

Inverse Motion of Thinking

On Technoscience, Gesture, and Writing

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Although Flusser speaks about a ‘theory of gestures’, presented in the volume *Gestures*, his approach can hardly be called a theory. It defines neither subject matter nor method. His examples range from movements of hands to revolutionary movements. The gesture is not an ‘object’ that can be observed as independent from the act of observation. It is not by chance that Flusser comes to think about thinking in the *Gesture of Writing*. As already described by Jacques Derrida in *On Grammatology*, writing allows a certain kind of abstract thinking based on the representation of language in a system of symbols (Derrida 1997). This logic of representation is dominant in the scientific worldview (Heidegger) — or the ‘linear discourse’ (Flusser) and ‘logocentrism’ (Derrida) — assessing a gap between the world and its representation, an ideal meaning and the real world. The *crisis* of the linear discourse, the ‘logic’ of writing, thus opens up thinking to a ‘practical’ dimension in the first place: thinking not only as a representation, but a way of being-in-the-world. While Heidegger and Derrida focus on the de(con)struction of metaphysics (the logic of representation, the dichotomy of body and mind etc.), Flusser observes the growing importance of media practices — the transformation of writing, image, calculation, but also practices connected to architecture, design or television.

Flusser’s gestures are essentially performative — *performing* gestures of thinking, which are *in* the world, and not standing “above”¹, looking at the world from an objective viewpoint. Flusser’s analysis of new technologies can therefore, and has been criticised as a naive metaphorical description of technologies that were new in the 70s and 80s — an early media theory², or rather: media *philosophy*. Flusser’s questions refer to a long philosophical tradition with a specific twist: thinking about and interfering with a technical world.

Philosophy, Theory, Concept

We might distinguish Flusser’s media *philosophy* from media theory by this ‘performative concept of reflection’ (Mersch 2010: 206) — a theoretical description defines, posits an object whereas philosophy is only ‘positive’ as a performance (Heidegger’s *Vollzug*).

On one hand, Flusser's position converges with Friedrich Kittler's, anticipating the end of a certain way of thinking connected to the Western culture of writing and reading³. This kind of thinking, in the discourse of philosophy, the humanities, literature or politics, is replaced by mechanised logical–mathematical operations realised by computers — not human beings, not depending on language or intentionality. Thinking is thus changed or replaced by new technologies.

On the other hand, for Flusser, thinking changes in a *performative* sense: as part of cultural changes that take place concurrently in new technologies or in a broader sense material–technical practices *and* discourses of philosophy, theory or art. From this perspective, Flusser challenges both the Cartesian tradition of pure thinking and the notion of technology separating it from thinking, separating technologies from philosophical, theoretical or aesthetic reflections of the world.

We have to realise that thinking has never been 'pure', purely intellectual, clearly separated from *res extensa*, the sensible and material world. As Jacques Derrida has already pointed out (Derrida 1997): writing is not a tool that we can use to express ideas that exist independent of writing, independent of their articulation — in a sphere of ideas.

“Thinking before articulation is only a virtuality, which is to say nothing. It is realized through the gesture. Strictly speaking, there is no thinking before making a gesture. [...] To have unwritten ideas really means to have nothing.” (Flusser 2014: 24)

The Critique of the Apparatus

There is a striking discrepancy between Flusser's utopia of a new universe of computing on the one hand (Flusser 2011b: 10), and his critique of the apparatus, not only as a technical device, but a potentially totalitarian 'program' turning people into functionaries, on the other. Apparatuses simulate “specific processes of thinking”, namely “thinking expressed in numbers. All apparatuses (not exclusively computers) are calculating machines” (Flusser 2000: 31). They are “scientific black boxes [that] carry out this type of thinking better than human beings because they are better at playing (more quickly and with fewer errors) with number–like symbols.” (ibid.: 32)

The *critique* of photography Flusser suggests in *Towards a Philosophy of Photography* is supposed to prevent us (human beings) from losing the ability to think more effectively than machines by “playing *against* the camera” (ibid.: 81) — which means *intervening* in the program, not being played with, so to speak, not as mere pieces or tokens in a game. However, if thinking ultimately turns out to be better carried out by machines as opposed to human minds, then thinking is less advanced than computer programs — logical thinking developed by philosophers, theorists, mathematicians overruled by computed logical operations, algorithms. From the viewpoint of thinking as logical thinking⁴,

playing against the apparatus would in fact be part of its program — programmers can try to find algorithms for anything that hasn't been calculated yet, but which is a possibility *of* the logical–mathematical program, not acting *against* the program.

