Transcending the Conceptual-Symbolic Code

Francis Heylighen

Theoretical Physics Department
Vrije Universiteit Brussel

Abstract: a hierarchy of information processing is proposed, with the provisionally highest level being the symbolic reasoning that distinguishes humans from animals. This level is based on an abstract language of thought or “code”, consisting of concepts represented by symbols and a syntactical mechanism for combining these concepts into new expressions. The main shortcoming of this conceptual-symbolic (CS) mechanism is that it reduces the continuous experience of reality to a number of discrete, to some degree arbitrary, elements. Different intellectual approaches have attempted to overcome this limitation: science, philosophy, art, mysticism and empathy. Science tries to define concepts more universally; philosophy to fill in the conceptual holes; art to express non-symbolic, connotative meanings; mysticism to produce a non-analytic consciousness; and empathy to overcome the impossibility of communicating non-symbolic meanings. In each case, a first stage merely managed to extend and deepen existing CS codes. In a second stage, thinkers became aware of the intrinsic relativity of this cognitive mechanism, thus setting the first steps towards transcending its limitations. It is proposed that future theoretical, social and technological developments will further integrate these emerging insights by means of a non-symbolic, “structural” language, thus creating a truly meta-CS level of consciousness and cognition.

Preface to the 2014 edition

This text is an English translation of my first truly academic article, which was published in Dutch in 1984. It originally appeared in “O”: Tijdschrift Voor Filosofische Beproevingen, issue 7, pp. 119–142. This was a local, Brussels-based philosophical magazine with a postmodern, rather irreverent bent, which only lasted a few years and was not widely distributed. The paper has never been republished, although a shorter version of some of the main ideas appeared as (Heylighen, 1991). Still, the ideas presented herein are at the basis of my later work on distinction dynamics and the structural language, which uses a somewhat different terminology (invariant “distinctions” rather than rigid “concepts”, and “metasystem transition” rather than “transcendence”). It also lacks the applications to art, mysticism and empathy presented in the original article. Therefore, I wanted to make the original available to a non-Dutch speaking audience.

I have used the occasion of the translation to add references and an abstract, and make a few minimal edits for clarification and readability. Apart from the fact that it lacks any reference to the world-wide web (which was only created in 1991), the paper is remarkably up to date in its suggestion of a future cognitive transition supported by information technology. The only fundamental difference with my later work on the transition towards a Global Brain
regime (Heylighen, 2008, 2014; Heylighen & Bollen, 1996) is that it implicitly assumes that the emerging amplification of intelligence and consciousness will take place on the individual rather than on the collective level.

Prologue: the epistemological-semiotic hierarchy

Before discussing the revolutionary changes in our present culture, I wish to analyse the preliminary stages that have led to this culture. This requires an in-depth approach and a high degree of abstraction. A first requirement is the isolation of the object of study, which I will call a system. A system is a more or less arbitrarily chosen part of the Universe that shows a certain coherence. The system is however in general not isolated from the rest of the Universe, but connected to it through different interactions. I will subdivide these interactions into input—the influences of the outside world on the system—and output—the influences of the system on the outside world. The whole can then be seen as the flow of influences or signals (information) that are assimilated by the system, undergo certain transformations within the system, and eventually leave the system in a modified form. I will call such a conceptual object an information-processing system. It is now my intention to build a hierarchy of such systems, ordered according to complexity.

The first level of complexity is found in simple physical systems. Consider for example a stone. Kick it. The stone immediately moves forward; its reaction to the kick (input) is instantaneous—a direct consequence that is completely determined by the characteristics of the kicking movement (direction, speed, etc.). Here, the signal has been transformed (from kick to movement), but nothing has been added to it or taken away from it. The cause-effect relationship has simply propagated itself through the stone; the information regarding direction and speed of the kick has been transmitted to the movement of the stone. This is therefore not a case of active “processing” of information. The stone only functions as a transmission channel without any contribution of its own. This elementary type of information processing system, which is realised in physical objects such as atoms, stones, ropes, or lenses, I will call the causal or transmission type.

At the next level of the hierarchy, systems have a specific contribution, an individual activity that occurs to a certain extent independently of external events. The outside signals will now interfere with this internal mechanism and be transformed by it. The output of the system will no longer be determined only by the input, but will also depend on the internal state. The active mechanism itself however is deterministic and does not change over time. Consider for example a plant. Using a knife, make a cut in the stem of a young tree. At the transmission level, the reaction of the system will be the appearance of a cut in the bark. The tree is however not a purely mechanic system that waits passively for external signals, but it has a life of its own, which consists of taking substances (minerals, water, air) from the environment and transforming them into organic material (sap, leaves, branches). This mechanism will be affected by the damage from the knife, which becomes visible when resin flows out of the cut. The resin will congeal and fill the cut. However, years later a distorted scar will still remind a passer-by of this ecological crime. All these reactions (cut, resin, scar) are part of the output caused by the same input (the cut from the knife). Systems that react in this way (plants, bacteria, most machines...) belong to the organic or machine type.

At the next complexity level, the reaction of a system to a given input is no longer determined. The system can adapt, can learn from the phenomena that it has experienced. This means that if it experiences the input of a similar signal at consecutive points of time,
its reaction to this input will change until eventually a set, adapted pattern develops. The output to a given input no longer depends on this input and the internal mechanism alone, but also on the whole of earlier inputs. Such systems can learn; they have a memory; they possess a certain “knowledge”. This time choose a dog as a victim for the demonstration. Prick it with a pin (a knife would be rather cruel). The dog will respond by jumping up, whining, perhaps by licking the sore spot. This reaction is not substantially different from that of the tree. Try to prick it a second time. Now, the dog will react before the pin reaches it, by fleeing or showing its teeth. This behaviour is characteristic for a learning system, and it has no parallel in the reactions of the tree. I call such systems (animals in the first instance) learning or knowing.

