THE DISAPPEARING MASTERPIECE
DIGITAL IMAGE & ALGORITHMIC REVOLUTION

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The digital image does not exist. (Pias 2003[1]) But don't we speak of exactly this, the digital image, nearly all the time? We do, indeed, speak of it and we do it in a way that is similar to our speaking about a number of other phenomena surrounding the algorithmic world of computing: by mystifying the phenomenon in one way or other.

When we speak of the digital image, we definitely speak of images. All of us are familiar with them. There is nothing much exciting about speaking about them. But our case is the image in a special state or mode: the digital mode of the image. Here we go! Whatever we may think of images, when we think of them, we think of a visible phenomenon. The digital image, by being an image, must be visible. Otherwise, if not visible, we would not usually call it an image.

Well, yes, but careful! There are, as some claim, also mental images. Or images of imagination. They are, beyond doubt, not visible[2]. When the mental image came up in psychology and cognitive science, some voices doubted that it could exist in the sense of an image. So, perhaps, in a metaphorical sense there might be a mental image. And we can, of course, use the name of any phenomenon in a metaphorical way. That's the reason behind the power of the metaphor without which much of our language and speech would disappear.

But is this the case with the digital image? Usually it's not. Naively we talk about digital images without thinking much about what we say. It's on a computer, it is stored there, and it is being processed. So isn't it digital by necessity? Oh yes, it is. In a way. But no, it is not. For, as already indicated above, images must be visible in order to be images; and the digital is invisible. The digital image is the invisible visible. Contradiction! So it does not exist.

Images as digital images are not visible. They are, in some way still to be determined, two-in-one! The image in postmodern times, in times of algorithms and computations exists in a double mode. I usually call it algorithmic sign. But, in the course of this essay, I am going to use a simpler expression. I will say, the so-called digital image is a surface-and-subface. We can deal with it as a digital image only if we consider it to be a pair of a visible surface and a manipulable subface. The surface is analog, the subface is digital.

This phenomenon of duplication is, of course, a characteristic of the entire plethora of things and processes as they become subject matter of algorithmic treatment. That is, as I see it, what the Algorithmic Revolution is doing to our world. In effect, the algorithmic revolution makes things and processes disappear from their existence as perceivable by our senses. And it lets them re-appear perceivably but only after having spun their other that will from then on become their permanent companion. Their digital (algorithmic) shadow.

We will return to the Algorithmic Revolution towards the end of this essay. For the time being we announce that between the concepts of surface-&-subface and the Algorithmic Revolution, this essay will be concerned with how the subface wins: It drives the masterpiece out of the world of art. The art in the work of art now is established as a set (or class) of images. Membership of the specific and individual image in a general set of images becomes more important than the appearance of the image itself. This constitutes the algorithmic revolution in the arts. In the end, the digital domain appears as the great trivializer.

COMPUTER ART & ALGORITHMIC ART

What, in its beginnings, was called computer art, were drawings calculated by computer programs and made visible by some kind of drawing machinery: drum plotter, flatbed drawing machine, or microfilm plotter. In the latter case, such graphic images were brought to decent size by photographic processing. Fig. 1 shows three examples that appeared in the first three exhibitions of this new kind of artistic generation. Only for the record, there were three such exhibitions in 1965: Georg Nees in Stuttgart (Germany), in February, 1965; A. Michael Noll and Bela Julesz in New York, in April, 1965; and Frieder Nake and Georg Nees in Stuttgart, in November, 1965.
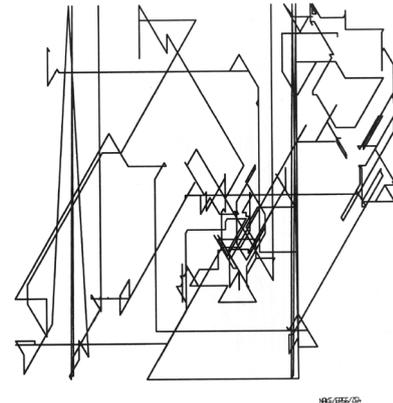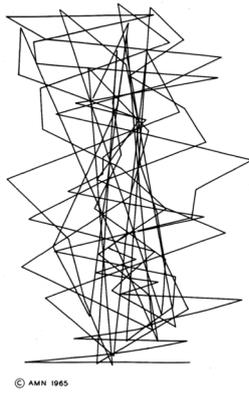
Fig. 1. Three early examples of algorithmic art.
A. Michael Noll, Gaussian Quadratic. 1964 (left); Georg Nees, Random Polygon, horizontal/vertical, 23 vertices. 1965 (center); Frieder Nake, Random Polygon 13/9/65 Nr. 7. 1965 (right).

