The text is published as:
Westermann, Claudia (2019), "A poetics of designing", in Fischer, T. and Herr, C.M. (eds.), *Design Cybernetics: Navigating the New*, Cham: Springer Nature Switzerland, pp. 233-245.

A Poetics of Designing

Claudia Westermann

Abstract The chapter considers second-order cybernetics as a framework that is accurately described as a poetics. An overview is provided on what it means to be in a world that is uncertain, e.g., how under conditions of limited understanding any activity is an activity that designs and constructs, and how designing objects, spaces, and situations relates to the (designed) meta-world of second-order cybernetics. If it cannot be determined whether the world is complex or not, to assume that the world is complex is a matter of choice linked to an attitude of generosity. The chapter highlights that It is this attitude, which makes designing an ethical challenge. Designers require a framework that is open, but one that supplies ethical guidance when 'constructing' something new. Relating second-order design thinking to insights in philosophy and aesthetics, the chapter argues that second-order cybernetics provides a response to this ethical challenge and essentially it entails a poetics of designing.

1.1 Introduction

> And in these operations the person "I," whether explicit or implicit, splits into a number of different figures: into an "I" who is writing and an "I" who is written, into an empirical "I" who looks over the shoulder of the "I" who is writing and into a mythical "I" who serves as a model for the "I" who is written. The "I" of the author is dissolved in the writing.
>
> Italo Calvino, 1967, *Cybernetics and Ghosts* [2]

When Italo Calvino wrote the above in a lecture entitled *Cybernetics and Ghosts* that he held in several Italian cities in 1967 [2, p. 1], he gave expression to a discomfort that had been lingering for some time already within a community of re-

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searchers from a wide area of disciplines and with a common interest in the relation between technology and living beings. This discomfort was generated by questions about the objectivity and relevance of scientific research that is in general based on observation but excludes the act of observation from reflection (see [13, pp. 176-178]). Calvino's text from 1967 – a reflection on the reflective observer author – is significant. It precedes the official birth of the meta-level enquiry that is today referred to as second-order cybernetics, and whose concern is with the development of a new language appropriate for a dimensional shift in thinking (see [11, p. 1156]). Calvino's writing may be viewed as an account of a cultural disposition that contributed to the development of second-order research and practice. The above quote by Calvino introduces the explorations of the relationship between second-order thinking, design, and poetic forms of discourse and enquiry that are of key interest to this chapter. These are generally understood as in opposition to scientific forms of discourse and enquiry, as they are structurally – in a radical sense of the term – open.

Reviewing design theory literature, a specific interest in the relation of poetry, or the poetic, and design can be detected, particularly in the area of architectural theory. For example, in their writings, Dalibor Vesely and Alberto Pérez-Gómez [36,42] enquire into situations from a phenomenological point of view. Foundational in this context are the writings of German philosopher Martin Heidegger. His essays *Poetically, Man dwells ...* and *Dwelling Building Thinking* [18, 19] are among the most cited texts in architectural theory. In the same context, the above quoted writer Italo Calvino is drawn upon frequently because one of his best known writings – the publication *Invisible Cities* [1] – explicates a poetic view of architecture and urban design.

The relation of writing, poetry, and design has been theorised but mostly from a point of view that tends to be in discomfort with all things *cyber*. Cybernetics is often erroneously associated with a concept of control that is imposed from elsewhere – a *Matrix* scenario [50] – and that restricts the potential of living beings to choose, to define, and essentially to design. The term cybernetics, however, derives from the Greek steersman/helmsman, and as Heinz von Foerster pointed out: steersmanship is not dictatorship [48, p. 2]. There is generally a lack of awareness that the shift in thinking from first- to second-order cybernetics is not simply a minor adjustment. There is a *cyber* – a reflective *cyber* – that is radically different from the common understanding of the term. Within the framework of the reflective *cyber* the idea of power through imposed technological control generates as much discomfort as within any framework of phenomenological leaning.