Humans exhibit the as yet final level of information processing. Show a boy that you intend to prick him with a pin. Assume (perhaps not so realistically) that he has never been pricked with a pin before. He can therefore not have learned from experience to avoid the prick. Yet he will in general still prevent you from executing your intention. Here, we observe a mechanism that goes further than learning from earlier experiences. What happens is that the boy imagines an event (being pricked) that has never happened. Through certain mental processes, this imagined event is compared with real experiences (e.g. injuring himself on a glass shard), and so it gets a meaning (expected pain) that influences the behaviour. The crucial issue is that earlier experiences can be abstracted to form meaningful elements (symbols or concepts), which through certain mechanisms can be combined to form new representations. These representations may or not apply to real phenomena, but through the specific way in which they have been deduced from real experiences, they always have meaning pertaining to the behaviour. In short, the system is able to react to phenomena that have not yet happened, that are potential. I will call such a system the conceptual-symbolic type.

I have now constructed a hierarchy of information-processing systems, consisting of four levels, in ascending order: causal-transmission, organic-machine, learning-knowing, conceptual-symbolic. This order is one of ever increasing independence of the environment, of ever greater possibilities to manipulate the information that is exchanged with the outside world. A similar hierarchy of information processing can be found in (Nauta 1972) in a semiotic-cybernetic approach. The levels of this hierarchy can be seen from two points of view. One perspective focuses on the system itself: its internal structure, the mechanism with which external stimuli are received, the way in which the system “knows” the outside world. This is what I call the cognitive or epistemological point of view. On the other hand, the focus can go to the exchanges between system and environment: the signals and their meaning for the system. This is the communicative or semiotic point of view.

I will now discuss the last level of the hierarchy in more depth, and try to see how it developed, and what its advantages and disadvantages are. Then I will argue that an even higher level may arise after this level.

Prelude: how to become human

A wide range of criteria have been used to distinguish humans from animals: humans are intelligent, conscious, creative, rational, anticipating...; they possess language, tools, culture... All of these characteristics can however be reduced to what I have called the conceptual-symbolic (hereafter CS) type of information processing. The fundamental difference between humans and animals is that humans have reached a higher level of
information processing. This distinction does however not manifest itself directly in the structure of the individual organisms: it is possible that the brain of a dolphin is capable of operations as complex as, or even more complex than that of a human. The distinction is rather acquired: human babies that have not yet learned to talk (Piaget’s sensorimotor stage (Piaget 1953)) do not behave intrinsically different from young chimpanzees. The so-called enfant sauvage also behaves in the same way as the animals among which it has grown up. This points us in the direction of the origin of CS behaviour: it requires communication with other individuals that already possess a certain CS background.

This can also be understood as follows: assume that a child perceives the world around it in a learning-knowing manner. This implies that there is an immediate, on-going contact between the mind of the child and its present environment. This perception is so comprehensive that the entire consciousness of the child is concentrated in this one perception. In other words, the child cannot detach itself from its own, current perception. It reacts directly to what it sees (interpreting these perceptions as a function of earlier perceptions), but it is not able to conceive unperceived situations.

Now assume that it can in some way communicate with another person, e.g. one of the parents. The only things about which they can communicate are both their perceptions. Soon, the child will notice that there is a connection between these perceptions, that parent and child attach meaning to the same phenomena: if the baby wets its nappies, the parent will also respond to this. In this way, the perception acquires a more objective meaning; it is no longer a part of the unique, personal sensation of the child, but something that is shared between child and parent. In this way, a concept develops: this can be defined as that which the various perceptions have in common. Such a concept is in the first instance still a blurry and complex phenomenon, which cannot be easily manipulated, because one has not yet come to grips with it. A good way to get a grip on it is by coupling this abstract concept to a recognisable, concrete phenomenon: a symbol.

As soon as concepts are associated with such conventionally defined signs, the communication of perceptions becomes a lot easier. By connecting its perception to a sound made with the vocal cords, the child can now inform the parent immediately of the wet nappy, without having to wait for the parent to find out first-hand. Conversely, the symbolic communication will facilitate the learning of new concepts. This leads to a virtuous cycle, where the conceptualisation leads to better communication, which in turn produces better conceptualisation, and so forth.

In this way, a child makes the transition from the learning-knowing to the conceptual-symbolic level in a relatively short period of time. This process is greatly sped up because the child communicates with people that have already reached this last stage. If this possibility does not exist, as was the case for prehistoric humans who had not yet developed language, this evolution can take millions of years, or not take place at all (such as for example among the great apes, of which it has been proven that they can achieve a certain form of symbolic communication through close contact with human caregivers), depending on the circumstances.

Once a child has learned to easily use concepts and symbols, it is able to develop all those talents that are generally associated with human intelligence. Through combining concepts according to learned rules (if you think of language as a CS system, these rules correspond to the language’s grammar and internal logic), it can now form conceptions, models and representation of situations that it has not perceived. This is the essence of imagination or creativity. By again applying the rules to this, the child can deduce all sorts of
characteristics and implications of the situation and thus form a dynamic thought pattern that can direct it in its actions. This is rationality or intelligence. Because the child can simultaneously imagine different potential situations, it can compare these and thus make a conscious choice of which situation it would prefer to achieve. This is free will. By comparing its concepts of other people with the attitudes of these people towards itself, it can form a concept of self. This is self-awareness. By comparing its concepts of material objects with the concepts of the situations that it wants to achieve, it realises how it can use these objects as tools. By converting the things it has learned or conceived into symbols that others understand, it can communicate its knowledge or store it for later. This is how culture develops.