Paradoxically, Flusser embraces this cybernetic idea of computing everything and everything as computing — in the sense of formalisation based on mathematical logic — as a new kind of freedom: computer technologies allow for designing models, which do not have to correspond with a 'given' reality — this reality can be 're-designed' in computing. This universe of universal computability comes close to Friedrich Kittler's notion of calculating machines. These new 'symbolic machines' undermine the difference between thinking and being, *logos* and *physis*. They accomplish a unity of thinking and being and thus undermine the principle of *adaequatio intellectus et rei* — the foundation of knowledge in the tradition of Western thinking. As Kittler argues, instead of a subject "imagining how it imagines things [...] a digital wiring — that we can also call computer — stores, calculates, transmits information." (Kittler 2008: 139, transl. by Katerina Krtilova) These *operations* of computing are at the same time 'logical' and 'physical': as operations attributed to thinking or the mind (remembering, interpreting, calculating) and at the same time *real* or *material* operations which have actual effects in the 'outside' world — the 'inside' of the mind turning out to be an irrelevant idea. Philosophical concepts can be replaced by switching circuits: if philosophy can only imagine what there is, computing makes it technically understandable, turning "the real in the sense of Lacan into a manipulable code" (Kittler 1989: 71, transl. by Katerina Krtilova).

Technical Images and Heidegger's Critique of Technoscience

Flusser's critique of photography goes in a different direction than does his vision of the universe of computation. We must not become functionaries of the apparatus. The question of critical reflection on photography, technical images and the apparatus does not find an answer in switching circuits. A closer inspection of the apparatus does not disclose thinking, imagining or remembering as basically technical operations (as suggested by Kittler); Flusser's inspection of the camera rather discovers *scientific theories* that allow on one hand to understand, on the other hand to manipulate light, chemical substances, lenses etc. in a certain way.

Technical images are "images of concepts belonging to the theory of optics, i.e. they arise out of this theory" (Flusser 2000: 42). These "concepts" can be interpreted in two ways: on one hand, Flusser refers to theories of optics, which allow the development of photographic apparatuses, on the other hand, to philosophical concepts, which try to understand, conceptualize or represent the world.

Flusser's notion of the "images of concepts" branches into two contradictory lines of argumentation. The first, supposing that scientific concepts applied in technologies exceed the possibilities of science by computation, the second questioning scientific

concepts as such — and the idea of science converging with technology. We can trace this second line back to Flusser’s article *Thought and Reflection*, where he discusses science and technology as two methods of Western thought:

“...the thinking thing, (‘the subject’), attacks the world of bodies, (‘its object’), with the mysterious double purpose of understanding and modifying the world. Science is the method by which the thinking thing envelops bodies, in order to understand them. Technology is the method by which the thinking thing clings to bodies in order to modify them.”
(Flusser 1964/2005: 1)

The crisis of Western thinking Flusser tries to master by critical reflection results from the convergence of science and technology, the purposes of understanding and modifying the world. If science applied in technology can be characterised as “advancing thought”, we need an “inverse motion of thought” (Flusser 1964/2005: 3) in order to criticise it. In his vision of a computed universe however, Flusser seems to drop the idea of an inverse motion, criticising the techno–scientific advance. “Advancing thought” is practically realized in computing, connecting the two movements of understanding and manipulating the world. Which means there is no inverse motion of thought; reflection turns into feedback–loops that only affirm, re–adjust or optimize the system of symbolic and material operations, but do not allow intervention. The program of the apparatus is not scientific in the way of trying to understand the world, it is a technology that allows creating new worlds.

