

NAIVETIES DO NOT FASCINATE

Elisabeth Walther asks Wolfgang Kiwus a few questions.

E.W.: You were a musician and radio play author, when did you come up with the idea of programming computer graphics?

W.K.: After a sudden hearing loss in the early 1980s, I had the opportunity to retrain. I was advised to become a publishing clerk because I was publishing books that hardly anyone wanted. However, it was not possible to become a publishing clerk in the Stuttgart area. So I decided to become a data processing clerk. Since I couldn't make it as a clerk, I threw myself into programming. Although I was interested in mathematics, my mathematical knowledge was limited, but I was lucky enough to meet the right people and I had a friend who was very well versed in these things, Wolfgang Kallert, from whom I learned a lot.

E.W.: Do you remember the first computer graphics exhibition by Georg Nees, which Max Bense showed in his institute or study gallery and put up for discussion? Some of the invited painters and art critics left the room in protest because they could not bear the idea that these graphics had anything to do with art, although Max Bense wanted to calm the artists by calling these works "artificial art". The next exhibition of computer graphics took place in 1965 in Wendelin Niedlich's bookshop, in which Frieder Nake was also involved alongside Georg Nees. Didn't you already feel interested in making computer graphics back then?

W.K.: I saw both the exhibition in the study gallery and the one at Wendelin Niedlich's. For a young man interested in art, literature and philosophy in the 1960s, it was almost impossible not to know Max Bense. Although I was not a student, I attended his lectures and the study gallery was also a popular meeting place for us. I was friends with Frieder Nake. After the exhibition at Niedlich, he gave me three works, which I punched and filed in a Leitz file, being progressive as we were at the time.

In professional circles, it is undisputed that these two exhibitions and the almost simultaneous exhibition by Michael Noll in New York mark the beginning of computer art. I experienced this, as Frieder Nake says, revolutionary act first hand and found it very exciting, but I was unable to take part in it myself because it was far too difficult. Moreover, it was impossible to get hold of the computers of the time. It was far too complicated and extremely expensive. That is why the beginning of computer art was made by scientists and not by artists. A second "beginning" came with the PC. Its introduction around 1980 made it possible for individuals like me to afford a computer and work with it.

E.W.: To be able to program, you not only need mathematical knowledge, you also had to have an idea of the complicated electronics of a PC.

W.K.: Electronics were not completely foreign to me, as their artistic use first occurred in music, sporadically as early as 1920, then increasingly after 1945. In the 1960s I worked intensively on the control of acoustic processes. We experimented and built our own electronic instruments. Of course, electronics were also used extensively in my radio plays. But electronics were not my thing. In the mid-1980s I planned a thick book of about 2000 pages in A3 format, which was to be called "Without Victims and Perpetrators or On the Necessity of Misery". I had enough material, but the concept was made more difficult by the fact that I wanted to do everything myself, not just the text, but also the layout, the pictures and the fonts. The ideal tool for this was the Computers. But the programs were missing. So I started writing them myself. I drew up a plan that consisted of about ten points that I wanted to work through one after the other. But I got stuck on the first point, the area, because it opened up a very wide field.

E.W.: So you went from the sequence of tones (a process) to the surface (a state) that you dealt with intensively. Did you only work theoretically or did you also do practical experiments?

W.K.: Although functions and procedures for drawing lines, polygons and circles etc. already existed, I didn't use them, but programmed them myself, starting from a single point. This not only taught me about geometric relationships and the programming techniques needed to implement them on a computer, but also that programming languages are primarily used to control or trigger

processes. In this respect, it wasn't such a long way from the sequence of notes to the sequence of images. While programming is common practice in music - composing is nothing other than programming, a composition is a program - it seems to be a novelty in the visual arts, and so foreign that one doesn't think one needs to concern oneself with it.

From the beginning, I was fascinated by the visualization of processes, which of course had to be "captured" if one wanted to look at them. This resulted in a series of sketches, drafts and pictures that Diethelm Stoller saw at the end of the 1980s and strongly advised me to exhibit them.

E.W.: I read in the announcement that you are exhibiting screen works, dot matrix printer images and plotter drawings. How do these works differ, apart from the fact that they are different output media?

