[Prometheus in Hell: Thoughts on the Connection between Technology and Art or: Chances, Changes and Consequences of a Global Information/Communication Network]

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It would seem that for most of us, most of the time, communication depends on more than words.
– J. Winterson

Preliminaries: Technology and Art --
[The limits of communication vs the communication of limits!]
Prospects of an example in pragmatizing deconstruction

When in 1946 -- the hell of World War II still drastically before his eyes -- Albert Camus wrote his short essay "Prometheus in Hell", the internet sure did not yet exist. Yet what existed was the desire for a new future for mankind, for an overcoming of inhumanity, for a new afresh way of communication „across all borders", for peaceful cooperation instead of some instrumentalized, machine-guided conflict. There was an attempt to recall so-called human values, to recall the essentials of mankind.

Camus used Prometheus, who according to Greek mythology had created the humans and given fire to them, who was punished for this by the gods and had to do penance, this Prometheus, as a metaphor and prime symbol of humanity and culture. It was characteristic for Prometheus (pace Camus) "that he could not separate the machine from art." Prometheus believes in "the simultaneous liberation of the body and of the soul."

In the following, I am going to attempt to discuss the chances of a **cultural evolution** of mankind against the background of the possibilities of global information processing and networking (as technical surrogates of **communication**) in the light of our topic [memetics …], i. e. any kind of legacy of Wittgenstein's ideas, e.g. as pragmatism or de-constructivism, which I **interpret** in Camus' words: "…***will we have the strength to make the heather bloom*** ?

If we remain stuck in purely technological, instrumental information transmission, instead of conveying/communicating knowledge, then the chances for enrichment through a global network of information or even just data transmission will become the opposite, namely impoverishment of communication and the passing on of knowledge. [In both cases we need to put what is conveyed into the right context, I. e. either pragmatize or deconstruct what we are told, by positing the question how did that kind of knowledge come about, in an explanatory as well as operational way]. In the last resort, the possibility of adapting the system 'human

being' to a new environment will be reduced to plain mechanically instantiationg some rule or even algorithms. We will be limited in our scope and pattern of reactions and will not be flexible enough to react to rigorous changes in our surroundings. -- **Prometheus will remain in hell, and the heather will wilt. --**

The connection between (computer) technology and art [as a limiting case to test the consequences of rules of communication (replacement-technologies against art as a symbol of human acting) concedes a very special place to art. With means that differ from those of philosophy but aim at the same purpose, art makes it possible to reflect humanity when dealing with our knowledge and thus creates the possibility of a new evolutionary advance in communicating knowledge, one that cannot be verbalized. Through experiencing art, through the moment of opening up ourselves for new insights, we achieve a different way of embedding things and putting them into relation, a different way of reflecting every day life. Art liberates the soul. Yet what happens to the body?

For a liberation of body **AND** soul we need a philosophical reflection besides the artistic one of what happens when knowledge is communicated, how this communication can be successful and what will enables us to burst the purely verbal transmission of knowledge respectively enrich it with non-verbal/experiental contents.

I will therefore attempt to show that the idea of a cultural evolution is based upon the idea of content-oriented (i.e. not merely genetic) conveyance of knowledge, while in the so-called „Internet“ knowledge can only be transmitted through linguistic means or multi-media channels. Put in more favourable terms this means that so-called factual knowledge can above all be passed on very quickly. We gain time for other things. New ways of conveying knowledge could thus be opened, since we no longer have to be bothered with simply transmitting data or facts.

What actually happens is that the instructions decisive for the use of factual knowledge are not always delivered with it or, at least, not always in sufficient form. This is often exactly that information which cannot easily be expressed and communicated in linguistic terms, because it is based upon special experiences in dealing with and applying knowledge.

The utopia I would like to offer is a means of communication that is able to convey, in a suitable way, not only facts but also instructions, not only formal but also content-oriented, genetic and memetic knowledge.