Nevertheless, *Towards a Philosophy of Photography* at the same time suggests a different approach to the “universe of technical images”. Flusser picks up his argument from *Thought and Reflection* (1964), coming close to Martin Heidegger’s⁵ critique of *technoscience*: the connection of science and technology resulting in a methodical–technical approach which must be distinguished from *thinking* (*Denken*). Flusser’s description of technical images as “images of concepts” (in the original German version: “Bilder von Begriffen”) corresponds with Heidegger’s notion of the ‘world picture’ as “die Welt als Bild begriffen” — the world conceived as imagery:

“Hence world picture, when understood essentially, does not mean a picture of the world but the world conceived and grasped as picture. What is, in its entirety, is now taken in such a way that it first is in being and only is in being to the extent that it is set up by man, who represents and sets forth (sofern es durch den vorstellend–herstellenden Menschen gestellt ist).” (Heidegger 1977a: 129)

The scientific world view asserts an ‘objective’ reality, which is in fact a reality according to the scientific world view: it is ‘objective’, real, if it can be observed, described and manipulated in a scientific fashion. Thus science deals with everything and even everyone as disposable, manipulable: “everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for further ordering [*Bestand*].” (Heidegger 1977b: 17) Once the ‘codes’ of nature, culture, society or life have been decoded, everything can be manipulated; “nature reports itself in one way

or other that is identifiable through calculation and that it remains orderable as a system of information.” (Heidegger 1977b: 23)

If Flusser follows this characteristic, sketching a *utopia* of a computed universe, a free computation of abstract elements, perfectly manipulable, allowing the computation of completely new forms⁶, his critique of the apparatus and the *dystopia* of being manipulated by technical images allows for reading his cybernetic utopia with an ironic twist. Although he was clearly fascinated by the idea of cybernetics, universal formalization, thinking and being following the rules of mathematics, Flusser’s interest in the change or even ‘revolution’ in the *structure of thinking* (“Umbruch in der Struktur des Denkens” [Flusser 1996: 86]) requires him to question his own project. Turning to phenomenology rather than a Kittlerian technical logic, Flusser continues to pursue the “inverse motion of thought”, running in the opposite direction of “advancing” technoscience: we can *think in a different way*, against the program of technoscience.

Thinking in Gestures

The gesture seems to be the counterpart of the closure of thinking in the program of the apparatus: a way to think between understanding and manipulating. “There is no thinking that has not been articulated through a gesture.” (Flusser 2014: 24) We can only think in gestures. In contrast to the ideality and transcendentalism of thinking in the tradition of western metaphysics, for Flusser thinking is tied to concrete gestures — to speaking, writing, drawing, making photographs, listening to music, as well as searching or destroying. First of all, however, we have to turn our attention to the act of thinking as such: opposed to the philosophical tradition of the *cogito* from Descartes to Husserl thinking takes place *in* the world. The Cartesian tradition determines thinking as and by a method of reflection that ‘clarifies’ thinking by removing all subjective and objective ‘impurities’; that means everything, which is not clear and distinct, and everything ‘out there’. Flusser’s thesis undermines this kind of pure thinking: There is *no* thinking that has *not* been articulated through a gesture.

Flusser suggests reflection as an inverse motion of thought *in* his *gesture* of writing — not writing viewed from ‘above’, but performed. As he points out in his book on writing: you cannot simply think about writing (*Nachdenken über*), writing (as a verb) rather interferes in, ‘bends’, modifies, reflects or *refracts* thinking. Flusser: “To write is thus not a ‘clarification’, but a realisation of ideas, and to have ideas means nothing.” (Flusser 2014: 9) Writing is not only a tool, which becomes more obvious in the German noun *Schrift* that is not a verb form, used to express ideas, it enables us to formulate certain ideas, arguments, to refer to other texts etc. and intervenes as a non-discursive element in a discourse. Flusser speaks of a “material resistance to my thought” (Flusser 2014: 12). The ‘negative’ choices we make picking certain words or formats⁷ and the ‘resistance’ mark the inverse motion of thinking using writing — dealing with letters, grammar, style, choosing words and signs, using writing tools et cetera. Thinking in writing arises in the

dynamic relation of articulating something *and* the nonsense of pure letters, which are also used in other codes apart from writing, the materiality of the paper surface, the technique, the typewriting etc.