W.K.: I started working for the screen because, by a lucky coincidence, I got a CGA screen that could display four colors at once. That was sensational. Wolfgang Kallert and I sat in front of that screen for nights on end and were amazed, as the radio play author Hans-Peter Breuer would say, by the blocks. Back then, in the mid-1980s, we discovered cellular automata, the Mandelbrot and Julia sets, fractal geometry and Conway's "Life", the game of life, and brought them to the screen with our own programs. Cellular automata, for example, are used to generate genetic algorithms, for simulations of population structures and for structured packet switching in networks. Cellular automata can be used to create mini-worlds, even perfectly functioning computers can be made to work and a sea of patterns can be created. And the more differentiated the criteria, the more interesting and exciting the simulations and patterns are.

E.W.: Did you do this just for yourselves or did you also show the results?

W.K.: Apart from us, almost no one in our area was interested in it. Some even got irritated when we showed them our "discoveries". A few years later, it was very topical, because there are always scientifically disguised fashions, such as the fuss about fractals. Chaos theory was also on everyone's lips at one point. And one discourse followed the other. People thought they had found the trick that God pulled out of his sleeve when he created the world. That's how simple the flea market intelligence sometimes imagines the universe - Pythagorean-style, commercially rounded. Today, almost no one talks about it anymore. Basic research or not, people are fed up with it anyway. And if things get really bad, they get a green card.

E.W.: I assume that you developed the screen works from these experiments.

W.K.: From the mid to late 1980s I programmed many image-generating machines, later I concentrated on paper works. I recently switched from "Turbo Pascal" to "Delphi" because these programming languages are related to each other and because "Delphi" allows access to Windows resources. In order not to complicate the transition, the learning of the new language, with new, unsolved tasks, I decided to restore some of these machines and adapt them to the new hardware and software. Each of these machines has a specific character, is dedicated to a painter (Vasarely, Morellet, Wilding) or an art movement (Concrete, Informel), varies geometric elements (polygon) or functions (wave plasma), is static or dynamic or both. You can play with them, change the parameters with sliders or by clicking a button, etc. The focus is on playfulness.

E.W.: And how did the printer images come about?

W.K.: In 1986 I was able to afford a 9-pin printer and in 1988 a 24-pin printer. Although these were black and white printers, I was able to print in multiple colors by changing the ribbons. Everything that had to do with computers that you could see at that time was very clean, dust-free and immaculate, as if it had just come out of a laboratory, and completely lifeless. That's why I dealt with "contamination" in a series of pictures, i.e. with the disruption or destruction of order. I sometimes referred to this as the creation of "biotopes". This did not result in disorder, but in other, new orders, which are not always immediately recognizable. In concrete terms, it is not only the rectangle, the triangle or the circle that can be formally grasped, traced back to rules. Science has come a lot further in this respect than art. My first typefaces were also created with printers. The needle printer works have a certain rarity value, they are rarities because these printers or ink ribbons no longer exist, which means that you will no longer be able to make these types of pictures. Since 1992 I have only drawn with pen plotters and have concentrated on typefaces. At

some point you get to the point where you say to yourself, I have to say, I want this now know more precisely.

E.W.: I have to go back again; I would like to know how you planned your graphics. You told me that you were inspired by a text by Max Bense, "The Spiritual Man and Technology" from 1946, to develop your graphics from the writing, because the content of Bense's essay fascinated you.

W. K.: The decision to write this essay came around 1989. Before that, I experimented and developed a repertoire. Most people have no idea about numbers and quantities and are amazed when you tell them that, for example, you can create over 6.2 billion combinations with 13 elements. In order not to lose yourself in the countless possibilities, to drown in the "sea of numbers", you have to explore the "terrain", orient yourself and, above all, learn to navigate if you want to get safely to the other shore like Cybertetus in Virgil's Aeneid. This involved a lot of work, especially since there were hardly any role models. After the "stormy" start of computer art, things calmed down in the early 1970s. And apart from Manfred Mohr's work, it was never represented on the art market anyway. While musicians have composition techniques that have been developed and tried and tested for centuries, a theory of harmony and form, and the rules of counterpoint, I had to work out almost everything myself. My knowledge of musical techniques was very helpful in this. I only started using texts after I started to take an interest in fonts and character strings.