<u>Biological and cultural evolution or genetics versus memesis</u>

If we compare biological and cultural evolution, the decisive difference is that the genetic, i.e. internal, transmission of information about the surroundings in which an organism lives and

to which it has adapted is in general fairly slow. From the point of view of population genetics, for the individual it might even be detrimental.

In contrast to this, cultural evolution represents an essential speeding up of the transmission of information relevant for survival. The trick here is to ‚externalize' information, that is, to use signs which in certain situations possess a (useable) content of information. The meaning of a word is its use within some language (cf. Wittgenstein[1]). In the course of cultural evolution, various techniques for the transmission of information were developed which are (to a different extent in different cultures) based upon individual experiences and which reflect individual development(s). Different 'cultures' have different sign-systems, ranging from the acoustic system of communication or the breaking of branches to give directions to the (rock) paintings of Australian aborigines or the small talk of the internet-community. In a way, what has been created are external information ‚genes'. Viewed from the outside, each member of the culture has to learn how to handle these signs, how to use the information encoded by them, in order to build up and understand relevant knowledge

If we look at the potential of the internet [both as a means to pragmatically see the limits of the underlying concepts of communicating knowledge or to deconstruct those conceptions] one can test it as an extension of the cultural evolution. We have to consider that the ideas transmitted have to fall onto **a soil that must already have been prepared**. We already have to know something, already have to have made experiences of our own in order to understand the signs of others. When knowledge is passed on through **learning**, knowledge is re-assembled from ('knowledge') bricks.
Deconstructing: ??? The question now is what an evolutionist point of view (Memesis) is able to contribute to an understanding of the role of the internet in further developing and improving our cultural evolution, for instance in view of initiating a new phase of evolution? What, if anything, can be better understood, described, and predicted as far as the development of a global information network through the internet is concerned.

In cultural evolution **ideas** are passed on for a better adaptation of the environment -- yet they are not so much concrete ideas that can be passed on in a narrative, they are rather concept-'cores'. In analogy to the concept of the gene Dawkins introduces the term meme as the elements of cultural evolution, which is supposed to function in a way similar to the transmission of genetic material in a gene.

Concept cores have the advantage of enabling us to grasp different situations under one common aspect (or one common function) and thus to adjust quickly to the situation -- We are

[1] PI 43: For a *large* class of cases -- though not for all -- in which we employ the word „meaning" it can be defined thus: the meaning of a word is its use in the language.
And the *menaing* if a name is sometimes explained by pointing to its *bearer* .

able to recognize a wheel, we have certain expectations about its functioning, yet in a different case we can replace it by rollers and move a heavy wardrobe that way. We have grasped the essence of the concept "wheel" -- yet what is responsible for a successful conveyance of concept cores?

The real problem of cultural evolution in the passing on of experience. Knowledge has to conveyed in a way that makes it useful in decisive situations. External (not genetically coded) knowledge should also be open for correction (genetic knowledge can only be corrected in the long run, through mutation or the dying out of species), it should be possible to avoid mistakes in the replication of knowledge through individual, collective or artistic reflection, though accidental mistakes can also be useful.

Memesis and the global information network

If you say to the grown-ups: I have seen a very beautiful house with red tiles and geraniums in front of the window and pigeons on the roof … than they are not able to imagine this house. You have to tell them: I have seen a house worth a hundred thousand francs. Then they shout: Ah, how nice! (Saint-Exupéry)

For western civilization printing was one of the most important recent inventions through which, above all, the speed of information transmission was increased. We can use this analogy to clarify how modern electronic means (to communicate information) can pull off much more than just an improvement in speed and whether something like a qualitative leap (i.e. evolutionary thrust) in the transmission of information has possibly come about.

Which type of knowledge is in reality passed on through the (Inter-)Net? Are multi-media tricks or the wider range of accessing data through cyberspace-technologies able to improve the transmission of information/conveyance of knowledge?