Even though these three simple drawings may look, in their superficial visual appearances as rather different, they share two common features: they explore polygons, and the vertices of those polygons are determined randomly.

On an abstract geometric level, the simplest form of a polygon is a sequence of points in an area of the plane. Those points become the "vertices" of a single line when the polygon is drawn. To draw the sequence of points that make up a polygon, is an act of interpretation. The sequence of points is visually interpreted by starting to draw a line from the first to the second point, continue drawing from there to the third point, etc., until the last point is reached. If, from there a last line segment is drawn back to the first point, the polygon is called closed; otherwise it is open.

The three examples we see in Fig. 1 display twice a single polygon (left and right), and once a grid of small polygons (center). Michael Noll's algorithm (left) randomly choses the next point by determining its horizontal coordinate according to a Gaussian probability distribution, whereas the vertical position was determined by quadratically increasing the distance and entering again into the image format when the chosen distance took the polygon outside the image size.

Frieder Nake's algorithm is based on a random choice of the next direction, and a distance along that direction. Only a discrete set of directions was permitted: horizontally left or right, diagonally in 60 or 120 degrees, both up and down, or more or less vertically within a small range of directions around the vertical. Lengths were also to be taken from a short distance range, a middle, and a long distance range.

Finally, Georg Nees' algorithm is repeated for each cell of the grid that the viewer may discern. Each individual polygon consists of 23 vertices, alternatingly chosen in horizontal or vertical directions within the grid cell. The first and the last vertex are connected in whichever direction is detertmined by their positions.

Concerning the simplistic aesthetics of these three results from the very first days of algorithmic art, there can hardly be any doubt about the following observations. Even an algorithm so trivial that it shrinks down to the command, "Select a sequence of points in the plane and draw their connecting line, allows for enormous differences in visual appearance by giving various meanings to the innocent word "select". Already here, we encounter in a definitely trivial way the deep principle of all algorithmic art. It is the principle that algorithmic art is interesting and revolutionary because it requires the description of an infinity of cases of a certain kind. The individual cases described appropriately, are similar (or even the same) in terms of structural features, but they differ in all their specifics. Call such a set structurally similar cases ("instances") a class. The realization of one, or a few, or even many instances of a class is then left to the computing machine. The human's task, duty, and contribution is the description of the structure, and the specification of the kind of randomness.

The latter is done by specifying probability distributions for each if the parameters that such an algorithmic work may depend on. So the artist's work becomes the description of structural features of the members of an infinite set of (in the end) visible objects, plus probabilistic rules for the selection, or determination, of one particular instance of the class.

Several far-reaching conclusions can be drawn here. They constitute the fundamental aspects of the algorithmic aesthetics we are talking about.

First, the art in algorithmic art is fundamentally found in the class, not in the individual work. This is of greatest importance for algorithmic aesthetics. It is the revolutionary departure from all other forms and modes of art.

The dialectics, maybe the tragedy, of this predicament is that you can not and will never see (perceive) a class. A class, by being constituted as an infinite set, can never appear. The human can only conceptualize a class. The class can make itself perceivable only in instances, never in total. We may have the whole only in some of its parts. Algorithmic art is implicitly abstract, even if the subject matter of the work contains figurative components. Since we may experience the work only in one or the other of the instances of the class, only such cases can be purchased.

Second, the artist's activity is remote and removed from touching the work. It is drawing and painting with eyes wide shut. You do not see, you think. I like to rephrase this as "Think the image, don't make it." We leave behind modernism as (still) occupied by material object. We enter postmodernism as occupied by semiotic processes.

