Frieder Nake

Postscript

Loosely Connected Only to What it's Coming After

First

As humans, we are always already interpreting: we are the interpreting animal. *Semiotic animals* we are, as the mathematician Felix Hausdorff would say.[1] In this note at the end of an exciting volume full of thrilling articles, I invite the reader to lean back for a short moment of reflection.

The *sign* is the stuff of semiotics. It is *not* a thing. Nobody has ever seen a sign out there in the world. We do not encounter signs; we make them. Anything we may encounter in world, we may make to be a sign. That is happening then and there and, first of all, to us. Our making of a sign out of a thing is by acts of interpretation.

But even worse! Not the sign itself is of utmost importance for the human being. Processes really are what we must pay attention to, *processes of signs*—the dynamics, not the statics—are what make us humans. *Semiosis* is the term Charles Sanders Peirce prefers to use, and the sign itself is nothing but the analytical construct he needed to write about the sign's transformations, one into another. Everything is flow and fluid, nothing ever stable. And the interpretation of the sign creates as its result another sign again. The concept of the Peircean sign is in itself *recursive*, and that is the most fantastic of its features! Peirce did not rest in thinking and writing about the sign because in it he tried to capture all of our understanding anything. More than seventy versions of his describing the sign exist[2] (cf. Peirce 1998).

Today, we live with machines that we may call *semiotic engines*, based on recursive functions. Isn't this a marvelous cultural development and event? I believe it is. Therefore, I take the opportunity of this epilogue to remind a friendly reader of such circumstances even though she (and also he) is heavily occupied with her (and his) very specific detailed article on something I don't have the faintest clue of.

Semiotic animals are meeting semiotic engines and thus the animals come to believe their engines were somehow similar to themselves. Communication of humans with machines (ridiculous to think of in a strong sense of the word) here finds its reason and appeal. If they are to be characterized by semioses just like us, they must be similar to us in such a way that we communicate with

them. However, it *appears* to us, and that is all, *as if* there was communication of the kind we call communication. There is *exchange*, indeed, of signs from us to software and back to us. And wonderful it is to see how smoothly and with little friction we do exchange and do it quite successfully much of the time. This is because the sign on our side quickly takes on the form of nothing but a signal when it gets ready for treatment by some software. The wonder is that permanent reduction of signs into signals and back into signs and then in signals and so on is going on so smoothly and so effortlessly. It is wonderful and so full of wonder that a believer must say: look, this is intelligence. But no machine will ever become human unless the human likes to be machinic. *As-if* characterizes the semiotic engine. The great machine of permanent as-if, that's the computer. And whenever we say "computer" we must better say "computer-and-software." For it is always only software that is responsible for what we witness as fantastic, unbelievable, and absolutely just the way we could not do better, in fact, we cannot do at all.

All semioses are *as-ifs*. Each sign is nothing but a something behaving as if it were another. The virtual is heavily upon us. But has it not been with us long before? Each drama far away in ancient Athens or Epidavros, each poem hanging in the air that makes us sad and full of love foregone, each novel, even in realistic times, dealt with acts of revolution and upheaval. Black matter in the form of letters, spread out on paper with seductive smell, my eyes perceiving this and wandering about, my tears start running in despair and sympathy for what is happening. Nothing is happening, dear friend, nothing is happening at all. The virtual mode of what we call reality, that's all, and it has all been with us for centuries. My tears are actual but in response to something virtual.

Such is human existence. It is always already against horizons of our death which we are consciously aware of, permanently. And no machine will ever be unless… The only difference is that now the virtual has become machinic. Great deal.

Second

Hypertext and multimedia became *hypermedia*. And all of this was local, nothing global. And the internet did not play its role yet that now appears as if it drove us crazy. At conferences and workshops, young philosophers and sociologists sang the song of a future without the printed book. And the book, in their mind, was horrible because it forced its readers to start and end where the author wanted them to start and end. They elegantly ignored the fact that no reader had ever obeyed this dream of the author, and our friends young thinkers published at least two books per year as stepping stones for their careers.