One of the most extensive overviews of the development of second-order cybernetics is given in the seminal text *Second Order Cybernetics* by Ranulph Glanville [13]. The same author has provided us with an outline of the relationship of design and second-order cybernetics in his publication *Try again. Fail again. Fail better: the cybernetics in design and the design in cybernetics* [12], which is included in this book. In the following, I will elaborate on key thoughts that may serve as a bridge between a practice of designing and an aesthetics of design, or – to emphasise the activity of designing rather than the outcome – a poetics of designing. The

chapter focusses on the philosophical underpinnings of second-order cybernetics, and as such, there is a close link to the philosophical school of thought known as Radical Constructivism, which was developed primarily by Ernst von Glasersfeld, a close friend of Heinz von Foerster considered one of the principal initiators of second-order cybernetics. While the following explorations evolved from my specific point of view that is informed by an education, research and practice in art and architecture, there is no reason why the outlined thoughts could not also apply in other areas of design, such as graphic design, or industrial design.

1.2 Unknown Worlds

In a lecture entitled *On Constructing a Reality* [47] given in 1973 at the fourth International Conference on Environmental Design Research at the Virginia Polytechnic Institute in Blacksburg, Virginia, Heinz von Foerster stated:

> The environment as we perceive it is our invention. [47]

He was careful to pacify the audience by adding the label "outrageous claim" to the statement, before outlining several scientific studies, which show that there is indeed no support for the assumption that human perception grasps in a stable manner what could be considered the reality of objects and environments. At the time, the claim that our environment is an invention of our perception was outrageous from a scientific point of view. Science creates its results on the basis of its method through the observation of processes and its interpretation, but generally by excluding the act of observing from its analysis. In this way, science achieves clarity in the communication of results, and ensures that the results can be tested again and be confirmed or falsified. Thus, it ensures that the results can serve as a basis for predicting future processes. Science is essentially designed for the purpose of reliable prediction. However, how can we assume something to be reliable that is based on an observation that we just proved to be unreliable? Would we not need to include the act of observing into the analysis? These were some of the core questions that initiated the development of what is known today as second-order cybernetics. Being interested in the communicability of observations and interpretations, second-order cybernetics does not support solipsism, but is an endeavour in creating a structure and a framework – essentially a language – that includes the observer in the analysis of events and processes. Second-order cybernetics retained from first-order cybernetics its systems approach and its focus on circularity that was initiated at the earliest *Macy Conference* of 1942 on *Circular Causal and Feedback Mechanisms in Biological and Social Systems* [12, p. 1180]. The relationship between the first and the second-order approach has been described by Ranulph Glanville as being similar to the relationship between Newton's and Einstein's physics (see [12, p. 1182]). Second-order cybernetics is not a science as commonly defined, but a meta-enquiry that assists us in maintaining a critical view of the processes involved in creating understandings of the world, including scientific truths. Essentially, it provides a

framework in which other views of the world remain possible. From a scientific point of view, this is a weakness. I will argue below, that from a design point of view, it is a strength.

If we take designing seriously, we do not need to be concerned with questions that relate to whether or not scientific truths can be confirmed as true in an external reality. The outcomes that the activity of design produces are not a basis for prediction but a basis for imagination. Design is not required to produce truth in a scientific sense. On the contrary, the outcome of a design activity constitutes an opportunity to actualise a multiplicity of truths. In line with the above mentioned arguments, the activity of designing is not primarily an activity of problem solving.

I would like to return to Heinz von Foerster's lecture *On Constructing a Reality* [47]. Let us assume that Heinz von Foerster had not given this lecture to scientists, but to philosophers. Had he mentioned in the context of a conference attended primarily by philosophers, rather than scientists, that our perception constructs our environment, he would not have needed to claim outrageousness to prevent an outcry. There is nothing outrageous about this claim from the point of view of someone familiar with the history of philosophical thought. The issue was raised already more than two thousand years ago in one of the most famous passages of Plato's writings known today as the *Allegory of the Cave* [39, 514a-520a]. The question of how we interpret reality is one of the oldest philosophical questions, and the insight that there is an intrinsic paradox to the notion that we live in a world that we might not be able to grasp is one of the oldest philosophical insights. Throughout the centuries, philosophy addressed this problem from different points of views. In second-order cybernetics, the solipsist view is rejected on the basis that other thinking entities external to the 'I' cannot be explained from a solipsist viewpoint [15, p. 83; 47, p. 227]. Heinz von Foerster was well aware of philosophical questions. *On Constructing a Reality* could be seen to re-narrate the *Allegory of the Cave* albeit through the presentation of the results of scientific experiments. In this light, the text constitutes an anecdote for philosophers; but as an anecdote, most likely, it would have been told differently.