The theory of the work of art has always had a semiotic component: the work is the material carrier of comlex signs. But in the postmodern algorithmic approach to art, semiotic processes become fundamental and essential. The thing evaporates into signs.

Third and finally, the work now appears as duplication of itself. I have come to call this, many years ago, as the surface-and-subface character of the artistic work. This work consists materially in two modes: as a perceivable surface, and a computable subface. We do not usually have access to the subface. It is hidden, internal to the computer or the software system. The artist's activity, his or her skillful operations generated that subface. In ordinary terms, we may say that the subface is the algorithm, the description of the class, the program-and-data. In the same manner of describing the situation, the surface is the image on screen, in projection, be it still or dynamic, passive or interactive.

Important, however, from the point of view of theory and history of art is the following fact. No work can become a work of art, if it is not perceivable by our senses. But this fundamental aspect of the work, in algorithmic art, is of secondary character only. Perceivability remains necessary. But this necessity is taken for granted and is giving way to computability. Computability in action is "executing the code". The computer processor is doing this. What it is doing is of the character of an interpretation of the code.

Due to space limitations, I do not go deeper into the question of randomness. How to do anything random on a computer when the computer is the machine to compute and, thus, not to do anything randomly. Indeed, the computer's computations deliver nothing that is not computable. But from a behavioristic perspective, a kind of pseudo-randomness can be achieved that, superficially is random even though it can be precisely defind in an algorithmic way.

Conceptual artist, Sol LeWitt, beautifully wrote about "the idea becomes a machine that makes the art". (LeWitt 1967) Two years before he said so, others had already started to exhibit works that corresponded or satified precisely this prediction. Conceptual Art and Computational Art (to use another term, again) share a lot. Algorithmic art is a branch of conceptual art: it is a conceptual art taken seriously, or come true[3].

3. Compare (Nake 2010) for this paragraph.

THE DIGITAL & THE ANALOG

We tend to believe that the digital is something absolutely new, of very recent origin. However, when we think about it for a moment, we realize that counting must be an activity based on

the digital. We say "1", and then "2", and we can go on like this for ever. So counting appears to be a process giving answers to the question: how many are these? We stand in front of a pile or heap or sequence of things of like or dislike qualities, and ask that question: how many?

All we must be capable of when we want to answer that question is, how to distinguish one of the entities from another one. The digital is concerned with the fingers (digitus, Latin for finger). We know they are different. Their difference is evident. We associate them, one after the other, with the entities in the set under consideration. With some care, we establish the association and get an answer to the question: do both sets contain the same number of things? This starts our experiencing the concept of number. It is based on difference and distinction. When every quality of the entity is abstracted away, and when comparison is reduced to distinction, the concept of number starts appearing.

Fig. 2. Digital and analog. Pebbles – digital (left); ancient cave painting – analog (right).

In culture, this must have been an early and basic process. On the walls of caves, not only animals and humans have been discovered, but also groups of short strokes similar to those we still use when we count by creating a record of the entities already counted. Drawing and counting — if you like: art and arithmetic — are two basic cultural techniques. Even though the concept of number as a very abstract sign develops only later, the activity of counting by comparing two sets of different things seems to have been already with caveman (cf. (Ifrah 1985)). The flock of sheep belonging to a cave and a set of pebbles were matched in the morning when the sheep left the cave, and again in the evening when they returned. They thus saw if one had been taken by a predator.

The digital is the discrete, the analog is the continuous. Each letter in the alphabet, as a form, is analog. But as one specific of all the different letters in the alphabet, it is digital. The alphabet is a discrete set of continuous letters. Each of the letters is visible.

Their set, as set, is not visible. If we draw them in the sand, one beside the other, we see the letters, we don't see the set of letters.

The world is not digital. Nothing is in the world that is digital. If it makes any sense, then the world is analog. Digitality is a mental concept. To gain it and to use it, pre-supposes historic development of culture. Only now, with computing machinery, digitality has gained prominence. That's okay and fine, but not very exciting. Exciting is the machinery based on discreteness. Digitizing the things around us is nice again. But more exciting are the algorithms to deal with the digital stuff.