The limitations of the CS consciousness

This mechanism is most clearly reflected in verbal language, where the concepts are expressed by words, and the combination rules are (partly) realised in syntax. In this way, language can be seen as the basic paradigm for the CS mechanism. However, this mechanism has an inherent limitation: it can only express those concepts that can be constructed from a given set of concepts (or words) with the given combination rules. This set of concepts is finite and the possible combinations are thus discrete, countable, or discontinuous. In fact, the continuous, analogous experience produced by the senses and the learning-knowing mechanism is digitised in the CS system: it is translated into a digital, symbolic code. During this conversion, information is lost: each CS expression can only express a limited number of features of the total experience. Which features remain depends on the structure of the CS code and on the (to some degree arbitrary) choice of concepts and syntactic rules.

Different CS mechanisms will therefore show different features of the experienced outside world. There is no absolutely correct CS representation. The way in which a CS system processes information (including thought, imagination, communication, consciousness, purposeful acts, etc.) is relative: it depends on the representation used. When restricted to the linguistic system, this is a paraphrase of the Sapir-Whorf hypothesis (Hoijer 1954, Kay & Kempton 1984). (In this context it has been proven that a person’s thought is to a certain extent dependent on the (verbal) language they speak.) My thesis here is however more general: the rational abilities of a person are relative; they depend on the whole of concepts (and the symbols connected to them) they use. Most of these concepts can be expressed verbally (this is the basic category), but these verbal CS structures are supplemented with all sorts of non-verbal concepts or symbols and together, these determine thought.

This inherent selectivity, which filters the perceived reality in a rather arbitrary manner, so that only certain phenomena manage to reach our rational consciousness, is a fundamental shortcoming of the CS mechanism. A second shortcoming is that different people will in general possess different CS systems. These are determined by language, culture, education, personality, personal experience, and other variables. Although these different CS systems may use common symbolic expressions, these expressions (signifiants, Gardiner 1944, Hewson 1976) will in general refer to different concepts or contents (signifiés). Of course, this causes fundamental communication problems, as commonly encountered in dialogues of the deaf where two parties use the same words to express their respective points of view, while they attach different meanings to these words. It could be said that most human conflicts, from the very personal to those on planetary scale, can be reduced to this type of misunderstanding. When the expressions themselves also differ, any type of CS
communication is impossible. This fundamental problem cannot be solved by developing a collective CS system.

To start with, two different CS systems can in general not be synthesised, because there simply is no ground for comparison. Nor is it useful to pick one CS system and impose it on everyone. Every CS system has after all its own unique strengths that make it easy to discuss certain situations or to solve certain problems that other CS systems have difficulties. However, the strengths of the one system are often the shortcomings of the other. The Roman numeral system is for example useful for adding numbers: all you need to do is to write the numbers side by side and reorder them somewhat. However, if you want to multiply two Roman numerals, the operation becomes extremely complex. The Arabic numerals that we use on the other hand, are handy for multiplication, but require more effort for addition. Using one CS system above all others would therefore mean a terrible impoverishment of the potential of available forms of thought. Moreover, as dialectics proposes, a conceptual innovation, which is the creation of a CS system that can solve problems that were hitherto unsolvable, typically results from the confrontation of contradictory prior systems.

To sum up, it can be argued that the use of CS mechanisms has given humanity an unparalleled advantage over other species, but that such mechanisms contain an inherent restriction, which is most obvious when different CS codes enter into competition with each other. The origin of this competition coincides with the origin of what we call civilisation. Since people began living together in cities and nations and developed writing, they started to build coherent, cultural traditions that were distinct from their neighbours’. It did not take long for people to realise that there are problems stemming from the incompatibility of these conventional CS systems. This has led them on an ongoing quest for a solution to this problem and for a means to transcend the conceptual-symbolic mechanism.

This quest has in a first phase produced a variety of new CS systems, which however are not substantially different from the older ones. Yet, I want to show that our current society exhibits the first signs of a second phase, which is characterised by a true transcendence of the CS mechanism, and which forms the preamble to a higher level of consciousness, cognition, or information processing. This new level differs as much from the CS level as the typically human CS level differs from the learning-knowing level that is specific to the animals. I will show this by discussing five different approaches that each have contributed to this quest for transcendence: three are cultural, namely science, art and philosophy, and two are more personal, namely mysticism and empathy.

**Science: the hopeless search for objectivity**

The most obvious way to solve the problem of CS codes’ subjectivity and selectivity is to search for a CS code that would manage to give an as objective and complete representation of the universe as possible. This aim is what we call science. From roughly the ancient Greek period, science has attempted to replace the vague and intuitive expressions of everyday language with statements that are formed according to strict rules, with an unambiguous meaning. In order to make this possible, new symbols had to be introduced of which the conceptual content was clearly delineated.

A first way to capture this content was through definition. In this way, Euclid, the founder of geometry, determined a “point” as “that which has no part”. However, he forgot to
mention what he meant with these “parts”. This is the common objection that can be made against definitions: you can only define a concept by using other concepts that have not yet been defined. Thus at a certain point you have to fall back on a subjective, intuitive meaning.

In the Renaissance, another method to determine meaning became popular: connecting a concept to a physical action that could ascertain the presence of the phenomenon denoted by the concept. The concept of “weight”, for example, can be determined by placing an object on a scale and see how far the pointer deflects. However, what is often forgotten in this situation is that every experimental situation is different. You cannot execute the same operation twice: the balance might be different, the observer is a bit older, the sun has disappeared behind the clouds, a piece of fluff floats through the observation space… (Heylighen 1999). Which criterion do we use to say that these differences are irrelevant, except our intuition, based upon subjective experience, which tells us that this is the same conceptual situation? Now we have come round to the starting point again: a concept can only be determined operationally if you already have a concept of how this operation will look. Therefore science’s attempts to depart from objective, categorically determined concepts have failed—as might have been expected.

