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Trying Things Out
A Flusserian Vision for the Future of Science

For us, there is only the trying. The rest is not our business.

- T.S. Eliot

Introduction

Although Vilém Flusser frequently wrote about science and philosophy in the same context, it remains to be explored how exactly he saw the two concepts being related. My aim in the first part of this paper is to begin tackling this task, starting the project with an analysis of two of Flusser's earlier works, the lecture *Thought and Reflection* and his first published book, *Language and Reality* (both 1963). In the second part, I aim to build on a previous and ever so brief attempt to localize Flusser's concept of science at the center of a triangle formed by philosophy, religion, and art (Dammann 2018). I have selected three aspects of modern science - crisis, contrast, and trying out – and explore their connections with Flusser's early (mid 1960s) model of science as being connected to, and perhaps united with, philosophy and poetry.

Part 1. Science and Philosophy

In a previous outline of Flusser's philosophy of science, I also provided two new translations of theretofore unpublished manuscripts, *La création scientifique et artistique* and *Wissenschaft, Weisheit (und Judentum)*, which, taken together, justify a view of Flusser's concept of science as being situated at the center of a triangle of reciprocal relationships between philosophy, art, and religion (Dammann 2018).

Vilém Flusser may well have been an early proponent of the view that science is a *creative* field of human endeavor. He wrote about science not just as a cultural phenomenon, but as a cultural activity. Guldin and colleagues have argued that Flusser's view of science is one of science as fiction, because the world itself is fiction, and that he suggested to embrace that fiction rather than complaining about it (Guldin, Finger et al. 2009: 94). Flusser saw modern science as a dynamic and dialectical process that “observes through theory and theorizes through observation” (Flusser, 1982; in Dammann

2018). For him, science is, taken together with philosophy, religion, and art, one of “the methods by which the spirit tries to penetrate into reality through appearances and discover the truth” (ibid.). This penetrating uncovering is not the same as what modern scientists consider their activity to be, namely first and foremost the generation of objectively true knowledge. Instead, Flusser thought that the *spirit* does the penetrating work, not the intellect. This view broadens the possibilities of what is to be discovered and it widens the horizon for what may be novel definitions of truth.

Flusser’s holistic and somewhat eclectic approach to science (and to philosophy, religion and art) can be seen as part of a theoretical avant-garde that unapologetically integrates thought from multiple methodological disciplines, with the goal not just to reflect the world as perceived, but to create new realities by synthesis. In Flusser’s own words, “overcoming the divorce between science and modern art is not just an epistemological and aesthetic engagement, but an engagement for a new society.” (Flusser 2018:4).

Flusser wrote from a number of vantage points that emerge in his works individually or intertwined. For example, his religious perspective was one from Judaism, his philosophical perspective was heavily influenced by phenomenology, and his political views were (at least in his earlier years) inspired by Marxism. In this paper, I want to explore what Flusser’s position may have been regarding the relationship between science and philosophy. What was science for Flusser in the first place?

Thought and Reflection (1963)

In his essay *Thought and Reflection*, a lecture he gave at the Public Library in São Paulo in December 1963 (Guldin and Finger 2005), Flusser wrote that he saw “Science [as] 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 (1963) 2005)

In other words, Flusser juxtaposed science and technology as our ways of using thought to understand and control, respectively. We embrace the world in two different ways in order to achieve two different goals: science is our way of making sense of the world and technology is our way of acting in it and on it. Interestingly, he saw both as a kind of action, not as a response. Moreover, he stressed that in both cases the actor is the “thinking thing”, perhaps to emphasize that science and technology are two teleologically separate ways of connecting the human mind to the world in which it finds itself. “Thought is, therefore, the process of grasping which expands into the world of bodies in order to devour them. The methods of this devouring process are science and technology.” (ibid.)

Thought that devours – the world as food for thought. When things are turned around and the thought process devours itself, when it *reflects*, philosophy emerges: “But there is another direction in which thought can move, namely the opposite direction. In this motion thought turns against itself in order to devour itself, i.e. to understand itself and modify itself. The term “reflection” shows where this kind of thought moves to, namely into the direction opposite to advancing thought. The German term “Nachdenken”, (which means “to think behind or after”) shows how this kind of thought works, namely as a check on thinking. And finally the Czech term “rozmysleni”, (which means “analytical thinking”) shows the result of this kind of thought, namely thought dismembered. Reflection is therefore the inverse motion of thought, wherein thought is being controlled and decomposed into its elements. The method of reflection, which is the devouring of thought by itself, is philosophy. Philosophy is therefore exactly the contrary of science and technology.” (ibid.)

