changing and transforming the content and structure of that field and constituting the "art object" as a continuously evolving and fluid system. These are the conditions of possibility of a "database aesthetics"' (Daniel 2000).
10. In this sense the database ontology combines *virtual reality* (understood as the infinite number of possible recombinations) with *real virtuality* (the recombinations that are actually being realized).
11. Although the intention of the artist is not decisive, in the case of Kac the aim without doubt is political: 'My work doesn't visualize science, it is not meant to duplicate the information that circulates from science to media to the public. It is meant to intervene, to change, to criticize, point out, reflect and modify' (quoted in Allmendinger 2001).

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