Science has nevertheless achieved great successes: its methods do not lead to an absolute CS system, but they do make it easier to detach oneself from the existing, all too local, all too personal CS codes. This brought about an unexpectedly fast evolution of CS systems, where plenty of new systems with unprecedented possibilities were created. Although every new system, despite its aspirations, was limited and subjective, it was precisely the variety of new and old systems that brought an extraordinary freedom of choice, a possibility for intellectual and technological manipulation of ever-greater domains of reality. It took however until the end of the nineteenth century before scientists began to realise that the things they had found were not the things they had sought for.

The crisis was first felt in the most advanced branch of science, mathematics. For centuries, this was based on the axioms of Euclid as the only correct, objective representation of space. It was also thought that representations that contradicted Euclid’s had to be wrong, incoherent and impossible to realise. A number of mathematicians did however manage to construe coherent representations that were not Euclidean. After endless discussions, this eventually led to the realisation that representations, and mathematics in general, rest on conventions, on agreements, and that these agreements can change or adapt depending on the circumstances and depending on the applications for which they are used.

A second shock occurred in physics. The introduction of new theories such as quantum mechanics and the theory of relativity forced scientists to abandon a number of concepts of which it had been thought that they provided an absolute, objective basis for a description of the universe: space, time, determinism, particles, waves…

There was no real need for further crises: the other disciplines had not yet reached the stage where they possessed a CS system that was generally accepted as absolute, coherent and complete. It began to become clear that one should no longer hope for that either. The road was now paved for a completely new conception of science, which could rightfully be called “meta-scientific”. We no longer search for the only correct, absolute, complete, objective CS structure for a certain field, but we take a higher point of view from which we can see several CS structures side by side, compare these, investigate their evolution, and analyse the recurrent features. For these meta-sciences, the CS structures are no longer the instrument of knowledge, but the object of study itself.
Examples of such meta-sciences are:

- semiotics, which is the general study of sign systems and especially of symbolic codes (Brier 2008, Hawkes 2003);
- structural anthropology, which researches the structures of CS systems of different cultures (Hawkes 2003, Lévi-Strauss 2008);
- cognitive psychology, which uses psychological experiments in order to understand how people acquire and store knowledge (Neisser 1976);
- artificial intelligence, which aims to realise models of intelligence in computers (Goertzel & Pennachin 2007);
- systems theory, which aims to lay the foundations for the study of all systems, including CS systems (Boulding 1956, Heylighen & Joslyn 1996, Mesarović & Takahara 1975);
- category theory, the most general theory of mathematical structures (Awodey 2006, Herrlich & Strecker 1973); etc.

For the future we can hope that these disciplines, each from their own traditions, will come to an awareness that they in fact have the same purpose. If we then succeed in synthesising the different results, a meta-science will develop of which the possibilities are as yet outside our imagination.

**Art: icons and metaphors**

Another approach that attempts to transcend the inherent limitations of the CS mechanisms is art. Here it is assumed that the complex of personal experiences, impressions and emotions that an individual undergoes is far richer than what can be expressed in a conventional CS code. After all, in a CS code the continuous field of meaning is fractured into a discontinuous collection of concepts, which form mental elements or units of meaning. All nuances, connotations, feelings, purely subjective meanings… are eliminated.

The advantage of a CS code is however that conceptual meanings can be directly expressed in a specific (external or internal) form, which is manipulable. In other words, knowing individuals can distance themselves from their knowledge, and become aware of the inner meanings by exteriorising them. The artist has the same goal, but rather for “non-conceptual” meanings (which we can call “connotative”, in contrast to “denotative” concepts that refer directly to a mental or material object, Hawkes 2003). The artist aims to realise this through the creation of a form that recalls meaningful experiences in the mind of the spectator. In order to attain this, the artistic form must to a certain extent resemble phenomena or situations that the spectator has already experienced. This is the iconic or metaphoric character of artistic symbols. Because artists cannot rely directly on agreements or conventions that attach a certain meaning to a certain sign, as in the CS code, they have to assume that they and the spectator have a certain common experience or background. This means that the meanings that artists and spectators attach to certain phenomena should not be too dissimilar. By partly recreating these common experiences, the artist will manage to recall earlier emotions or feelings. By combining patterns that refer to partial aspects of different experiences, they can create new emotions and meanings that do not refer to any real situation. This mechanism of the imagination is analogous to that of the CS code, except that in this case, there are no clearly delineated building blocks or elementary signs.
The patterns of iconic signs do however have the tendency to get a conventional character, to become reduced to symbolic signs. A simple example is the Chinese writing system, where the signs originally formed more or less artistic, pictorial representations. Now they have however been reduced to conventional letter signs. This tendency to conventionalise also exists in more commonplace art forms. Classical music, for example, is based on conventionally determined elements (lexicon): the notes, which are strung together to “musical sentences” according to the conventional rules of rhythm, tonality and harmony (syntax).

This however does not mean that the artistic character is lost: even when using a CS code with denotative semantic elements, it is possible to invoke a connotative meaning. The best example is a poem: the poetic meaning is more than the sum of the (denotative) meanings of the individual words that form the poem. The CS code—in this case the verbal language—acts as a “carrier” for a non-conceptual meaning. The explanation is that a coherent pattern of symbols is formed which through its metaphorical character invokes more than the individual symbols. The fact remains that this artistic meaning is subjugated to and dependent on the CS code that carries it.

Every traditional art form thus has a hybrid character: on the one hand, it rests on recurrent elements, on conventional rules that form a kind of underlying code that is specific to the particular discipline: sonnet, landscape painting, symphony, statue… On the other hand, within this code each artist tries to express a unique and personal meaning that transcends the elementary mechanism of the code. (If the artist does not succeed in this, the result is pseudo-art or kitsch.) This situation recalls the one of the traditional scientist who searches for an objective reality, but who can only approach this objectivity by defining it in the terms of a subjective code. In both situations, the underlying CS code is forgotten and we close our eyes for the intrinsic restrictions that this code imposes on the freedom of the artist or on the objectivity of the scientist.