What kind of contrariness did Flusser have in mind? He explicated this by creating a parallel comparison that aligns science/technology with progress on the one hand, and endows philosophy with the power to counterbalance that progress on the other: “It is true that in the description of thought I just gave science and technology appear as the progressive tendencies of thought, and philosophy as the regressive tendency. It is further true that, as a heritage of past centuries, progress is still being considered a positive value, in spite of alarming evidence to the contrary. But there are circumstances, recognized as such even by those who put their faith in progress, (unlike me), in which excessive advance requires withdrawals for rest and consolidation. I believe that our circumstances are of such a nature that science and technology have advanced too far, and that my suggestion to substitute emphasis on science and technology [with] emphasis on philosophy can be accepted by those optimists who do not believe in progress as advance toward an abyss. For them, it will be a “*réculer pour mieux sauter*”. (ibid.)

Indeed, Flusser appears to see philosophy as what can save us from the negative consequences of scientific and technological advances, as a reasonable move humankind could make in order to avoid catastrophe: “I had in mind this opposition between philosophy on one side, and science and technology on the other, when I claimed that we should make use of reflection in order to avoid our plunge into the abyss of tedium and futility. It will not be through more science and more technology that we shall be able to escape the anguish of our situation, but through more philosophy, if we do escape it.” (ibid.)

Language and Reality (1963)

Language and Reality was the first book Flusser published. Originally written in Portuguese, it appeared the same year (1963) he gave the lectures of which *Thought and Reality* was the last. Translated by Rodrigo Maltez Novaes for the Flusser Archive Collection, the book was first published in English in 2018.

The book opens on a rather dramatic note that reminds of the gloomy picture painted by the above “anguish” quote from *Thought and Reality*. Flusser summarized his core intellectual motivation as “the need to discover order”, a “fundamental anxiety of the human spirit in its attempt to comprehend, govern, and modify the world”. He asserted that the world as it appears to us stands in the way of reality, a direct reference to traditional Western Platonic and Cartesian dualism. Language allows the human spirit to penetrate those appearances to discover reality, in order to move from “chaos to cosmos” (p.2).

Flusser briefly alluded to epistemological skepticism, ontological nihilism, and religious mysticism as objections against his proposal to get from appearance to reality via language. However, he did not offer a rebuttal, just asserted that “they are refuted, practically, by the continuation of life, that is, by our experience of knowledge, reality and the communicable revelation of truth” (p.3). However, he acknowledges the possibility of these objections and suggests to just confront them, acclimatize, and live with them (ibid.)

The goal of his book, Flusser wrote, is to help “make the structure of this restricted cosmos conscious” by proposing that “this structure be identified with language; that knowledge, reality, and truth are aspects of language; that science and philosophy are language research; and that religion and art are language-creating disciplines” (p.4).

Throughout, Flusser’s terminology hints at an influence by the works of Nietzsche (will to power), Wittgenstein (word games), and he explicitly mentions Heidegger as standing in juxtaposition to the logico-mathematical philosophers as well as Husserl’s phenomenology. Flusser’s inclination to stray away from the precise and well-defined is exemplified by his frequent usage of words such as cosmos, spirit, his mention of the ancient sages, and his suggestion to include the non-logical, “magical aspect of language” in his conceptualization of language in this book (p.5). However, I do not feel comfortable classifying Flusser as an exclusively continental or analytical philosopher. As so often, his work defies categorization.

Flusser ended his introduction by raising a word of caution. He thought that with this book he will not have produced a philosophy of language, but “at most [have] suggested one of the innumerable

possibilities of establishing such a philosophy” (p.6). This is quintessential Flusser: within a few pages he painted, in broad strokes, a conceptual picture that encompasses in almost comical grandiosity the entire universe and all of humanity’s cultural history, only to end on a humble, deflationary, and anti-climactic note, relativizing preceding universal notions, e.g., that language “envelops within itself all the wisdom of the human race” (p.7).