SURFACE & SUBFACE

Take a look at Fig. 3. There you see (not true to scale) four pictures that were generated by different runs of a program. Actually, the three small pictures to the right come from the version of the algorithm *Walk through raster* that I had programmed in 1966, whereas the larger picture is from the 2005 programmed version of the same algorithm.

Fig. 3. Frieder Nake: Walk through Raster. Four realizations with different repertoires, transition probabilities, modes, 2005 (left), 1966 (right).
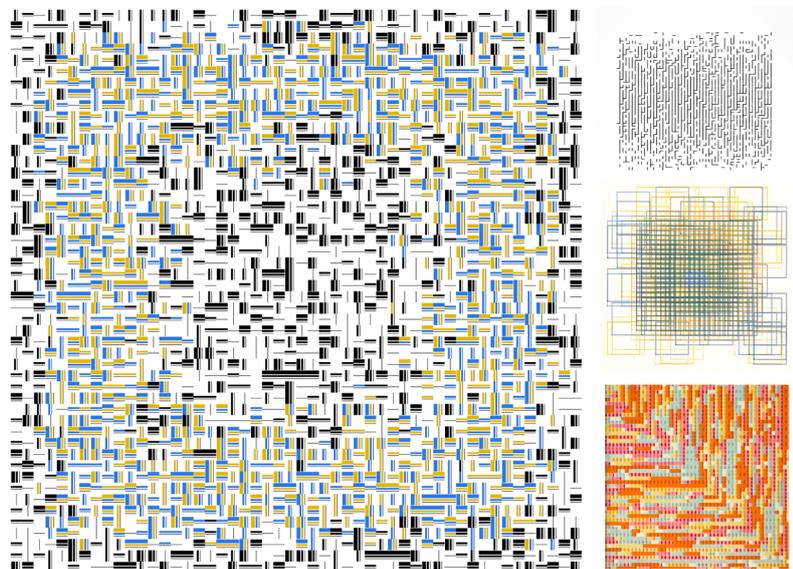
You see a flowchart description of the algorithm *Walk through raster* in Fig. 4. Let me indicate the logic or action of the algorithm. It starts from the assumption that an image plane of a certain size is given, invisibly covered by a homogeneous rectangular grid. Given is also a repertoire (set) of "signs"; they are totally arbitrary[4] but given in computable form, i.e. such that they can be executed. Furthermore, "transition probabilities" are given.

4. In the examples, the signs are very simple geometric shapes. This must not be.

This says that, if one specific sign occupies the location of one of the grid cells, there are specified probabilities for each of the signs to be chosen as the successor sign. In other words, there are conditional probabilites for each of the signs to occur next under the condition that one specific sign has occured before. If we have five signs, we need 5 x 5 = 25 such conditional probabilities. The empty grid cell may be used as a sign. — Our pre-condition is even more powerful: the transition probabilities may depend on the location of the currently last sign, not only on its visual appearance. So the algorithm allows for non-stationary transition probabilities.

Given all these ingredients, the algorithm generates an image by visiting, step by step, each of the grid cells. Its walk through the grid (the "raster") is relative to one of six possible modes. (You may discover the modes in the realizations of Fig. 3.)