Just as with science it took until the beginning of the twentieth century before this issue was explicitly addressed. This reaction was expressed in what can be called free or experimental art. This includes for example Dadaism, surrealism, non-figurative painting, atonal music, electro-acoustic music, experimental prose and poetry, some forms of video art… These art styles are characterised by their lack of given rules that determine the construction of the artwork. Thus there is no guide for the interpretation, there are no set elements of meaning and the interpretation is completely dependent on the spectator, listener or reader, who cannot depend on a known, underlying code, but only on their own perception, imagination, and moods. Thus they are forced to dissociate themselves from the standard interpretation mechanisms, from the CS code. This of course require some effort, but the result is a relativisation and a liberation from the selective, absolutist CS mechanisms that restrict thought, perception and imagination.

We can wonder what remains if all known symbols are left out of a work of art. The answer is simple: pure form, the network of patterns, which take their meaning only from their mutual relationships, from the structure they form together, not from referring to any external reality. It will become clear later that this idea of form or structure is a recurrent theme in the attempts to transcend the CS mechanism.
Philosophy: filling the conceptual holes

Philosophy, too, can be defined as an attempt to overcome certain limitations of the CS mechanism. The aim of philosophy is partly parallel to that of science: to obtain a more objective, complete, universal picture of humans and the universe than that which is offered by the traditional CS structures. However, while science tackles the problem externally, by building parallel CS systems, philosophy attempts to answer the questions that arise in the CS system from within. For example, if the CS system contains the concepts “universe” and “origin”, where “universe” can be considered an object and “origin” a characteristic that can be connected to an object (this is part of the combination rules of the CS code), then the question will arise automatically, “what is the origin of the universe?”

There are two accepted strategies to answer such questions: in the first place by applying the (deductive) rules of the CS system further, so that the answer can be deduced automatically; secondly, by comparison with sensory perception. In elaborated form, these two methods have become the foundation of science, leading to the formal and operational determination of concepts respectively. However, when applied to the problem of the origin of the universe, neither of these methods produces any result: the origin of the universe can by definition not be perceived, because this would imply that something already existed before the universe existed. This contradicts the concept of “universe” as the whole of all things that have ever been. Neither is there any rule that allows us to deduce something about this origin. In short, the problem cannot be solved through “scientific” methods (physics) and is therefore left to philosophy (metaphysics).

What do philosophers do? They postulate a number of new concepts of which they hope that these will provide a satisfactory explanation for the problem. To the question at hand, they will for example answer that the origin of the universe is “God”. “God” here is such a new concept that has the task to fill the holes in the old conceptual structure. However, the new CS structure that arises through this addition is not more complete than it was. After all, now we can wonder “what is the origin of God?”

The occupation of the traditional philosopher is therefore a kind of game that consists of camouflaging the most noticeable holes in the prevailing CS structure. From the fact that there is no unique, absolute solution for these “philosophical” problems, it also follows that a large variety of such “camouflage” solutions will develop. This explains the parallel existence of a large number of competing philosophers and philosophies, that each propose certain explanations, while none offers a complete and satisfactory system.

As in the other domains, in the field of philosophy too, awareness grew around the beginning of the twentieth century that the development of “philosophical problems” is inherent to the CS way of thought. This was for example shown explicitly by Wittgenstein, who condemned traditional philosophy as a language game (Wittgenstein 2010). What then, remains to be done for a philosopher? In the first place, they can attempt to understand how this language, this CS mechanism that has played them such tricks, actually works. This explains the current interest for the philosophy of language, epistemology, cultural philosophy, the philosophy of science... In this, philosophy joins what I have called the meta-sciences, which are in effect engaged in the same problems, but from a more scientific tradition. Another option is for the philosopher to admit that they are only playing a game with concepts, but that they now continue this game consciously, out of curiosity, out of a desire for experimenting, to see how far they can go, which new meanings they can express. This more playful conception of philosophy matches experimental art and can be called “philothropy”. (The readers can decide for themselves whether this article is more related to meta-science or to philothrop.)
Mysticism: the recovered unity

Next to methods that aim to transcend the CS mechanisms by adapting or expanding existing codes (science, art, philosophy), there is a more radical approach: mysticism. This boils down to breaking down the CS mechanism, which analyses the conscious world into conceptual objects, and replacing it with a non-analytical, non-rational form of consciousness. The aim is to gain direct contact with reality while foregoing mediation by the conceptual code. Perceptions established in this way have a number of typical characteristics:

- a feeling of unity of the self with the cosmos: this follows directly from the fact that there are no longer any conceptual structures that differentiate the self and the various observed phenomena
- the mystical experience cannot be communicated to others: after all, verbalising the experience implies that there are concepts present that could be converted into words
- the (internal and external) perceptions are far more intense, richer, more emotional (ecstasy, illumination). We have seen that the CS mechanism is selective, that it filters the perceptions and only allows those impressions into full consciousness that can be reduced to known concepts. When this filtering stops, the perception of phenomena changes and becomes far more detailed and sensitive, the perceived phenomena appear closer, more real and more vivid.

The techniques used to achieve such experiences are very diverse: meditation, prolonged concentration of consciousness on a specific phenomenon (e.g. a candle, or a posture as in yoga), isolating oneself from all sensations that draw the attention (through asceticism, or in a more modern way, through submersing the body in a soundproof, dark and lukewarm bath so that all normal sensory stimuli are eliminated), intake of drugs (hallucinogens or psychedelics such as psilocybine or LSD), sustained swirling movements (as applied by the so called dancing dervishes), incessantly thinking about paradoxes and problems that cannot be solved in a rational manner (the koans that Zen masters set their pupils), undergoing intense aesthetic experiences (produced by for example music, art, nature; I personally have had a similar sensation after watching Kubrick’s *The Shining* and after seeing an Icelandic landscape from the top of a mountain that I had climbed with great difficulty.).