E.W.: After you decided on this text for content-related reasons, were there also formal consequences?

W.K.: It could have been a different text; the drawings would not have been identical, but they would have been very similar. The drawings developed from this essay were intended to be a stimulus. I hope that this essay will be read and discussed, even though I have encrypted it graphically and thus made it unreadable.

I still consider this essay to be highly topical because Max Bense writes in it about that hard, cold dream made of matter, which consists of apparatus, machines and instruments that do not have technology like the dragonfly, but are technology. For Max Bense, technology is a totality and he says that its irresistible progress cannot be stopped by, for example, unlearning physics. Only through precision and perfection can one influence and control technical progress, because the more advanced the technology, the more sensitive, vulnerable and dangerous it is. Above all, however, Max Bense writes in this essay about the existential needs of the spiritual human being, the difference that exists between the Platonic spirit of freedom, of creativity and the perfect world of Laplace's demon, which seeks to control and conclude it rationally in the sense of predicting events, which replaces the quiet natural development with a lonely, dry fantasy of progress. Max Bense has often dealt with technical intelligence, but I don't need to tell you, his colleague, partner and editor of his writings, that, because you know it much better than I do.

E.W.: I understand very well that these words of Max Bense still fascinate you. The "freedom of creativity" and the "bare imagination of progress" do not have to be mutually exclusive, as you prove with your work. You are of course free to choose your means and methods, but the method you choose determines the progress of the work. So you need both for your computer graphics. In any case, it seems to me that you need technical and mathematical intelligence on the one hand and artistic creativity on the other to create such works.

W.K.: It was never any different in music. It was the same with artists like Leonardo, Dürer, Kandinsky and Max Bill. You need both. The "precise pleasures" include "rationalism and sensitivity".

E.W.: Do you have to be able to program if you want to do computer graphics?

W.K.: There is some controversy over what constitutes computer graphics or computer art. During a discussion at "Interface II" in Hamburg in 1991, some computer scientists were of the opinion that it is completely unnecessary for an artist to program himself, because the corresponding software, so-called painting programs, exists, with which one can create images. I disagreed with this view and still do so today, even though these programs have developed into very powerful tools. Without question, you can use them to create images and, above all, change images,

manipulate them. This is why these applications are often referred to as electronic image processing or image editing programs. And wherever images are reproduced, they are used. Today, every image that is to be printed is digitized. This means that the data is out in the open. This means that if you know the format in which the image was saved, you can modulate or transform the digital data as you please, run it through some function to turn it into a sphere or a funnel. Today, you can manipulate images endlessly until nothing is left of them, or you can falsify them in order to, if you are malicious enough, pin something on someone. The strengths of these image editing programs are above all the diverse retouching options and the fact that you can cut up digitized images into sections and place them pretty quickly anywhere you want. With these point-oriented applications, you can edit photos very well and create collages, but creating images with the mouse or a electronic pen, is only possible to a very limited extent, and is even rather a hindrance. But why should you do that when you can scan a sheet of paper easily and quite quickly?

The fact that you can make art with these applications doesn't need to be discussed, but I wouldn't call it computer art. I wouldn't say that if I wrote a text with a word processing program, it's computer literature. What's new about computer art is not drawing or painting, but the way in which it happens, that images can be created using linguistic means, out of "nothing", as concretizations of certain ideas. You can't create my drawings with the painting programs. That wouldn't be possible by hand either, with a few exceptions. In that respect, the computer scientists were wrong back then.

E.W.: If I understand you correctly, you differentiate between art with computers in general and computer art, as you make it, in particular. Your own intellectual prerequisites, the program written specifically for it, are apparently the criteria.

W.K.: The point is that what I do cannot be achieved with standard programs. When you program yourself, you are not only dependent on standards.