In the Cartesian tradition up to Husserl, thinking is however ‘cleared’ of all these hybrid forms of dealing with something, somebody and one’s own body — the term ‘reflection’ is tied to the ‘thinking of thinking’, evoking a reflection in the mirror. Heidegger polemically characterises this idea as “the ego bent around backward and staring at itself” (*zurückgebogene Selbstbegriffung*) — corresponding with Flusser’s metaphor of the subject shedding light on objects appearing as if on a stage and finally discovering themselves in the last dark background (Flusser 1997: 223–236). Looking at the optical meaning of the term, as Heidegger suggests, we might rather speak of ‘*refraction*’ in the sense of breaking at something. Thinking takes place “already with the world” (*Schon-bei-der-Welt*), “primarily and constantly *in things*, because tending them, distressed by them, it always in some way or other rests in things.” (Heidegger 1982: 159)

Flusser’s thinking articulated through a gesture, in this sense, does not refer to writing as an instrument expressing an ideal meaning, but articulation *as* a gesture. This ‘articulation’ is not of the same kind as with the semiotic model of a ‘code’ and the classical sender–receiver model of communication, the medium ‘transporting’ meaning. The gesture does not separate the material medium from meaning, it rather connects a material practice with thinking — gestures of thinking emerge from and intervene in cultural practices.

In this respect, Flusser’s theory of gestures is a critique of the objective point of view, which must be clearly separated from practice — in order to manipulate *objects*. Observations are entangled in practices of describing, watching, drawing, organizing, manipulating things, and communicating with people or animals. This approach suggests turning away from an ‘objective’ science, which is interested in theoretical models explaining practice — models that can be technically applied to govern and *control* practice. Flusser instead speaks of the ‘miracle’ of practice — technology then “is only one way in which the human being mysteriously immerses his hand in reality” (“in denen der Mensch *geheimnisvoll seine Hand in die konkrete Wirklichkeit hineintaucht*“ [Flusser 1992: 241]).

Practices of Thinking

On one hand, Flusser seems to understand new technologies in a “media deterministic” (Krämer 2003: 79) way: philosophy is going to be replaced by computed poetry — and in this sense Flusser is almost nostalgic about writing as an old technique about to be replaced by technical images. However his ‘method’ articulated in his book on writing as “the effort to let ideas run counter to those already thought” (Flusser 2011: 5) inverts the advance of technoscience (which understands objects in order to manipulate them). Reflection as an inverse motion tries to understand how things, not only ‘objects’, are constituted, in techniques and practices of gaining and passing on knowledge, practices

and techniques of art or religion, speaking, writing, making images etc., which at the same time determine and allow the creation of something.

Flusser's strong ethical and even political motivation runs counter to media determinism: the task is to open up thinking, *not* to stick to a techno-logical thinking. Reflection as the *inverse* motion of thought allows *not* to affirm knowledge; theories that have been realised in technology, but to question it. Flusser's 'theory' of gestures is in this sense not following a logic or 'program' of progress and a logic of production. It is not an *affirmative* theory as criticized by Herbert Marcuse (Marcuse 1999: 56–101), but rather an 'afformative' logic, " 'deposing' acts of positing" (Hamacher 1991: 1133–1157). Flusser's gestures as gestures of thinking disobeys the rules of objective scientific observation as well as philosophical methodical reflection, deposing the 'advancing' movement of science, making, manipulating, producing.

If philosophy becomes a thinking in gestures, and is no longer determined by a 'techno-logic' of manipulation — hinting at Heidegger's definition of technology as making, manipulating, producing (*Machen, Hantieren, Verfertigen*) — how can it intervene in the program of the apparatus? First of all paying attention to the connection of knowledge and practice. Flusser describes the development of Western thinking as follows:

"My idea does not come from heaven, I learn it in the workshop. I make the idea of a shoe and try to realize it working with leather. Then I can see you can do better. I model the idea of a shoe. I use it as a model. Thus I can constantly improve the idea. [...] Theory results from practice."
(Flusser 1998: 40, transl. by Katerina Krtilova)

This 'genesis' of modern technology and science corresponds with Heidegger's understanding of the Greek term *téchne* (art, skill or knowledge); *téchne* does not mean technology in the sense of manipulating things according to a theory. *Téchne* means — in Heidegger's interpretation — 'bringing forth' (*Her-vor-bringen* [Heidegger 1989: 17]), making and at the same time letting something to come into being, opening up (*Aufschließen* [Heidegger 1989: 15]), making something accessible. *Téchne* is not a concept of making, but a concept of knowing, as Heidegger stresses.