The real question is: How can we create **new knowledge** 'within the other' (the addressee)? How can we convey new insights which do not immediately result or can be deduced from the state-of-the-art background knowledge and its semantics/pragmatics.

In respect to the potentials of the internet, we have excessive expectation anyway, since we also have false expectations as regards the information sciences which are the basis of the internet. Scientific results are hardly ever immediately action guiding or descriptions of reality, rather, they serve a more general understanding and explanation of the related contexts of our world.

If we balance a pole on a finger, we look at its top end to orient ourselves. The top replaces the whole and becomes a value for the system under observation. In a similar way, in science we use **models - idealizations which replace reality - in order to manipulate reality** with their help.

There is a tendency to **presuppose** a **universal language** and, in this context, a **universal common sense** for the transmission of factual knowledge in the hope of this way being able to communicate ‚everything'. Unfortunately, we then remain stuck in the misery from which Prometheus wanted to rescue us: "***They saw without seeing, they heard without hearing, resembling creatures of a dream***". If we want to understand verbalized knowledge, we basically have to know something already, we have to have a common background knowledge to grasp the communicated contents and then be able to handle them in a meaningful way. If this knowledge is not to be leveled out globally (universal average knowledge, think forward march), we have to have the possibility to break through the average at least locally, to make new experiences, to acquire additional knowledge and also to convey this new knowledge.

*Evolution of communication -- Possibilities and limitations of the internet.

In analogy to Gutenberg, the internet achieves primarily an increase of speed in the transmission of factual knowledge. In the last resort, however, we are dealing with ‚signs, that are transmitted, and which receive their meaning only through interpretation (decoding) in a form, a world, a practice of living. By gaining time we create space, which then could be used for the communication of potential interpretations of the transmitted signs in view of an evolutionary advance. Above all, we have to be concerned with creating tacit knowledge (Polanyi) in the recipient.

The advance of evolution here consists in the fact that a new way of creating and conveying information and knowledge offers better chances for survival of both the individual and the species.

Of course, we should not underestimate or belittle the value of factual knowledge. Yet we should also not forget that the internet was originally developed out of military considerations, and is therefore above all suited to the transmission of information that is essential for survival and easily communicated, and not of information that is creative and might improve the quality of living.

An evolutionary advance - the improvement of the quality of living - can therefore not originate through the internet, but only through a creative handling of the internet. Art could achieve this improvement, since its reflective mission offers the possibility of newly arranging and assembling facts in pictures and thus communicating new ways of seeing things:

"Art is for us a reality beyond now. An imaginative reality that we need. The reality of art is the reality of the imagination. The reality of art is not the reality of experience. ... According to the science of optics, if an image consists of points through which light actually passes, it is called real. Otherwise it is called virtual." (J. Winterson: **Art Objects*)***

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At the same time, we have to keep the limitations of a global information network in sight. In the mere transmission of facts, we reduce our ‚Lebenswelt' to these facts. Instead of an improved adaptation to a constantly changing environment we arrive at a fossilization and ritualization of forms of life and knowledge. This would be like having to react to new situations with the range of flexibility offered by an encyclopaedia written in the last century; an encyclopaedia which has never fundamentally been revised but only constantly enlarged by additional volumes.

New ways of conveying knowledge -- art and cyberspace

The potential of the internet is therefore not the mere use of communication technologies for a speedy transmission of information but its potential to free us for the exploration of forms of communication able to convey that knowledge which cannot easily be make explicit through linguistic or other means of representation. ‚Knowledge, is not identical with factual knowledge.

Even with road- or weather forecast-maps we have to learn, how to read them, we have to make ourselves familiar with their conditions of application, we have to learn how to put maps in relation to reality. This is also true for mathematics. Euclid's "Elements" were once one of the most widely read books. Their content was clear (“anschaulich” in Kant‘s sense, i. e. intuitive and visualizable) and formal at the same time, and to understand something more geometrico was the ultimate of occidental science up to Descartes. Hilbert was the first to formulate a new, formal system of axioms for geometry. Yet in later years even he wrote an additional "anschauliche" (intuitive) geometry. Syntax and semantics, grammar and meaning, form and content belong together.