In addition to point-oriented applications, there are also vector-oriented applications, so-called CAD programs (Computer Aided Design), with which you can create construction plans and design buildings. Vector-oriented means that coordinates of lines, polygons, etc. are saved rather than a bitmap, which can save a lot of space. A CAD program provides certain prefabricated parts, for example rectangles, circles and circle segments, ellipses, rhombuses and cubes. You can put together houses or entire parts of town from these elements, which you can put together in groups and rotate as you like, like with a modular system. It is not possible to create my drawings with the CAD programs either. Nevertheless, there are certain similarities because my programs are also vector-oriented. There are no copies of my drawings on the computer that could be transferred point by point to the screen or paper, nor do I have to put them together using an input device, as is the case with CAD programs, because my drawings are basically created by a process that produces arrangements, rows, successions or certain distribution patterns and structures. There are only instructions, repetition loops and branches, plus a number of parameters, functions and procedures with which transformations, interpolations, approximations, projections and variations of all kinds are created. My drawings only exist as abstract constructs in the computer; they only exist as an image when I draw them with the plotter.

I have written many programs. Each of these programs can produce a variety of drawings, depending on how you set the parameters.

E.W.: If you assign the same values to the parameters, would the image be identical?

W.K.: Yes, if it is a black and white picture. The same picture would always be created with the same values. Not with coloured pictures because I often mix the colours myself and because sometimes, when I want to create a colour gradient, for example, I only fill the coloured pencils halfway or even less. You can't always reproduce that exactly.

E.W.: Does that mean that you could make as many copies of your black and white drawings as you like? Like there is usually a limited edition of a lithograph?

W.K.: Yes, if you take a lot of time, because drawing with a plotter takes a long time if you want to have an even line. For a medium-density drawing in A1 format, you need about twenty hours. There are drawings that I had to plot for over fifty hours. In that respect, it would be better to have

a copy made. However, the copy would no longer be identical to the original, because I let the plotter draw with real ink and with needles, pens and nibs, which gives the colors a certain "freshness" and "plasticity" that would be lost if copied.

It has nothing to do with lithography because lithography is a printing process, whereas I would have to redraw each copy if I were interested in a print run. But I'm not interested in that because it's far too time-consuming.

E.W.: Is it just the effort involved that makes you not make several copies of a drawing?

W.K.: Yes, because in principle I wouldn't mind. I did that with a drawing too. The fact that you can create as many originals as you like is often an obstacle to buying a computer graphic. People think that you just need to press a button and the computer will spit out the finished image in an instant. I don't know why people only find that annoying with computer graphics. If, for example, Jan-Peter Tripp or Lambert-Maria Wintersberger really wanted to paint the same picture, they would manage it easily. Franz von Stuck, a painter in the 19th century, is said to have sold the same picture five times. Art is also a matter of trust.

E.W.: Maybe that's because you don't understand how computers work or you wonder what role the computer plays in your drawings?

W.K.: It is not entirely correct to say that the computer does or can do this or that, because it does almost nothing on its own, it can and only does something if it is forced to do so by a program. And large applications, such as a word processing program, are the product of many fathers, and there is not just one clever mind behind them, but a whole series of clever minds. This is often ignored, and people act as if the machine itself had thought up all these wonderful things. In my opinion, computers are not thinking machines, at best you can use programs to simulate something that has certain similarities to human thinking, that is, to do something that was previously only reserved for humans. As early as 1956, Max Bense, in "Descartes and the Consequences", rejected the idea of equating a machine that imitates certain abilities of the brain and can make rational judgments and calculations with the human mind, because it is fundamentally incapable of attributing the mechanics of these processes to decisions and doubts, i.e. to self-awareness, whereas the human mind has a subtle awareness of itself and can make use of its own freedom.

Interestingly, despite disagreements across the country, it is impossible to create anything random with a computer, because the randomness generated by programs can be reproduced at any time, like everything that can be done with programs.

E.W.: You said earlier that you encrypt texts. Encryption is an important topic in information and communication theory. It distinguishes between sender, receiver and repertoire or common set of symbols. If the receiver is to understand information, his repertoire must at least partially match that of the sender. Every understanding of information, a text, an image, a piece of music, or even a machine, a person, any object, an action, etc. sets an interpretation in motion in the person who wants to understand something. However, you only understand what you are already somewhat familiar with. However, encryption or coding makes information apocryptic. It must be decrypted using a code in order to be understood. So do your images need the code that you used to create them?