On the few pages that make up the introduction to *Language and Reality*, Flusser touched on multiple themes and topics that can be seen as setting the stage for the remainder of the book and, indeed, his subsequent works. He outlined his view of the human being as one that tries to make sense of the surrounding world by means of communication, of sending and receiving signals, thereby inventing and re-inventing the world in an attempt to get behind the veil of the phenomena and break into the otherwise unperceivable *real* world. Language is how we bring order into the chaos, creating what Flusser called the *cosmos*, and all human cultural activity is seen as working through and being connected by language. In essence, Flusser’s view is one of the individual standing in the world and vis-à-vis that world, trying to comprehend and organize phenomena in order to evade chaos. At the same time, Flusser saw the individual embedded in history as “part of the symphony of human civilization”, which is in turn characterized by intellectual inquiry and cultural activity organized into four major disciplines: art, religion, science, and philosophy.

In the first chapter, *Language is Reality*, Flusser described at length the categorization of existing languages into three main groups in linguistic terms of the 1960s: fusional (using words to construct sentences, as in English or German), agglutinative (using superwords that carry sentence-like meaning, as in Inuit), and isolating (using syllables joined together, as in Cantonese). In keeping with this tripartite view of language, and with his notion of language as a generator of reality, he concluded that “the human intellect is realized only in three different ways” (p.36). We can skip over the comparative details in the remainder of this chapter and continue with its conclusion, which offers as a preview of the second chapter the proposal that “philosophical and scientific inquiry is ultimately nothing more than a more or less unconscious investigation of the structure of fusional languages” (p.53).

In the second chapter, Flusser offered a detailed analysis of what he considered a very much desirable conversation between Wittgenstein and Heidegger that never happened (pp.55-57), and an analysis of parallels between James and Nietzsche in the context of an analysis of the concept of time (mainly the future tense) in German, English, Portuguese and Czech (pp. 58-68). The subsequent sections (2.2-2.8) are analyses of differences between these four languages regarding their capability to capture constructs and concepts such as, e.g., activity/passivity, substance, and causality. Along the

way, Flusser mixed philosophical and linguistic (semantic/etymological) analysis, finding examples of constructs that can be generated in one language, but not in another, and arrived at the conclusion that “reality is, therefore, something different from language to language” (p.91). The chapter ends with the author’s confession that he failed to fulfill the promise he made at the end of the previous one, i.e., to “verify that philosophical and scientific research is ultimately an investigation of language” (p. 98). While conceding that he may have succeeded with respect to philosophical analysis, he “did not fulfill the task in relation to science” (ibid.). That, he promises now, is what he will do in the remaining chapters 3 (*Language Creates Reality*) and 4 (*Language Propagates Reality*).

Before I go into a discussion of the last two chapters of *Language and Reality*, let me offer an intuition based on the sentence cited above that states Flusser’s goal to “verify that philosophical and scientific research is ultimately an investigation of language”. Although this might be a consequence of the translation into English from Portuguese, it strikes me that the author (and/or translator) used the singular “is” instead of the plural “are” in reference to “philosophical and scientific research”. One possibility is that the intention here is to say that “research is” an investigation, whether philosophical or scientific. Another possibility, however, is that per Flusser, philosophy and science are gelled into one investigative activity with characteristics of, and techniques derived from, both fields of inquiry. Although this may seem unlikely in light of the juxtaposition of science as progress and philosophy as regress discussed in the previous section, and also in light of Flusser’s perception that he fulfilled his philosophical promise but not the scientific one, I think one needs to remain open to the possibility that Flusser’s concept(s?) of philosophy and science might turn out to be more closely related than anticipated.

The third chapter begins with a restatement of the central hypothesis of the book: “[I]he unreal chaos of coming-to-being, and of potentiality that tends to become realized, which we are accustomed to call *reality*, emerges, appears to the intellect, and organizes itself into a cosmos; in sum, it becomes realized in the form of the various languages.” (p. 101; italics in original)

The discussion proceeds with reference to several particularities of language and speech, but then returns to the contrast between science and philosophy, stating that “Science is a specially developed and concentrated form of conversation. In it phrases are formulated with the conscious purpose of *discovering* new information; that is, conscious attempts are made to establish new relationships between the elements of language in accordance with the rules.” (p.108; italics in original) and “True philosophy goes beyond the layer of conversation and participates in the layer of poetry. In this sense, it covers and overcomes science.” (p. 109)

I think that the last phrase, describing philosophy as covering and overcoming science, represents the kernel of Flusser's view of the relationship between science and philosophy in his earlier works. While science is a mere linguistic effort to stablish "new relationships between the elements of language in accordance with the rules", philosophy transcends such conversational effort, implicitly by ignoring those rules, reaching into the "layer of poetry" as the unruly realm of creative language work. Of note, a similar proposal has been offered by American pragmatist Richard Rorty (1930-2007) in his *Philosophy as Poetry* (Rorty 2016). The question is, how can philosophy (as poetry) *cover and overcome* science?