272

But this is long ago and of no interest now to anybody. What may, however, be interesting is the *link*. Without the link none of those enormous structures could exist that we now take for granted. The link constitutes the information system as the ubiquitous medium the same way that the *cut* constituted the film. Seemingly moving pictures became the medium film when the cut was invented that cannot be filmed but must be introduced into a moving image after filming. It is a not-film element that is needed to take film out of its McLuhan phase[3] into the essential phase.

The link is called *pointer* in programming languages. There, a variable must be of pointer type if its values are to be addresses of some location in the computer's storage space. On the lowest level of programming, those addresses are readily available. On higher levels of programming, the machine must be protected against humans (in their roles of programmer or user). The link is the protective means. A fantastic invention connecting abstract algorithmic descriptions with locations in storage whose contents algorithms may manipulate.

As media consumers we usually do not pay much attention to the cuts in film and their choreography. As media consumers we are also only occasionally becoming aware of the links that make themselves known as light on screen that can be clicked. It can be clicked, as we have come to say, because it looks like that. We know it fairly well. But we do not often know what such an utterance is standing for. What it is standing for is hidden far away from us in the mythology of the postmodern. There it has become so easy to intelligently speculate about intelligence of machines whose functioning we do not have a clue of, and we don't need a clue, for it is smoothly functioning, is it not?

Everybody, of course, knows that the footnote mechanism is the archaic form of the link. What has happened to the footnote in all its childish innocence is the machinisation[4] of the footnote mechanism. The reader of a book had to perform the mental act of interpreting a small number, lifted up a bit, next to the end of some word on a page of text as an invitation to him to look out for a text component down by the page bottom or, perhaps, on the next page, or even, quite inconvenient for the human, but easy for the computer program, at the end of the main text. An action of the mind was needed to cleverly design and interpret footnotes. Maybe, this action of the mind was the reason why engineers did not like footnotes. Now they have become links and thus machinic.

Third

Nothing exists in computable form that we, the humans, would not before have done in a kind of routine fashion. And at this point, I cannot help it, an anecdote pops up into my mind that I must interrupt and tell you, my dear reader, as your reward for having stayed with me up to here. The anecdote is a true encounter, and it is probably the best I ever had in my life.

It is the 5th of February, 1965. We are assembling in the seminar rooms of the Institute of Philosophy and Theory of Knowledge at University of Stuttgart, West-Germany. Max Bense's institute whose rooms he uses for seminars like the *Ästhetisches Kolloquium,* but also for exhibitions of art. Experimental art that is, concrete art and concrete poetry. As an intellectual in Stuttgart in the 1960s you go there whenever an occasion comes up. You are there with others of your kind. The *Weltgeist* of rationality is with us. We feel it and we know it.

The invitation for the opening of the show this late afternoon had announced "Computergrafik." The artist is Georg Nees. In 1965, nobody has a clue what that could be. Something with computers, okay. But nobody knows what a computer is. In 1965, there is no such thing as a scientific discipline of *Informatik* on the European continent.

A small number of not very large drawings on the walls, geometric, in parts rather complex. Interesting structures. Some indications of tension between micro- and macro-aesthetics. Bense speaks. A new brochure is for sale, Bense and Nees': *Computergrafik.* A short essay by Bense, *Projekte generativer Ästhetik.* A manifesto of computer art. After Bense, Nees explains how he makes a program do line-drawings. Polite applause.

A group of artists and designers is present from the local school of art. One of them addresses Georg Nees: "Quite interesting, young man, what you say about drawing using a computer. But tell me, can you make your machine draw as I do it"? Nees thinks for a moment. Then: "Oh yes, of course I can—if you tell me how you do it." The artists are shocked and leave in disgust. They are shocked by the answer's frivolity. They don't understand how ingenious the answer is. How could they?

Nees' answer was ingenious because, in a nutshell, he gave the answer to all questions concerning computing and the rest of the world, Artificial Intelligence in particular. Only that, we learn. And really, at most, that can become a program which we can make explicit, that we can describe precisely, and even more: for which we can develop an algorithm, i.e. a computable function. In all likelihood, we must adjust, reduce, and approximate the task from its familiar human form when we intend to model it for computer, i.e. algorithmic treat-

ment. First step is always to make it explicit. A painter does not know how she paints. She does it.