W.K.: Every computer program is a code, a conversion of information into a sequence of commands and instructions, which are then converted into character strings that can be read by machines using special translation programs. In this context, we also speak of encryption. The encryption of texts, which I mentioned, is something else entirely. Since I wanted to make the essay "The intellectual man and technology" known, this series includes drawings with more or less recognizable sentences, words or groups of letters. But there are also drawings that conceal "their" text, i.e. act as if they did not know it. When I speak of encryption, I mean a cryptographic procedure that is intended to prevent decoding. The texts encrypted in this way should not be able to be decrypted by anyone, whether they are authorized or not.

E.W.: Could you explain why the authorized person should not read the "message"?

W.K.: Peter O. Chotjewitz provided an anecdotal answer, claiming that in my Apocrypha I report on the idea of "selling a bank director a picture that matches his wallpaper, but contains a biblical curse or the Communist Manifesto." I justify it myself by asking what does it mean and what does it mean, what is intimate or confidential?

Any computer can be searched when you are online and copied to any other computer down to the last byte. And there is no approved cryptographic procedure that is secure. The only difference is the effort required for decoding. Every state has an influence on the encryption technology, it is required that the key be deposited or there are restrictions on how many bits it can consist of and how strong it can be. The military and the secret services are of course also interested in this, as they are known to not shy away from illegally obtaining information. Telephones are even easier to tap and the secrecy of correspondence is no longer what it used to be. You can crack any code, just not mine.

E.W.: But you could?

W.K.: Why should I do that? I know the plain text. Art is made of defenseless facts.

E.W.: You said before that you could have used any text as a starting point for your drawings. What emerged, however, does not convey semantic, content-related information, but rather aesthetic information. This is characterized by the fact that the design, rather than the content, is important. This is no different with a traditional picture. The landscape picture is not a documentation (or only in rare cases), even if one initially perceives the landscape that is "on it", but as a picture has its own aesthetic value as an art object.

I assume that you see the aesthetic design of the source material as your main task. You spoke earlier about music, its rules of composition, etc. You certainly used certain rules of composition. The "programming of beauty" that Max Bense spoke of in relation to computer art is, in my opinion, also your goal.

W.K.: Even misery must be brilliantly portrayed in art. Naivety is not fascinating and good intentions alone do not get you very far. I got my theoretical tools from the writings of Max Bense. His aesthetics have certain similarities, several points of contact, with modern programming languages, such as "Object Pascal", which I use to program. Max Bense also starts from objects and he occasionally called his aesthetics "object aesthetics" to "indicate that it examines the aesthetic reality of certain given objects exclusively from the perspective of object-tivizing perspective", in contrast to the "saturation" or "pleasure aesthetics", where taste is more important - or what one likes.

With modern programming languages, you declare objects or instances that are derived from classes or form classes themselves. These polymorphic, multiform objects have certain properties and certain abstract, virtual or dynamic methods that can be inherited, etc. etc. When programming, you have to know what you want to do. You have to know the subject, the object, exactly if you want to represent it. It's no use whether I think something is good or bad if I don't know its properties. This is a completely different approach to the methods that have been very popular in the visual arts for some time now, of throwing any object you find into a gallery and turning it into a huge coincidence. Compositionally, it's about rows, structures and complexities, whether the drawing should appear dense or loose, soft or rather torn. This also depends on the material, whether the pencil or pen is sharp or blunt, narrow or wide, has the same up and down strokes, etc.

E.W.: People sometimes ask what a picture - whether traditionally painted or created with a computer - represents if it is not about the content. Even when interpreting abstract or concrete art, surrealist, expressionist, impressionist, dadaist, etc. art, people talked more about methods than about content. Above all, we must not forget that a picture is a sign, or more precisely, that it is a sign object that has its own reality. Johann August Eberhard introduced the concept of "sign beauty" as early as 1806, which Max Bense expanded and supplemented in his publications. In his last publications on semiotic aesthetics, he devoted himself primarily to the "intrinsic reality of signs," which he identified with the "aesthetic reality" of works of art. We will not go into his theoretical justification here.