When passing on knowledge, we also have to consider how knowledge comes about and which experiences are necessary for understanding it. In science, for example, it is very often important that results can be reconstructed through controlled reproduction, yet the techniques of reproduction are not the techniques of the creation of knowledge and not at all those of discovery. It is the passing on of the latter, however, that is important, namely the passing on of new ways of seeing things.

Herein lies art's opportunity. Through experiencing alienation of or distance from everyday objects, the contemplators can open themselves to new ways of seeing things and can become familiar with new facts. Art is able to create a connection between reason and emotion, which can lead to a mutual reflective correction, to a re-introduction of human values into technology.

"It is the artists who must apprehend things fully, in their own right, communicating them not as symbols but as living realities with the power to move." J. Winterson **(Art Objects)**

If we analyze e. g. the technology of cyberspace, we have a surface impression that is could create new possibilities of information-transmission which could enable us to submerge ourselves in a different realm of experience and to make experiences that open us in the same way as art. We have to keep in mind, however, that cyberspace technologies are simulations which refer to one or more chosen aspects of reality and thus create artificial model worlds in and through the computer.

"The room itself and the objects in it are generated only once, as mathematical descriptions of ‚models‚. These object are then 'translated' into a visible picture by calculating how they appear to the user from his present perspective (considering sources of light, the location of other objects in front of or behind the object, shadows etc.). This process of translating the mathematical description into a visible (and, if technology … [develops further] … tactile, acoustic, even olfactory) scene generally takes place in real time. Let us suppose you want to experience standing at the foot of Mount Everest. The computer has a previously defined model of the mountain ready which describes its geometry. If you look up, the computer uses the information of the model and of a sensor in your portable display and generates the picture of Everest that you would see from where you stand; size and perspective of the mountain are determined by your distance to it." Woolley 1994: 253

Virtual worlds need enormous amounts of calculation. Technical developments aim at creating all these images 'in real time', i.e. we move our heads and the computer calculates and generates the relevant picture on the monitor so quickly that we have the impression of looking round in a real room. It is important to point out here that the possibilities of viewing Mount Everest are in principle not really different from a video-sequence. We can only watch those sections which are pre-selected -- here on the basis of mathematical models. We are only able to admire those parts of Mount Everest that have been pre-determined in the sense of having been selected in the >>realm of possibilities of mathematical representations<<. Our actual activity as users is in reality restricted to the (mathematically) admissible. Since this is at first not noticeable, we have the impression of being entirely free, an impression that is enhanced by the fact that we can interactively remain with a certain perspective as long as we like. -- It is highly questionable, however, whether, in virtual reality, we are able to contemplate Mount Everest while standing on our heads, something that, given some acrobatic skills, we could easily do in the real world. -- Even if the simulations are improved so that we no longer notice or see through these illusions/deceptions, this does not change the principle of the situation.