Fig. 4. Frieder Nake: flowchart for "Walk through Raster", 1966.
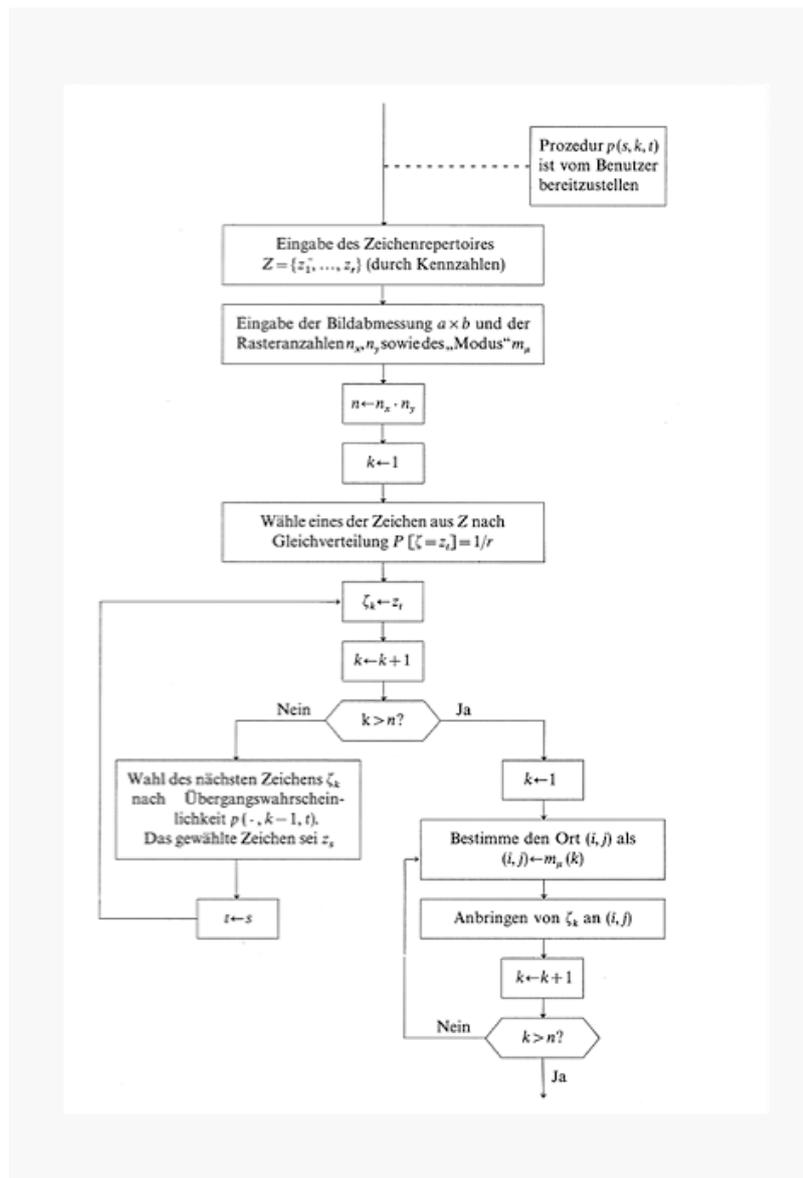
The so-called flowchart description of this algorithm is, first of all, independent of any concrete programming language. It is (and must be) unambiguous, nevertheless. Its form (from (Nake 1974)) makes it independent of any concrete conditions, by being as abstract as possible: it is a permanent record of the algorithm. The difficult question — now often debated, and necessarily debated — of how to document, archive, and preserve this kind of works ("art") is solved here in the simplest and clearest and most flexible way possible.

The 1966 version of the program was written in Algol 60, a marvellous, highly influential, but now forgotten programming language. The later version of the same algorithm was done in Processing. The later version generated an edition of 44 drawings, each one a unique original realized as digital print. The edition was offered in 2005 by Museum Abteiberg in Mönchengladbach (Germany).

My estimate of the production of the 1966 version is between 60 and 80 drawings[5]. They were realized as China ink drawings on paper, some of them repeatedly because people wanted to buy them. I did another version of the algorithm in 1972 for the portfolio "Ars ex Machina" that Gilles Gheerbrant printed in Montreal as screenprints (edition of 250). The portfolio contained six prints by six artists plus seven texts[6].

These facts about the algorithm *Walk through raster* shed a light on "surface-&-subface", my abstract concept of algorithmic art in its earliest and simplest form. You will have concluded already that Fig. 4 stands for the subface, Fig. 3 brings together a few surfaces. To remind you: the surface represents the visible components of the work, the subface stands for the computable component. Both tightly belong together. We cannot (never!) separate the two.