In order to understand this notion, let me point out that the cover-and-overcome phrase is a rhetorical tool Flusser used quite often as a description for a situation in which one concept is compared to another in an almost confrontational sense, beats it, and then moves beyond it. It is an indication of a situation of initial alignment, subsequent quarrel, and ultimate victory of one concept over another. For example, Flusser wrote in the introduction: "I intend that the concept of *language* encompasses both pure mathematics and poetry and that it surpasses both" (p.5; italics in original). Two pages further on, he writes about language as the most valuable human inheritance "in whose development countless generations have collaborated since the origin of humanity, or perhaps even beyond that origin" (p. 7) and muses "are we not [as formulating and articulating human beings] fulfilling, and perhaps overcoming, the human condition?" (ibid.). The basic structure of these formulations seems to be "up to a point and perhaps even further".

I think that Flusser's usage of such "that-and-perhaps-more" phrases is an expression of his fundamentally speculative stance vis-à-vis his subject. It reflects an explicit uncertainty (*perhaps*) paired with hope for more to be explored behind the current horizon. However, it also suggests that Flusser knows that this more-yet-unknown cannot be had without a proper fight. This is what I suggest as a viable candidate for the essence of the relationship between science and philosophy according to the early Flusser: a rivalry among equals, both being legitimate and successful human attempts to analyze language/reality, which at certain points collide in conflict, and in which, per Flusser, philosophy prevails.

2. Focus on Science

The term *science* is omnipresent in Vilém Flusser's writing, but rarely does it play a central role as the target of inquiry. As discussed in the previous section, this is different in *Language and Reality*, where

Flusser wrote about science and philosophy as two methods for structural analysis of language (Flusser 2018: 53). He conceptualized science as a language (p.24) and also as “a specially developed and concentrated form of conversation“, (p.108) while “philosophy goes beyond the layer of conversation and participates in the layer of poetry“ (p.109). I see this contrast as the core of Flusser’s visionary conceptualization of science, philosophy, and poetry not as separate, but as collaborative, an amalgamation of languages in support of the common goal to find knowledge, reality, and truth (p.3). Science is envisioned as a *conversation*, defined as “a network of intellects that absorb and utter phrases“ (p.116). It produces new words (elements of language) that can be absorbed by philosophy and become poetry, thereby gaining a creative dimension that goes beyond everyday usage and scientific recycling of knowledge.

Other scientists and philosophers have thought similarly. Ludwik Fleck saw scientific facts as emerging from collaboration in a social system (Fleck 1935 (2012)), Karin Knorr-Cetina wrote about the *Manufacture of Knowledge* (Knorr-Cetina 1981) and Miriam Solomon about *Making Medical Knowledge* (Salomon 2015). But rarely have theoreticians proposed, like Flusser, to view scientific rigor as truly integrated with philosophical analysis and poetic creation. Perhaps Rorty came closest, when he compared scientists to priests (Rorty 1999) and describes philosophy as poetry in his 2004 Page-Barbour Lectures (Rorty 2016). Peter Sloterdijk sees science as defining the scientist by means of practice/exercise (*Übung*) (Sloterdijk 2010). Echoing Thomas Kuhn’s proposal that scientific revolutions break through the rules of normal science (Kuhn 1962) and Paul Feyerabend’s manifesto *Against Method* (Feyerabend 1975), Flusser seems to have viewed the main difference between science and philosophy as a difference in language, not in subject matter or goal (Flusser 2018: 108-9).

On the other hand, Flusser seems to have been an ontological dualist, who saw the existence of reality (raw data) as hidden behind appearances that need to be picked up by the senses, mulled over and put into words to reach the intellect, the “raw material of thinking” (Flusser 2018: 10): “We live in a double reality: the reality of words and the reality of *raw or immediate* data” (ibid; italics are Flusser’s). Rorty would probably have shrugged his anti-dualist shoulders, asserting “that we are forever trapped behind the veil of subjectivity is merely the pointless, because tautologous, claim that something we define as being beyond our knowledge is, alas, beyond our knowledge” (Rorty 199: 58).