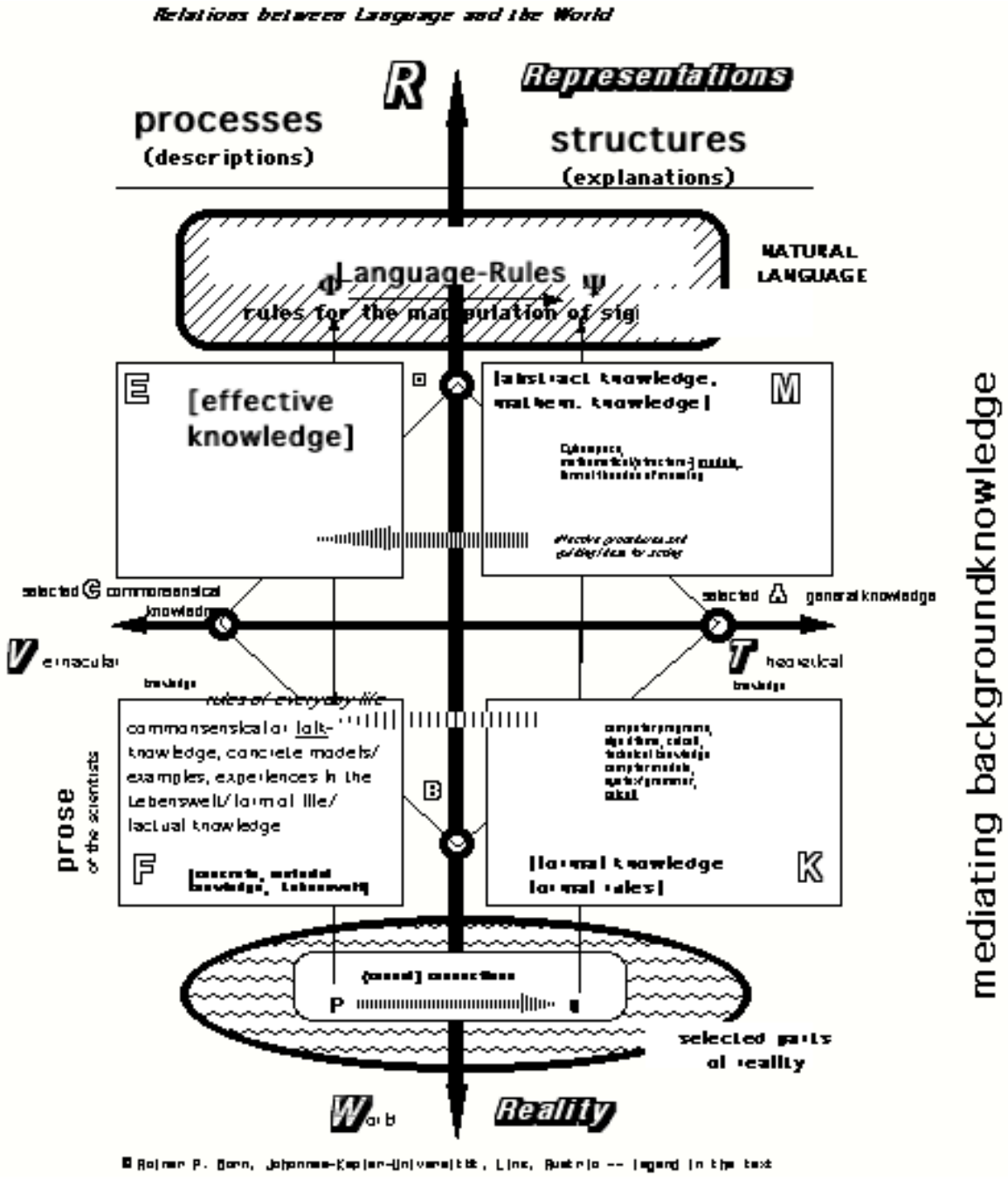
The simplifications of cyberspace tempt us to replace real worlds with virtual worlds. At present, experiments take place with pilots who really fly with a data helmet. On their displays, they find a simplified ‚sunny, world which enables them to fly safely even if there is real fog. While at the moment, a co-pilot is sitting next to the cyber-pilot, who is able to look out of the window - only an advantage if the weather is nice - , this basic possibility for correction will in future not exist any longer.