We may think of the digital image as the piece of paper, we hold in our hands, covered by colored lines and areas that were applied in a more or less mechanical way to the paper. We may also think of the digital image as the light appearing on screen and generated by the processor on the graphics processing unit of your computer. But these are only the surface components. They would not exist without their computable counterpart hidden away somewhere in computer storage and running in a machinic attempt to generate another instance of the specific algorithmic image[7].

The unit of surface and subface builds the algorithmic image. Only in the realm of analytic thinking can we separate the surface from the subface. Ontologically they belong together. The al-

5. The algorithm and its program are powerful enough to use them for a full year to generate a wide spectrum of works.

6. The artists: Manuel Barbadillo, Hiroshi Kawano, Ken Knowlton, Manfred Mohr, Frieder Nake, Georg Nees.

7. "The algorithmic image" really is the class of images.

gorithmic image is a double. You may think of it as if it contained its own operational description. In fact, algorithmic images constitute, in their double existence, a new kind of image. It is okay to think, in ordinary practical thinking, of the algorithmic image as an image that is realized and produced by a computer running a program on certain input data. But, more rigorously, this is not correct. The theoretical perspective on algorithmic art tells us that the image is constituted only in this new double form of surface-&-subface[8]. That's what is excitingly new.

Any aesthetics of algorithmic art must start from here, from this peculiar ontology of the subject matter. It is an ontology strongly influenced by the technological aspect of existence of these works. More precisely, the technology here is predominantly a technology of algorithms. We are dealing with art in its algorithmic dimension. Algorithms exist as descriptions and are, therefore, semiotic entities, that is signs.

The images used in this section as examples are in some way old-fashioned: done as ink on paper. From the point of view of media history, they belong to the McLuhan phase of algorithmic art. I call McLuhan phase that phase of a new medium where Marshall McLuhan's proverbial phrase of "The medium is the message" (McLuhan 1964) holds true. Applied to the current case, this means that, a generative art whose medium is revolutionary (algorithms on computers) but whose contents (drawings in ink on paper) is not new at all, is still in the phase where the drawing says, look, I'm done by computer — as if this was so terribly new. A medium in its McLuhan phase is trying out new ways of doing the traditional. Only when the products gain the specifics of the new medium, do they leave the McLuhan phase.

In the present case, this requires leaving behind the static state of works in frames put up on the wall. Algorithmic art possesses in inherent drive towards a dynamic existence. It may be realized in animation or any interactive installation. In cooperation with Matthias Krauß, I have done a dynamic version of *Walk through raster* for the exhibition "Die präzisen Vergnügen" at Kunsthalle Bremen, 2004/05.

Four monitors were linked to one PowerMac on which the algorithm computed sequences of signs as described above. Such a sequence was fed to four graphic processors, each of which was driving one of the monitors. They prepared the sequence in different modes available in the algorithm. The visual appearances thus were completely different on each monitor although the visual material displayed was the same in each of the four monitors.

Fig. 5. Piet Mondrian: Composition II in Red, Blue, and Yellow, 1930.

This installation was running all day, slowly generating images on the monitors without ever repeating. A sense of the infinity of the class of images could thus be approached.

Let us conclude this section by looking at Mondrian's painting of Fig. 5, asking the question "Is this an algorithmic image?" We know, Mondrian has painted it in 1930. So it cannot possibly come from an algorithm run on a computer for computers did not exist by the time. But this remark does not exclude that algorithmic thinking and elements went into its construction.

Studying the repertoire of visual elements, the situation is simple: there are horizontal and vertical black bars of almost same width (not exactly the same, an extra analysis would have to be carried out). This web of bars generates a number of rectangular areas, seven in this case. Some of them remain white, a few may be colored by red, blue, or yellow in primary color saturation.

We know that Mondrian has done a considerable number of these neo-plastic paintings, as he called them. We would take that entire set and apply a large number of statistical and topological analyses to the individual works. The topological analysis would be particularly interesting. You see in Fig. 5 that there is one cross and three T-junctions. Anthony Hill in London and myself have (in 1968/69) investigated these bar-structure topologies quite precisely. I still believe that along such paths a new kind of aesthetic research may be ventured. With generative methods results found this way could be tested. However, what Mondrian was after was some kind of harmony or balance. He was very sure about what that meant to him. I doubt that there is an algo-

rithmic definition close enough to Mondrian's intuition. There are definite limits to algorithmic imagery.