These are the three reductions from intuitively doing something to having a program do something different but close to the first or, at least, similar: reduce the activity to a description (the semiotic reduction); reduce the semiotic activity to its syntactics, i.e. get rid of all context; reduce the syntactic activity to a computable one (the algorithmic reduction).

Fourth

Digital media appear for the first time in the spring of 1963. To say this is, of course, wrong. Nevertheless, I do so because I want to point out an activity that must, in hindsight, be interpreted, as "Oh, look, that's digital media." What happened in early 1963?

At the Spring Joint Computer Conference 1963 in Detroit, a young man of age twenty-five presented his Ph.D. thesis, submitted to MIT earlier that year. The young man was Ivan E. Sutherland and the title of his talk and thesis was: "Sketchpad. A man-machine graphical communication system." The thesis begins: "Heretofore, most interaction between man and computer has been slowed down by the need to reduce all communications to written statements that can be typed; in the past, we have been writing letters to rather than conferring with our computers" (17). Sutherland's work consists of a number of great algorithms and of enormously expanding data structures. For the state of technology, those structures were too large to be of great practical influence. But the conceptual inventions were so fantastic, that even twenty years later not all of them had become everyday knowledge.

From our perspective, it is obvious that Sutherland sees a graphic work on a computer monitor as a piece of machine manipulation and its display for human perception. He uses the *surface and subface* existence of computer things, as I call it. Things on a computer must appear perceivably (e.g., visible) for the human; they must also exist hidden but capable to be manipulated by the machine. Their ontological status is of double existence. Surface and subface that cannot be separated. This is what has come anew into the world, and the aesthetics of those new things happen between their two forms of existence: we prepare subfaces that the machine is using for its computations so that an audience can perceive what is happening as they watch.

All algorithmic art is about algorithmic signs, and algorithmic signs are *surface and subface*. This is simple but essential for all of computing, i.e. also for any literature and language research and art. To write a program for generating a single piece is crazy. Programs should always stand for infinite sets. They want

to run forever in order to demonstrate to us all their potentials. The existence of surfaces should thus be of a dynamic kind, whatever this would turn out to be in an actual case. Early algorithmic art came in pieces to be put up on a wall, and people could buy them. That was McLuhanesk: "Look, I am not more than you could expect; however, I am made by a computer!"

But now we are more than fifty years later. Keep this in mind.

Notes

1 He said so, using his pseudonym of Paul Mongré (Mongré 7). He was afraid his fellow mathematicians would no longer take him seriously if he wrote about a semiotic animal and other such things. He did so after reading Nietzsche.

2 A remark seems in place here to justify why I use Charles S. Peirce as my source, and not Ferdinand de Saussure. Very briefly, Saussurean semiotics is based on a dyadic concept of the sign, Peircean semiotics is based on a triadic one. Saussure studies language signs, Peirce more generally every kind of sign. In the triad of the sign, conventional and situational (or cultural and individual) interpretations can be distinguished. Finally, the recursive character of Peircean signs makes them the stuff of postmodern thinking.

3 The "McLuhan phase" I call when a medium is still its own and main message.

4 The word machinisation is used here, and not mechanisation, because from a historic perspective, the second is wrong, and the first is correct. "Mechanisation" is one form only of machinisation. It is the historic form (in times of manufactoring) of transferring (parts of) a human operation or activity onto a machine or tool or other instrument. Computers and mechanics belong to different historic periods.

Works Cited

Bense, Max, and Georg Nees. "computergrafik." rot 19. Elisabeth Walther, 1965. 4 Sept. 2017 <http://dada.compart-bremen.de/item/publication/-362>.

Mongré, Paul. *Sant'Illario. Gedanken aus der Landschaft Zarathustras.* Leipzig: C.G. Naumann, 1897.

Peirce, Charles S. *The Essential Peirce: Selected Philosophical Writings, Vol. 2.* Edited by the Peirce Edition Project. Indianapolis: Indiana University Press, 1998.

Saussure, Ferdinand de. *Course in General Linguistics.* New York: McGraw-Hill, 1966.

Sutherland, Ivan E. "Sketchpad. A man-machine graphical communication system." AFIPS Conference Proceedings, vol. 23 (1963): pp. 232–238.