The world is turning into cyberspace - we project our theories onto reality. It is therefore quite probable that we will not even have the idea of wanting to contemplate Mount Everest while standing on our heads. The world is replaced by technical constructs. In contrast to this, art does not attempt "***to imitate life but to anticipate it***." (J. Winterson)

Language, Information and Reality -- ideas concerning the possibilities of communicating facts and knowledge [or: **RE-Presentation, Knowledge and the World**]

"***Communication between you and me relies on assumptions, associations, communalities and the kind of agreed shorthand, which no-one could precisely define but which everyone would admit exists. That is one reason why it is an effort to have a proper conversation in a foreign language. Even if I am quite fluent, even if I understand the dictionary definitions of words and phrases, I cannot rely on a shorthand with the other party, whose habit of mind is subtly different from my own. Nevertheless, all of us know of times when we have not been able to communicate in words a deep emotion and yet we know we have been understood.*** " – J. Winterson: Art Ojects

The following scheme is a simplified meta-representation of communication unifying linguistic and non-linguistic elements, which above all takes into account the coming about of an understanding through the interpretation of signs via different components of background knowledge and considers the dynamics of the conveyance of knowledge and changes of meaning. 'Knowledge' (e.g. implicit knowledge) results from the mutual relationships of the different components of background knowledge. 'Knowledge' reveals itself in the handling of knowledge. 'Knowledge' emerges through the relations of things to each other. 'Knowledge' mediates between language and reality, defines the handling of linguistically encoded information and determines the relations of language to reality.



If we communicate knowledge, we have to consider the background knowledge of the recipient in its multiplicity (cf. the components $\mathbb{E}$, $\mathbb{F}$, $\mathbb{K}$, $\mathbb{M}$ in the scheme above). If we want to communicate the transition of a state P into a new state Q (in the world, in an attitude, in understanding, in knowledge) or want to make it explicit or even create it (in the recipient), we have to be clear about the means of representation $\mathbb{R}$ (e.g. language) used and we also have to clarify through which components of background knowledge the signs in $\mathbb{R}$ are related to sections of the world $\mathbb{W}$. The transition from P to Q is reflected linguistically and therefore also in communicating the acceptance of the transition of p to q, i.e. it is reflected in the admission of the relationship of those signs which are assigned to the (more or less real) state-transitions P and Q in the realm of representation $\mathbb{D}$. This acceptance in the realm of

representation can be strengthened by a deliberate change of relevant components of the background knowledge responsible, in the last resort, for approval and the endowment with meaning. Whether we actually accept and therefore successfully communicate knowledge (especially when dealing with creating and conveying new views, frames of reference etc.) depends on the interplay of the respective components of our background knowledge. Here, the relationship between theoretical knowledge $\mathbb{T}$ (selected general knowledge $\mathbb{A}$, cf. the left side of x-axis) and vernacular knowledge $\mathbb{V}$ (common sense knowledge $\mathbb{C}$, cf. the right side of x-axis) is decisive, since it determines the fine-tuning of new and old knowledge in the concretely chosen area (=Bereich) $\mathbb{B}$ (as section of world/reality, lower part of y-axis) and the representation $\mathbb{D}$ (as specially chosen representation, upper part of y-axis). Value-judgments or general ethical considerations, human values and aims in handling new ,knowledge, are accepted and influence the handling of knowledge and information via the background knowledge.

… will we have the strength to make the heather bloom?

According to Camus, "Prometheus was that hero who loved man sufficiently to give them fire **and** freedom, technics and art at the same time."

Today, mankind believes "***only in technology. In their machines they discover their strengths and regard art and its demands as an obstacle and a sign of bondage. For Prometheus, however, it is characteristic that he cannot separate the machine from art. … Mankind today believes that it has to free the body first, even if the spirit -- temporarily -- perishes. Yet can the spirit perish temporarily only***?"

The myth of Prometheus should remind us of the fact "***that any restriction of man can only be temporarily, and that one can only serve man if one serves them fully. If he hungers after bread and after heather, and if it is true that bread is more necessary, we shall teach him to preserve the memories of heather. … And it is this admirable will [of Prometheus] to part nothing and to separate nothing, which has again and again consoled the suffering heart of mankind***."

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PI 81 (p 38e): All this, however, can only appear in the right light when one has attained a greater clarity about the concepts of **understanding, meaning, and thinking.** For it will then also become clear what can lead us (and did lead me) to think that if anyone utters a sentence and ***means*** or ***understands*** it he is operating a calculus according to definite rules.