THE MASTERPIECE & ITS END

The French poet and author of theatre plays, Antonin Artaud (1896-1948), in 1938 published a book under the title, Le théatre et son double. An English translation appeared twenty years later, ten years after his early death. Its chapter VI comes under the heading, "No more masterpieces". (Artaud 1958: 74)

The chapter starts by stating that "our respect for what has been written, formulated, or painted, what has been given form, as if all expression were not at last exhausted" is the cause of the "asphyxiating atmosphere" we all (then, after the end of World War II) live in. It is not quite clear whether Artaud refers to culture and society in general, or especially to art and the theatre. However, he explicitly mentions painting, and he is more likely staying within the realm of art. For in the next paragraph, he says: "We must have done with this idea of masterpieces reserved for a self-styled elite and not understood by the general public; ..." And let me end these explicit references to Artaud's radical judgement on this quote: "Masterpieces of the past are good for the past: they are not good for us." (Artaud 1958: 74)

Fig. 6. Leonardo da Vinci: Mona Lisa, ca.1503-1506.

Must I, when writing about painting and raising the question whether there are still, or can still be, masterpieces, first define what makes a painting a masterpiece? And if not define, at least

describe it? The artist makes a work. In the algorithmic field, he or she does not even make the work in the full sense of the word. They think it more than make it when they develop an algorithm as an operative description of the class of works which those works belong to they actually care to have generated automatically. Society in intricate and interwoven processes, full of unpredictability and uncertainty, may turn the work into a work of art.

Of such pieces, in the course of time, some are elevated to the rank of a masterpiece. Avoiding definitions of a set of minimal conditions a masterpiece must satisfy, if we ask a random group of persons for examples of masterly paintings, they will quite likely answer, "Mona Lisa" (Fig. 6). This image stands out beyond all doubt. Everybody seems to know one or more examples of masterpieces, even if they might be hard-pressed to give reasons for their choice.

Perhaps, the three candidates of Fig. 7 would also appear in such a poll, or another similar selection from the rich world of art. Quite likely, the more people we ask, the more hopeful candidates would appear on the list. After some time we would have to stop this. The discussion would now start again of the necessary features for the label of a masterpiece.

My claim in this essay is that the masterpiece is disappearing, independent of the criteria we may require as necessary conditions for that quality label. If I want to uphold such a claim, I must offer characteristics unique to algorithmic art that prevent such works from being lifted up into the category of masterpiece. Such a characteristic property is the algorithmic image's double mode of existence. Its very nature of surface-&-subface destroys all master-likelihood.

Fig. 7. Sandro Botticelli: Birth of Venus, 1494-86 (left); Vincent van Gogh: Starry night, 1889 (center); Edvard Munch: The Scream, 1893 (right).

I have argued that the art in the algorithmic work is to be seen in the class, not in the individual member of the class. The class stands for the abstract whole of all its members. It is, as a class, not perceivable. We cannot take it to a room, observe it, discuss

it, admire it. It would not have an aura. It totally lacks bodily features — in all its distant, abstract, alien, ephemeral nature, in its mental and logical instead of material and graspable existence. This lack of any thingliness, its existence as sign only, is necessary for the class to be a class, and makes it the opposite of what we expect of a work of art.

But is this bad? Must we be sad about this predicament? No, we must not! The algorithmic work, in its own domain, is the source of an endless stream of works. It exists in time much more than in space. It happens, is fluid, comes and goes, and thus corresponds to something other that was important to modernity, but no longer is: truth. With the disappearance of truth, with its replacement by events, the masterpiece also vanishes. It leaves us behind with sad eyes and a secret tear in them.