Concerning the interpretation and application of these mystical experiences, two phases can be distinguished. In the first phase, the intention of these mystical methods is to connect with “the One”, “the Absolute”, “the Eternal”, ... The indivisible reality experienced by the mystic is then objectified, conceptualised and in this way integrated into a CS framework that rests on religious, mythical or philosophical preconceptions. The unified, mystical experience is connected to a concept: “union with God”, “Nirvana”, “separation of soul from body”. This striving for the Absolute can be compared with traditional science’s search for an “objective reality”. Both ideals are conceptual constructions and are therefore by definition relative and subjective. (This could be called the paradox of objectivity.) The traditional religions then are attempts to recuperate the mystical experience, which implies the temporary annihilation of the CS mechanism, within that same CS code.

In the second phase, this recuperation is no longer the goal. Traces of such a more open attitude can be found in certain eastern “religions”, such as Zen Buddhism and Taoism, which emphasise the impossibility of gaining a complete view of reality via conceptual reasoning. In the west, where Christianity has been the predominant paradigm for a long
time, we struggle with non-theistic interpretations of mystical feelings. Over the last decades there has however been increasing interest in what is called “atheistic spirituality” (Apostel & Mysjkin, 2013; Harris, 2014) or “expansion of consciousness”. In connection with “unity with the cosmos and with nature” we can also establish a link with the success of environmentalism.

In all this, we should not forget that the mystical experience in a sense involves a (temporary) regression to a preconceptual level of information processing, to the learning-knowing level of the very young child. We should therefore of course not expect a solution to all problems from a far-reaching mystic consciousness, as preached by Buddhism. What we can expect as a benefit is a deautomatisation (Deikman 1966, 2000) of the CS consciousness. Thus, the structuring of the perception according to CS patterns is no longer an obvious, automatic, uncontrollable process, but something that can to a certain extent be consciously manipulated by someone who is skilled in mystical techniques.

**Empathy: love and trans-cultural communication**

Next to their cognitive function (perception, understanding, thought…) the CS mechanisms also have communicative applications, in which conceptual meanings are transmitted through intersubjective symbols. In the paragraph about art, I have shown that there are also subjective, connotative meanings. Interpersonal communication that manages to transmit these non-conceptual meanings, I will call “empathic”. The term “empathy” is used when someone is able to identify with others’ personal frame of reference, understanding and sensing the feelings, subjective perceptions and interpretations of these others, while being able to see the world “through the eyes” of these others. This goes far beyond “sympathy”, which means that one interprets the behaviour of others positively, but without really understanding the underlying cause of this behaviour.

During everyday interactions, empathic communication is rare: it is in general difficult to imagine how a similar symbol or concept can have completely different (connotative) meanings for someone else. This is of course a fundamental source of conflicts and misunderstandings. In certain personal contacts, however, a spontaneous form of empathy can occur. “Love at first sight” can probably be traced back to such phenomena. In other cases, the difference in (cultural) background between two people is initially too large to develop a profound mutual understanding, but the ability to empathise grows during further contacts and eventually develops into real empathy. This can lead to more stable friendships and romantic relationships, where each of the partners feels fundamentally at ease with the other, because they accept each other as they are and can share in the most personal things.

Psychological research shows that such relationships in general only develop between people with a similar personality structure. Even couples of which the members appear to be very different (e.g. the so called “complementary marriages” where the wife excels in exactly those characteristics that the husband appears to lack, and vice versa), the principle usually applies that the way in which both partners interpret reality, the way in which they value various things, are fundamentally similar, even if they express this in different ways.

In most interpersonal contacts, however, the differences between the people involved are too large to get any further than the more superficial stage of CS communication, without empathy. This is understandable: the more a person differs from you, the harder it is to empathise with their worldview and to interpret reality in their way.
In that case, you will in general limit yourself to a formal dialogue, where both people agree more or less about the denotations of the exchanged symbols, without addressing individual connotations. However, when the symbols and concepts are also different, when the other speaks “another language” and there is no translating dictionary available, this type of communication becomes impossible.

Such a situation can for example occur when an anthropologist wants to study an as yet unknown Indian tribe in the Amazon region. The anthropologist does not appear to have even the slightest basis from which to interpret the rituals, symbols and customs that they perceive. To solve this problem, Claude Lévi-Strauss developed the “structural method” (Lévi-Strauss 2008). The method requires that the anthropologist arrange their observations in such a way that the inherent structures of the culture emerge. In this way, every cultural element will become a part of a comprehensive structure, and will get its own meaning through its position in the whole. This meaning is therefore not something that the observer attaches to the data from outside, but something that develops from within the structure, through the whole of relationships between the various elements.

Another application for such “trans-cultural” communication methods can be found in science, where the incredible diversity in disciplines and subdisciplines has created a chaos of competing CS systems, which renders communication between scientists from different fields nearly impossible. Here, too, the only possibility for trans-disciplinary contacts lies in the uncovering of abstract structures and their isomorphism, as is for example done in general systems theory (Boulding 1956, Mesarović & Takahara 1975).

This structural approach is in fact a formalised, “scientific” form of empathy. It can be seen as a starting point for a second phase, in which empathic communication becomes a conscious, controlled process, which is not limited to specific partners. Such conscious empathy assumes to begin with a very open, unbiased and non-judgemental attitude. The observer or communicator should not be guided by their automatic, learned interpreting mechanisms that assess each sign (verbal or non-verbal) given by the other from a subjective frame of reference. Secondly, a certain shrewdness or capability for abstract thinking is required, which enables the uncovering of the internal logic or structure of the messages that the other sends. Finally, the empathic communicator has to be able to internalise this “logic”, to imagine that they actually are in the frame of reference or frame of perception of the other. Of course, it requires a lot of effort to consistently behave in this way towards other people, mindsets or cultures, but this is a requirement for transcending the communication gap that arises from the use of different or too limited CS codes.