Writing as a gesture is neither a 'tool' of thinking, allowing one to abstract from the actual practice of writing — an "A" is the same letter if you write it in black or yellow, as Flusser stresses — nor a technique that can be reproduced mechanically (computer programs as advanced writing systems generating 'mind', 'culture', 'meaning'). We have to look at this technique, as Flusser points out, but also a number of other techniques and practices, their history and changes. Because this is how we 'think' — in a very broad sense of the word.

So to speak against the grain of this practice we can see *beyond* the formalization of anything, the "real becoming a manipulable code" (as Kittler puts it): technology as "immersing the hand mysteriously in reality" allows an inverse motion of thought, allows asking how we understand the world and why we understand it in a certain way.

Flusser's question of technology thus doesn't only apply to the universe of technical images he experienced — a universe of 2D interfaces, screens or surfaces that combine images and writing — but also allows one to become aware of gestures that might 'refract' perception, signification, mind and body (Voss 2013) in a different way. 3D interfaces, motion sensing and motion tracking in ubiquitous computing involve gestures in the common sense, as gestures that allow manipulation of the surroundings, changing light or temperature, opening doors etc. — but at the same time, the development of human-computer-interfaces draws the attention to the interface as such (Hornecker 2008: 241; Wirth 2014), the *differences* between describing the world, interacting with icons and pictures, interacting via voluntary and involuntary movements of the body, computing texts and pictures and computing gestures.

Techno-logical — mathematical, formal — on one hand seems to determine thinking, corresponding with computer technologies that enter more and more parts of everyday life, economy, politics etc.. On the other hand, *thinking* here turns into technology — a specific way to manipulate the world. Heidegger, and Flusser in his critical approach emphasize the *difference* between thinking and technology: thinking (and in Flusser's terms gestures of thinking) allow the inverse motion to techniques manipulating the world, in philosophy as well as in art, science and religion, in practices of writing, making images, observing, experimenting, and even computing⁸.

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- ¹ „It is the point of view of subject standing above the phenomenon, which is then seen as an object. Objective models show phenomena to be understandable and manipulable objects.” Phenomenology however “does not stand above, but within, the phenomenon to be understood and manipulated.” (Flusser 2005b: 76).
 - ² From the viewpoint of today’s media theory Rainer Leschke describes Flusser’s media theory as a “general media ontology”, preceding more differentiated theories (Leschke 2003: 273). Knut Hackett or Werner Faulstich then refuse to accept Flusser’s, Virilio’s or Baudrillard’s texts as media theories and even don’t consider them to be scientific [academic writings]. (Hackett 2003: 373; Faulstich 2002: 29)
 - ³ Flusser speaks of the end of the ‘linear discourse’ (Flusser 1992, 2005a, 2011a).
 - ⁴ Flusser’s thinking was influenced by logical positivism (the Vienna school and especially early Ludwig Wittgenstein).
 - ⁵ Heidegger’s influence on Flusser might be even more important than Flusser admits for obvious political reasons — referring to his concepts in numerous texts (*Dasein, Bodenlosigkeit, Gestimmtheit* etc.), as well as in his autobiography *Bodenlos* (Flusser 1992: 63).
 - ⁶ Described as the last phase of a teleological ‘history’ of abstraction: stepping back from nature, imagining the world, dismembering it into clear and distinct elements, describing and then calculating the phenomena described. (Flusser 2011: 5)
 - ⁷ “I make a series of negative choices.” (Flusser 1997: 10)
 - ⁸ An experimental approach to computing suggested by Georg Trogemann:
<http://interface.khm.de/index.php/research/>

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