THE ALGORITHMIC REVOLUTION

We are living, you could suggest, in times of "the end of …" or of "post-…". The end of art. The end of ideology. The end of communism. The end of history. Post-industrialism. Post-histoire. Post-modernism. There are more ends and posts. But in all that ending and giving up, we still feel that one fact, development, or process has been happening and has still not come to its end, one strong tendency is still with us, turning everything upside-down: a revolution under which we suffer and which we enthusiastically embrace.

The US-American sociologist, Daniel Bell, published a book in 1973 in which he suggested that industrial society would come to its end. He had studied statistics about the structure of the labor force and found a dramatic development. Societies are identified by the most prominent feature characterizing its processes and structures. Western bourgeois societies were, therefore, called labor society. For productive labor was the constituting feature influencing all societal processes. It was also called "industrial society", the term Bell starts from. Industrial production is the bourgeois form of re-generating their society as a whole.[9]

Bell's studies convinced him that classical industrial society was bound to come to its end and be superseded by a post-industrial society. Instead of industrial labor producing material goods for the capitalist market, service labor was becoming the largest component in the structure of the labor force. Bell could already find this shift in his analysis.

Bell's findings of the early 1970s have been confirmed and refined in the decades that followed.[10] It is interesting to observe that around the year 1970, computers already play a great role in many matters of management, even though in comparison to

9. You find a clear and pointed analysis of this in the first volume of Capital by Karl Marx.

10. Bell studied Western capitalist societies only.

2015, such influence is still singular, home- or custom-made, and specific. Computer science has just been established as a separate academic discipline for university studies in all Western countries as well as those of the Eastern Block. But no private person possesses a computer, the Internet does not exist for people, communication is still by wired telephone devices. The first great wave of automating manual factory work is in preparation, leading in the 1970s to fierce strike movements in Western European countries. What we think of in the second decade of the 21st century, when we think of "computing", quietly appears in 1984 (first Macintosh) and 1994 (Internet break-through with the first graphic browser).

But Bell's post-industrial society foreshadows postmodern culture, and is implicitly aware of the fantastic and astounding turnover of every facet of the technological infra-structure of society that the semiotic engine (which is the computer) brings about, has brought about, and is still continuing to establish irrevocably, as it seems.

Within a time-span of just about thirty or fifty years, everything we do during an hour, a day, a month, or a year, takes on a new form. Therefore, sociologists, historians, philosophers, psychologists, or journalists suggest new names for the society we live in. A name is a sign, and the sign originates in magic and myth. In uttering the name of an absent entity, we let the entity be present at least to some extent. In the name we ban the unknown danger.

Deep and severe changes of the structure of society are usually prepared in slow developments, along gradual tendencies. But when such tendencies have reached a critical level, the main forces behind the change dare the revolution. Slow change of the technological infrastructure then explodes in disruptive change of the political superstructure.

We have heard people talk of the information revolution, computer revolution, knowledge revolution, the third industrial revolution, the digital revolution, and we have read about corresponding societies: information, knowledge, postmodern, digital, or media society. Each of those terms contains some convincing aspect. I still suggest and prefer to call what is happening the algorithmic revolution. Why?

New in a surprising and convincing way about the developments we have experienced and have become active or passive agents of, are the following main aspects. The revolution is a cultural, a technological one. It is not a political one. Therefore, it is deeper. It is also broader, it is ubiquitous, encompassing the entire world. It is international and global. There is no turning back.

This revolution has lasted for already about forty years, and

it is still continuing. It started quietly. Almost nobody became aware of it before it had changed so much that there was no return. It spread and crawled into the individual psyche and into international surveillance. It usurped all modes of communication, and now is with the young individual by day and night, awake and asleep, at home, in school, at work.

This revolution is about computability. It is not about computers. It is not about mobile gadgets. It is not about digital media, not even about digitality, although the digital principle of coding things and processes plays an enormous role. But it could not play that role without computable functions. The major and always first question when the accelerated attacks are levelled towards another section or realm of culture is: is it computable? How can it be transformed into computable?

The computable has a second name: the algorithmic. Therefore, Peter Weibel and others, including myself, prefer to speak of the algorithmic revolution. This name says what is going on.

And algorithmic art was a very early form the algorithmic revolution took. Isn't that nice.

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