Crisis

Science has a plan: discovery. The mere word encapsulates the dualism Flusser appears to subscribe to. To dis-cover is to remove the veil, to use sense data to get access to raw data. Science is an orchestrated effort to generate new knowledge. It follows a strict and well-defined recipe, also known as the *scientific method* that defines what is and what good scientific practice isn't. But current science has reached a phase of crisis, a state of disorientation caused by methodological rigidity and the pressure on scientists to produce.

Until a while ago, roughly up to the middle of the 20th century, science was *expansive*, it generated new ways of looking at the world (e.g., relativity theory and quantum mechanics) and made new tools designed to improve the human condition (e.g., antibiotics) or to maximize its destruction (e.g., the atomic bomb). On this view, the moon landing in 1969 was perhaps the culmination point of scientific *expansion*, while the discovery of the DNA in 1953 marked the beginning of an *inwards turn* of science, with a new focus on subatomic particles in the 1950's and 60s and the rise of molecular genetics in biology.

For the past 20 years, however, science has been in a peculiar phase of stagnation. For example, Lee Smolin argued in 2005 that there has not been a new Einstein since Einstein, because “the mechanisms we have constructed to ensure fairness and quality have the unintended side effect of putting people of unusual creativity and independence at a disadvantage” (Smolin 2005). At around the same time, John Ioannidis proposed that most published research findings are false (Ioannidis 2005) and more than a decade later explicated his diagnosis what has led to the “reproducibility crisis” in the laboratory sciences: exact replication is discouraged by the pressure to do something novel. Instead, conceptual replication is pursued, so that new narratives arrive only by triangulation, which raises the problem that “almost anything can fit into a triangulation narrative by invoking some speculative ‘biological plausibility’ as the connecting glue” (Ioannidis 2017: 944). My present paper is a grateful response to Felipe Romero's invitation, which asserts that “for philosophers, the [replicability] crisis should not be taken as bad news but as an opportunity to do work on several fronts, including conceptual analysis, history and philosophy of science, research ethics, and social epistemology” (Romero 2019).

Current scientific research is deeply rooted in dualism. Scientists postulate an objectively identifiable reality, Flusser's *raw data* (Flusser 2018: 24), that will be uncovered by using the right methods. This corpus of methods, the scientific *modus operandi*, is socially sanctioned by the scientific community in its technical details and intellectual constraints. Thus, it provides a kind of safe haven for scientists,

preventing bias and error. What Feyerabend called *Methodenzwang* is methodological prescription, a plan of action that cannot be deviated from without severe consequences. This plan of how science must be done is of crucial importance not only within sciences, but also in the sociology and politics of science. Once caught in the net of rules and regulations of the plan it is easy to sink deeper and reach a point where methods are not helpful anymore. It is precisely the point that Ioannidis describes, the point where a new kind of narrative needs to be found to explain the observed, where Flusser's proposal to involve philosophy and poetry might come in handy. The situation of the scientist at this point of stagnation¹ is characterized by three symptoms, among others: fear, stagnation, and isolation.

First, there is fear. Flusser saw fear as the primordial motivation for science and philosophy to generate order out of the chaos with the goal to understand and modify the world (Flusser 2018: 1). Steffi Winkler describes a situation which can be applied to the crisis that stands in the way of science and philosophy: "We order the chaos of the world to banish fear – fear of senselessness, of decay, of forgetting. This sort of distancing gesture is an attempt to simplify the complexity that exists and confronts us directly. Yet the codified patterns, the techniques with which we grasp the world, strike back and produce reflections; they lose their communicating role as media and distort access to the world" (Winkler 2015).

Another kind of fear in science is the ever-present and quite existential fear to be scooped by another research team, not to receive the next grant, to have the paper rejected by the most prestigious journal. This kind of fear counteracts the *courage* necessary to survive in the current aggressive, competitive, and sometimes dangerous business of science: the slightly arrogant, hyperbole, self-conscious *standing* of the scientist, which enables and supports the freedom to think, design, and create, to read and hear voices like Smolin's and Ioannidis' and which empowers the scientific storyteller. All *standing* in science, however, is always also standing at the cliff, at the *cutting edge*, gazing into the scientific abyss.