Beyond the Information Age

Thus far, I have discussed the main methods that have been developed with the intention of transcending the limitations of the CS mechanism. In these, we could always distinguish two developmental phases: a first one, which appeared approximately in Antiquity, and a second one that developed around the beginning of the twentieth century. This allows us to assume that the twentieth century, or let us say contemporary society, is fundamentally different from its historical precursors. This difference manifests itself in the development of completely new ways of thinking, of communicating, and of being conscious that manage to rise above the CS level. This evolution recalls the transition that primitive humans underwent when they developed verbal language and the corresponding CS way of
thinking and in that way gained the means to “rise above the animals”. As I have delineated above, this evolution is probably due to mutual communication of personal observations, from which independent, interpersonal meanings (concepts) could first be abstracted, which subsequently gained a manipulable form by associating them with physical carriers (symbols).

Now the issue comes down to finding a similar mechanism in our contemporary society. Instead of communicating subjective observations (which form the foundation of the learning-knowing level of information processing), we now require a form of communication for those elements that form the CS level, i.e. subjective CS codes. Thus, we should start with processes that allow various CS structures to be exchanged and communicated. We have found an example of this type of communication in the situation of the anthropologist who tries to understand the CS codes of a foreign culture.

This situation is paradigmatic for the position of present-day people. They are indeed constantly assimilating different cultures, ways of thought, languages… These occur in the form of new fashions, art styles, scientific disciplines, foreign languages, technological innovations, professional specialisations, contact with foreign cultures through travel, books, films… The channels used for exchange include mass media (publications, television, music industry, film…), extensive transport options (by plane, car, boat…), and the many culture-preserving or culture-producing institutes (universities, research centres, libraries, museums…).

Unlike traditional societies in which people learned the CS code thoroughly in their youth and then used it with minimal changes throughout the rest of their lives, contemporary people are required to continuously assimilate new CS codes. Those who do not, are left behind and will end up at the margins of society (e.g. in a retirement home). This constant change, this adaptation to ever new and often contradictory codes, causes a profound sense of confusion, insecurity, inadequacy, fear and alienation for many people. This inability to absorb rapid change has been called *Future Shock* by the futurologist Alvin Toffler (Toffler 1970). It brings about various social movements that no longer agree to the way things are: doomsayers, hippies, punks (“No future”), environmentalists, all sorts of revolutionary or reactionary movements in the areas of politics or art, religious sects, etc. There are however two ways to react to the whirlwind of new concepts and systems:

- you can turn your back on change, by focusing on one or other static utopia (religion, back to nature…), or by abandoning all hope (it no longer matters, the end is near).
- you can accept the change, but attempt to master it, to understand its mechanisms.

In this latter vision, you can assume that the world has always been in a flux and that after all nothing is static: even in antiquity the farmer replaced the old horse with a young one. The specific difference here is that horse was replaced by horse: the concept of “horse” remained, even though the physical object changed. In modern evolution, on the other hand, the horse will be replaced by a tractor: this is a new concept that no longer fits in the old CS code that hitherto regulated the farmer’s life. If you want to learn to control this type of change, you will need to find a mechanism that allows you to understand the evolution of CS codes. This new information processing mechanism then in a sense needs to “transcend” the CS mechanism. It is exactly these first steps of the construction of such a post-, trans- or meta-CS mechanism that I have found in what I have called the second phase of the CS-transcending methods. Herein also lies a first answer to the question why it is precisely now that we have reached this second phase: out of sheer necessity, because otherwise there is a real danger that society will succumb to Future Shock.
A second and third answer follow from a comparison with the development of the CS consciousness in primitive humans: the more you are confronted with alternative CS codes (the more alternative CS codes are communicated to you), the easier it becomes to put the superficial differences into perspective and to generalize and extract the fundamentally code-independent mechanisms and structures. It is of course very difficult to transcend the CS code and thus get out of the system if you have learned to think in this code. However, if the current trends continue, it will eventually become easier.

The third reason for the current success of attempts to transcend the CS code is that there are physical media available to support the hard-won and still rather blurry insights. Just as primitive humans found support in pictograms or sound sequences to express their newly-found ideas or concepts, modern humans can materialise their new structural insights using information and communication technology. This includes in the first place computers and the most advanced media: television, video, holograms etc. These devices tend to still be rather primitive and hard to use for non-specialists. However, this is evolving fast and soon a computer with a video screen and telecommunication link will be as easy to use and commonplace as a pencil or pen used to be for a more traditional user. Even now it is however possible to use existing technology for “meta-CS” experiments.

The clearest examples of this can be found in the discipline of artificial intelligence (AI), where different kinds of CS structures are programmed into computers to see which of these are the most efficient to solve certain cognitive problems. (But note that researchers often forget to pay attention to the learning-knowing level, so that AI programs tend to have difficulty with learning and with evolving through experience). The next step in this research consists of bypassing the problem of the inherent limitation of the CS mechanism, by providing the information system with a variable CS code, so that it can choose the most appropriate code to solve the problem. An example of such a system was proposed by a computer scientist at the Free University Brussels, Luc Steels (Steels 1985). Another typical example of meta-CS use of technology is video art, where complex spatiotemporal structures, expressing meanings that cannot be expressed using conventional CS codes, can be represented on a computer monitor. The most recent development in this field is the connection of video with AI. This has produced systems that allow the user to “draw” complex moving images via a computer directly on a screen, without intervention of camera or film.