W.K.: You can only have said that to yourself, because I would not be able to do that. Although semiotics is a very important science for me, I do not refer to it explicitly, like Manfred Mohr, who

was the only one to succeed in breaking through the blockade of the art market. I am not an art theorist and I do not have any recipes for the production of art. Please allow me to answer with a quote from „Aesthetica“:

"It is a common mistake to assume that theory must become fruitful in the work of art. It is not the work of art that is applied aesthetics, but rather the critique of the work of art. Aesthetics is not indispensable for the first phase of the work of art, its creation, but for the second phase, the existence of the work of art in the spirit, its understanding, its meaning. Criticism is the medium of theory, insofar as there is no legitimate criticism of art without an aesthetics that must be presupposed. On the other hand, every theory is already implicit criticism."

And, as I wrote in an essay about the poet Helmut Mader, who died young, there are also those spirits that can neither be cultivated nor disciplined. I don't mind if some things remain in the dark.

E.W.: How would you interpret your own work?

W.K.: I try to avoid that. According to Lambert-Maria Wintersberger, even a good picture contradicts its interpretation. But it is unmistakable that my work has a scriptural character. Diethelm Stoller believes that the drawings developed from letters, sentences and texts "result in dense graphic fabrics that are superimposed in layers; or new texts, illegible but with the calligraphic qualities of medieval writing, picture stories written with a fine pen; or line drawings that dissolve loosely but still retain the line structure, as if lightly thrown down with a reed pen." And Kurt Weidemann says that you "don't have to follow them from left to right and from top to bottom and get to them, rather they should offer the wandering eye bounce and variety."

E.W.: Each of your computer graphics refers to you as its creator, regardless of what else it might represent. Likewise, one speaks of a "Picasso" or a "Cézanne" and not of painted bulls or gardens, which have been painted hundreds of times by many painters. They are identified as a picture by this or that painter. Even with a piece of music, the musician or someone interested in music first recognizes the author, a "Bach" or a "Mozart," for example. So your graphics will always refer to you, regardless of which elements and algorithms the programs are based on. Of course, this says nothing about their aesthetic quality, which could still be discussed. The intellectual effort that goes into them is nothing other than what George D. Birkhoff emphasized when he set up his "aesthetic measure": order over complexity, that certain relationships must exist between the number of different elements, that is, their complexity, and the rules of their order or arrangement. A similar idea, applied semiotically, can also be found in Charles S. Peirce. But, as Max Bense emphasized, this does not concern the artist, but the aesthetician. We can leave this point alone here, even if we should bear in mind that the artist is always the first critic of his work.

W.K.: For Max Bense, mathematics and poetry are not mutually exclusive, but complementary aspects or ways of seeing the world. And instead of the "principle of hope" he put the "principle of research". He was also a fearsome and captivating polemicist, among other things he polemicized against the mystifying tendencies in art. It is amazing what the ideas of Marcel Duchamp, for example, have to serve. I also like to polemicize, which I really should not. But I can't do anything with art that is only talked about. Where there is nothing to see, art has no place. I feel the same way about large parts of conceptual art, especially when language and a few quotations are used. Often very clumsily at that. In this area, the visual arts are miles behind literature. And according to a study by the University of Lüneburg, the "modern artist" is supposed to spend over 90% of his time doing marketing, because you don't necessarily have to do anything yourself or be able to do it. There are enough manufactured goods, ready-made parts and props. I was also never interested in the eclectic postmodernism, which came across as pretentious. That everything is art and everyone is an artist is just a theory for the lazy or work-shy. I don't know any important artist who hasn't worked a lot. For me, an artist isn't necessarily the fat eye in the soup that floats on top. Some of them are more like "stuck-on" people. If they don't want to stick to the surface, but also scratch a little under the skin, they have no choice but to stick to their themes and tasks. The frequent changing of shirts benefits boutiques and the textile industry, and frequent changes of beliefs are called prostitution. Only in the Middle Ages did roast pigeons fly straight into the mouth - in pictures. For dessert there was the plague.

E.W.: So that it doesn't end too darkly, do you have any final words?

W.K.: Yes, one more quote. Even if the aesthetic justification of existence is not always a spiritual pleasure, according to Max Bense it is the only possible one, since "art always works to introduce, through its creations, a stage of not only sensual but also spiritual fascination; it begins the aesthetic process as a repetition of being under the sign of being, but it ends it as a justification of being through its reproduction in the spirit."