Second, there is stagnation. I am referring to an arrest in the sense of rigidity of thought, a turning-to-stone of the creative mind. We are lacking the voices that can break through the silence of the uncertain in what would truly be worthy of the appellation *free style science*. Yes, we are lucky to have scientists like Smolin and Ioannidis, but what we don't have are new philosophers of science who, in the footsteps of Feyerabend and Flusser, don't see the *anything goes* as neo-pragmatic ironism but as encouragement. We don't have encouragers who bring fresh air into the scientific community and at the same time give directions, point the way. We need philosophers who know their science and whose

¹ In his polarizing book *The Trouble with Physics*, 2006, Lee Smolin laments the stagnation of physics (in the US) and blames *string theory* as the mainstream theory that captures all attention in physics, despite being at least partially wrong.

texts are not intended to simply do the work of a *Bürgerschrecke*, but to invite the legalization of thinking outside the scientific box that might generate true novelty. Encouraging proposals that can lead the way out of the state of fear and arrest towards viable solutions are few (Saltelli and Funtowicz 2017). I'd like to think of my proposal in this paper to consider Flusser's integrative methodological mosaicism as pointing in the direction of one such possible proposal.

Third, there is isolation. We are lacking the lived solidarity that pragmatic science requires to steer clear from fake news and conspiracy theories, political and industry interests, from the power play among the leaders in their field of science, towards the full range of possible societal benefits that science could provide. Thus emerges the isolation of the scientist, fear remains private, the stagnation continues, because there is no collective antidote. Competition rules in perpetual head-to-head races, with publication in *Nature* or *Science* as the grand prix.

The societal driver of this combination of fear, arrest, and isolation is – as so often – financial interests. Whether openly displayed in, for example, the drug prices set by pharmaceutical industry or hidden in the bowels of the non-for-profit private universities, the pressure to grow and win is ubiquitous. Consider the science wars, for example the one between the US and China leading to research espionage,² or the tragic consequences of declined tenure culminating in the assassination of colleagues at faculty meetings.³ This is also about the silence this pressure creates, about the silent obedience it fuels, the silent irrelevance of scientific societies and meetings where nothing novel happens, and the silent applause for unoriginal research that may yield success but nothing new. Silence and isolation result in scientific coma and stagnation that, I think, could be prevented by opening the door for an interdisciplinary discourse, à la Flusser, among scientists, philosophers, and poets.

Contrast

Flusser's philosophy of science, explicitly referring to Locke,⁴ divides the real world from the appearances we perceive with our senses and intellect (Flusser 2018: 9-10). The dualism goes all the way back to Kant and Plato, to the division between good God and evil Devil, and to what Josef Mitterer called pre-philosophical, dichotomous differentiation, an unjustified, *a priori* dualism (Mitterer 2011). We see our world as caught in contrasts and find it hard to explain why. Polarizing seems to be hard-wired

² See <https://www.justice.gov/opa/pr/harvard-university-professor-and-two-chinese-nationals-charged-three-separate-china-related>

³ <https://www.latimes.com/archives/la-xpm-2010-feb-13-la-na-alabama-shooting13-2010feb13-story.html>

⁴ In all likelihood to Locke's *Essay Concerning Human Understanding*, 1690.

into the human psyche (or even brain), we are programmed to see everything from a black and white, yin and yang, right or wrong perspective. What keeps us from depolarizing, as it is now done, for example, regarding non-binary gender identification, despite the considerable resistance to be expected from the binarian traditionalists? Why only tip our dualist hat reluctantly to the colors between black and white instead of acknowledging pluralism in all its mosaic beauty?

Here are two examples from Flusser's theory that play a contrastive role in and for science: *illumination* (light versus darkness) and *individualism* (individual versus society).

Illumination is what scientists need when they are looking for enlightenment in the darkness of reality. Illumination is the moment of clarification, when things become clearer, although not always and perhaps even rarely, completely clear. Flusser considers this "light of reason" as capable of penetrating the foreground (nature) and then also the background of the illuminated scene (the invisible sub-structure), thereby elucidating laws of nature (Flusser 2017: 46-7). However, he also raises a word of caution: "[W]hen science no longer searches for truth but for falsification, and when technology results in Auschwitz, Hiroshima, and Chernobyl, in thermonuclear devices and in environmental pollution, we are in a position to taste the Luciferian flavour of the light of reason" (Ibid., 47)

Implementing what I see as Flusser's proposal to gel science, philosophy, and poetry would mean to expand the assortment of flashlights that scientists have at their disposal to not just include scientific, but philosophical and poetic torches as well. The ideal Flusserian flashlight would be a multifunctional tool that can provide all three services.