A last phenomenon that is clearly connected to the transition from CS to meta-CS thought in which our society is situated is what is commonly called the “Crisis”. This refers in first instance to a political and economic crisis, but in fact we can speak of a moral crisis. Up to now I have mostly focussed on the epistemological aspect of the CS mechanisms, which consists of considering how incoming information (input or perception) is interpreted. It is however just as important to consider the preparation of outgoing information (output or action). This is the ethical aspect, which is determined by the goals, norms and values of the individual.

The CS mechanism has the characteristic that it subdivides known reality into a collection of concepts. In the physical reality, these concepts correspond to objects. Therefore, the CS system will in the first place assign value to objects. A fundamental characteristic of objects is that they can be counted (they are after all separate units). If you count how many objects there are that meet the criteria defined by a certain concept, then you obtain a number—a quantity. If each object has a given value, then the total value is equal to that elementary
value times the number of objects. Thus the tendency to associate values with numbers arises.

This leads to measures of value such as money, property, capital, area of land, etc. Those who possess a large number of valuable objects (goods) also have great power. In pre-industrial society, food was the most valuable possession. Therefore, those who possessed an abundance of arable land were powerful. This led to the feudal system. In industrial society, food is abundant, so objects become more valuable. This leads to the glorification of material wealth, the striving for ever more material possessions. This expresses itself in capitalism (and to a lesser extent in communism).

However, as the electronic engineer-futurologist Oscar Steenhaut observed, our contemporary society is characterised by a transition from quantitative, material values to more qualitative, cultural values: quality of life, education, health, environment, art, science… These values more closely reflect the emerging meta-CS consciousness. The political-economic order is however still based on the old values, so that conflict arises. The prevailing system after all assumes that the production of material values is the foundation of social order. Those who do not contribute to it are marginalised. In practice, this production is however increasingly transferred to machines, so that the initial producers, the workers, become unemployed. These unemployed are punished by the traditional value system and burdened with a guilt complex.

The automation that brings about unemployment is however an inevitable side effect of the meta-CS transition: the object-producing machines are in fact materialisations of specialised CS mechanisms. In the meta-CS value system, humans are considered too valuable to be dedicated to such mechanical tasks. The unemployed worker expelled by the old system is here brought back in as a precious carrier of culture. However, this evolution clashes with the still prevailing materialistic value system, bringing about the confusion and inadequacy of the economic system that is in charge of the distribution of (now abundant) wealth.

**Postlude: the structural language**

I have described the CS level, after which I have argued that this level will be transcended by the current evolution of human culture and that it will be replaced by a “meta-CS” level. It is now important to uncover this mysterious meta-CS mechanism that underpins this transcendent level of cognition. I will therefore try to make a first outline of what this code, which would make all of us into “meta-humans”, might look like. Since verbal language is the paradigm and the fundamental model of the CS code, we can expect that the meta-CS code will also express itself most clearly in the form of a language. This language will however not be verbal; it will not contain “words”, because words are symbols for concepts, and this implies a CS mechanism. We are therefore looking for a language without lexicon or syntax.

This seems at first sight impossible: how can we express meaning if we cannot assume meaningful elements? A way out of this impasse has already been suggested by art: the meaning of the work of art lies in the first place in its form, in the image or pattern that it expresses. When this iconic message rests on the more extensive means of video and film, we will begin to speak of a visual language. This visual language is however still not the meta-CS language that we are looking for: the interpretation of photos or film footage is too subjective; it is too dependent on personal experience, on the frame of reference of the
spectator. A similar example is the language of dreams: apart from more or less universal archetypes, most dreams have a meaning that is unique to the dreamer. This means that these languages are not very suitable for reliable communication.

A universal tool for communication was however discovered in the notion of empathy. This assumes a special attitude of the empathic communicators, allowing them to interpret the “image” that they receive from someone else in an unbiased way, without colouring or filtering it through their own subjective point of view. The characteristics that are required for this are in the first place openness, curiosity about others, an aptitude for abstraction, and imagination. These characteristics can be stimulated by mystical techniques, which aim at the deautomatisation of rigid subjective interpretation mechanisms. These methods lead to an individual attitude that is better prepared to understand all sorts of signs that are not expressed in a known CS code.

For effective communication we need not just individual willingness, but also a conventional intersubjective system. Attempts to develop such a “universal” language have been made in science. The best known are the system of logic, which is based on the subject-predicate scheme supplemented by operators, and the foundational formalism of mathematics, namely set theory, which is based on the element-set scheme. Although these systems are far more abstract than natural, verbal language, they are fundamentally based on the same CS mechanism: predicates, subjects, elements and sets are after all concepts, associated with specific symbols. The traditional formal languages, too, are therefore unsuitable to construct a meta-CS code. While visual language was too subjective, the problem here lies in the a priori selection of independent concepts.

A solution might be found by synthesising the advantages of both languages: the iconicity of artistic language and the formalism and conventionality of scientific language. To succeed in this, we need a scientific starting point, which can be found in the notion of pattern or structure, which is of essential importance in both art and science. The language that we would then construct would express itself by means of abstract structures or patterns, instead of by means of combinations of words or symbols (Heylighen 1990). One must be careful here that these structures do not become based on meaningful elements that could play the part of conceptual building blocks. The structural elements should not have any intrinsic meaning: they should only be determined as a relation between other elements, which together form the structure. The structural concepts that one could express in this way would then not be a priori limited or biased by any CS scheme. This structural, meta-CS code could then be used as a universal system to solve all structural problems.

As I have shown with various examples, it is exactly these problems of incompatibility of the various CS and other structures that form the main problem of our time, and that provide the main motivation for the meta-sciences, modern philosophy and art, empathic communication and mysticism. Together with the individual attitude that I have delineated above, I believe that such a structural language will provide the basis for a completely new way of thinking, communicating, understanding, observing, creating… in other words, for a meta-CS consciousness.
References