Individualism relates to what Flusser describes as the position of the individual in society as one of many linkage points in a mesh or tissue that absorbs, preserves, and produces information (Flusser 1997 (2002): 29). Social structures require the acceptance by the individual of norms that sometimes work against individual interests. This is the price to be paid for access to the comfortable social net. To some, such social integration is difficult for a variety of reasons. Flusser's (almost) lifelong position as a migrant was one form of social non-integration, which – at least in his early years in Brazil – appears to have been bearable only by toying with the idea of suicide (Flusser 1992: 43). In this sense, individualism is also part of what leads to the isolation of the scientist discussed above.

Flusser freed himself at least partially from the isolation of the migrant by intellectual and linguistic assimilation, by writing in Portuguese while in Brazil and in French while being in France. The vehicle for this liberation process was his writing style and format, the *essay*, the *trying out* of ideas in multiple versions of his essays by self-translation.

Trying out

One door that is both already wide open and well-known to those who need to escape the crisis of science is *trying out*. Scientists do it all the time, they test new instruments, new methods, and most importantly they test hypotheses. Writing an essay is *trying*. But there is also another kind of testing in the sense of *trying things out*, as in proceeding by *trial and error*. We do it all the time, inside and outside of science, simply to find out what happens if. We act without knowing the results of our actions in advance. Most importantly, we have learned that trying things out is what tells us what works. It is quintessential scientific pragmatism at work.

All scientific activity can be described as the design, creation, and usage of *testing strategies*. Whether randomized trials to test new interventions in medicine or laboratory experiments using genetically identical mice, whether expedition into remote areas of the tropical rain forest, or the acceleration of subatomic particles in the Large Hadron Collider – all these methods and activities serve only one purpose: to try out *ideas*. What we know as scientific testing is nothing more than trying out whether we find support for the decision to reject a null hypothesis. It doesn't play much of a role whether we call these methods exploration, expedition, experiment, or estimation – all of the above are methods designed to try out by comparison or by simply venturing into the unknown. In this sense, the statistical testing of hypotheses is not the most important component of science. It is just the ultimate stamp of approval under a scientific proposition, a socially developed and sanctioned rite of passage designed for the purpose of keeping chance effects at bay. Sometimes such final step is not even necessary and the results of the trying out are widely accepted by both the scientific and lay community, as documented by the glaring absence of randomized trials designed to test the efficacy of parachutes in preventing death or severe trauma among people jumping out of airplanes (Smith and Pell 2003).

The main function of such trying out is to loosen the tension between true and untrue by reference to the notions correct and incorrect. A comprehensive theory of scientific trying out will have to wait for another day. What I can say here is that I am hoping for social and scientific progress in the pragmatic sense of the term not only in the social sciences (Baert 2005), but also in the life-sciences and humanities.

On Flusser's account, "[t]rue philosophy goes beyond the layer of conversation and participates in the layer of poetry. In this sense, it covers and overcomes science" (Flusser 2018: 109). I see

the possibility to use such amalgamation of science, philosophy, and poetry as an escape route out of the crisis. This proposal requires confidence in those who do science, philosophy, and poetry. Just as in other areas of interdisciplinary activity, one can imagine interdisciplinary projects in which scientists, philosophers, and poets *jointly* create a discourse that involves trying out of methods from all three endeavors. One can also imagine, however, that such research proposal would not be too welcome by those who review traditional research proposals. I can already hear the battle cry of the research administrators and the public they represent. “Impossible!” – “Unbelievable!” – “Who do these people think they are?”

Outlook

We do not yet know who they are, but it will definitely not be too many. It will be scientists who are interested in true innovation and in an honest discourse of ideas and results, e.g., in socially responsible peer-review, not blind but open to all sides, the way some journals already do it who publish the peer reviews along with the paper, including the names of the reviewers. Scientists who do not avoid public debate of their work, who do not want to wait for the approval of their grant proposals and acceptance of their research papers by members of some old-boys-network. It will be philosophers who see (with Kuhn) that the truly novel does not arise out of same-old-same-old research programs but out of individual free spirits who do not shy away from a conversation across the aisle between science and philosophy. Philosophers who do not just want to lament against method but support the making (with Knorr-Cetina and Solomon) of truly novel ideas. And it will be poets interested in finding new words (Flusser’s *Codes*) that can describe and celebrate the results of such cooperative projects.

In such a situation, new ways of justifying research will evolve, not in comparison to fixed criteria, but arising from surprising reinterpretations, out of a shift from programmatic fixation on method towards some amalgam of science, philosophy, and poetry. In other words, new research fields will grow out of the discourse among and between scientists, philosophers, and poets. Perhaps, we will even find a novel definition of *knowledge*, (another important term in Flusser’s work that I have chosen to ignore in this paper because it deserves coverage in a one), replacing the traditional “justified true belief” with something yet unknown.

Flusser saw nature as a consequence of conversation (Flusser 2018: 160) and wrote that “[p]oetry is anything that brings originality, that is, new thoughts, into the conversation, so this is what we call poetry *sensu stricto*; this is productive philosophy, and it is the hypothetical phase of science” (Flusser

2018: 122). Perhaps, Rorty thought of something similar when he wrote that some arguments offered by analytical philosophers such as Wittgenstein and Davidson “help give a plausible sense both to the claim that nature itself is a poem that we humans have written and to the claim that the imagination is the principle (sic) vehicle of human progress“ (Rorty 2016:11). Viewed before this backdrop, the hope for a better, more interesting, and creative future of science seems very real, despite crisis, by means of contrast, and via courageous trying stuff out.

References

- Baert, P. (2005). *Philosophy of the social sciences: towards pragmatism*. Cambridge, UK; Malden, MA, Polity.
- Dammann, O. (2018). "Flusser's philosophy of science." *Flusser Studies* (26): 1-11.
- Dammann, O. (2018). "Flusser's philosophy of science." *Flusser Studies* (26).
- Feyerabend, P. (1975). *Against method: outline of an anarchistic theory of knowledge*. Atlantic Highlands, N.J., Humanities Press.
- Fleck, L. (1935 (2012)). *Entstehung und Entwicklung einer wissenschaftlichen Tatsache*. Frankfurt, Suhrkamp.
- Flusser, V. (1992). *Bodenlos: eine philosophische Autobiographie*. Bensheim, Bollmann.
- Flusser, V. (1997 (2002)). *Glaubensverlust*. Medienkultur, Fischer: 29-40.
- Flusser, V. (2017). *Artforum Essays, Metaflux*.
- Flusser, V. (2018). *Language and reality*. Minneapolis, University of Minnesota Press.
- Flusser, V. (2018). "Science and artistic creation. Conference at the House of Culture, Chalon, 1982. (translation O. Dammann) *Flusser Studies* (26).
- Flusser, V. ((1963) 2005). "Thought and Reflection." *Flusser Studies* (1).
- Guldin, R. and A. Finger (2005). "Introducing Flusser Studies." *Flusser Studies* (1).
- Guldin, R., A. Finger and G. Bernardo (2009). *Vilém Flusser*. Paderborn, Fink.
- Ioannidis, J. P. (2005). "Why most published research findings are false." *PLoS Med* 2(8): e124.
- Ioannidis, J. P. (2017). "The Reproducibility Wars: Successful, Unsuccessful, Uninterpretable, Exact, Conceptual, Triangulated, Contested Replication." *Clin Chem* 63(5): 943-945.
- Knorr-Cetina, K. (1981). *The manufacture of knowledge: an essay on the constructivist and contextual nature of science*. Oxford; New York, Pergamon Press.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago, University of Chicago Press.
- Mitterer, J. (2011). *Das Jenseits der Philosophie, Velbrueck Wissenschaft*
- Romero, F. (2019). "Philosophy of science and the replicability crisis." *Philosophy Compass* 14(11).
- Rorty, R. (1999). *Philosophy and social hope*. London; New York, Penguin.
- Rorty, R. (2016). *Philosophy as poetry*. Charlottesville, University of Virginia Press.

- Saltelli, A. and S. Funtowicz (2017). "What is science's crisis really about?" *Futures* 91: 5-11.
- Sloterdijk, P. (2010). *Scheintod im Denken: von Philosophie und Wissenschaft als Übung: Unseld Lecture, Tübingen 2009*. Berlin, Suhrkamp.
- Smith, G. C. and J. P. Pell (2003). "Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials." *BMJ* 327(7429): 1459-1461.
- Smolin, L. (2005). "Why No 'New Einstein'?" *Physics Today* 58(6): 56-57.
- Solomon, M. (2015). *Making medical knowledge*. Oxford, Oxford University Press.
- Winkler, S. (2015). *Abstraction. Flusseriana - an intellectual toolbox*. S. Zielinski, P. Weibel and D. Irrgang. Minneapolis, Univocal: 38.