On Constructing a Reality performs in a manner that bears some similarities to another proof of the incompleteness of science. The proof was published in a paper with the title *On Formally Undecidable Propositions of the Principia Mathematica and Related Systems* and later became known as Kurt Gödel's *Incompleteness Theorem* [14]. The *Principia Mathematica*, developed between 1910 and 1913 by Bertrand Russell and Alfred North Whitehead [53], and mentioned in the title of Gödel's paper, had formalised all methods of proof that were used in Mathematics until then [14, p. 38]. Contrary to the thesis of his time, Gödel was able to prove that such a formal system with its defined axioms is unable to decide every question arising within it, that every consistent system must always be incomplete. A consistent system contains statements than cannot be proven by using the axioms of the system itself. Gödel's paper had a significant impact, as it proposed that its results are not only valid for mathematics but for every science operating with consistent logic. In essence, Gödel's proof of incompleteness, i.e. of undecidability, can be considered a variation of the liar paradox that is formulated in sentences such as: "I am lying"

(see [20, p. 25]). The question whether the statement is true is undecidable. It is impossible to prove the statement as either true or false. If the statement is considered true and I am lying, then the statement that I am lying must be a lie, and thus the statement cannot be true. However, if the statement is considered false, then I would need to be considered as not lying while I am lying, and again a paradox remains.

In the context of Gödel's *Theorem*, a proof is a demonstration within a system of propositions that is finite and thus fixed [14, p. 38; 20, pp. 26-32]. Gödel demonstrated via mathematical proof that a consistent system, such as defined by the *Principia Mathematica*, contains propositions, which are not provable from within the system. They are provable only from outside, from a meta-systemic point of view. Yet, proving statements from a meta-systemic point of view is only possible if the system is broadened to a meta-system, and one is again confronted with a system in which propositions exist that are not provable from within. Gödel's *Theorem* implies that every consistent formal system must be incomplete.

Second-order cybernetics can be seen as an attempt to respond to the problematics of incompleteness. The inclusion of the reflective observer into the second-order system essentially transcends classical logic, i.e. the binary logic that Western reasoning is generally based on, at least since Aristotle [15]. While this had been recognised by von Foerster, key steps towards the development of a trans-classical logic were made when Gotthard Günther, a philosopher with an expertise on German Idealism, became a member of von Foerster's Biological Computer Laboratory (BCL) in Illinois in 1960 [49]. There is some evidence Gödel's thoughthas influenced the development of second-order cybernetics – albeit via Günther, who had been in correspondence with Gödel between 1953 and 1959 [16]. Günther's contributions in trans-classical logic to the research conducted at the BCL are important for the development of second-order thinking. He assisted in eliminating the gap that is logically created by the incompleteness of any first-order approach [49].

While this chapter does not detail the history and development of trans-classical logic and philosophy, a short account of Günther's insights is given to assist better understanding. It is generally recognised that the 17th century French philosopher René Descartes marks a culmination in the development of Western philosophy, which is essentially a dualist philosophy. In the Cartesian "I think, therefor I am" [6] being is confirmed in the activity of reflecting. Body and mind become separated. Up to Descartes, the basic philosophical model conceives objects and subjects within the world in communication with each other through the intermediary of an absolute objective being – typically called God. Descartes' reflective I achieves independence from the absolute objective being, but at the same time the reflective I pulls itself out of the world. One could say that there is no need for communication when being is dependent on thinking alone. According to Günther, the philosophers of German Idealism had discovered a logic gap when they realised that the reflective I in this construction essentially dissolves itself in infinite reflection. To counter the dissolution of the subject, they maintained – as Descartes before – an objective being as a mediator between the subject and the world [15, pp. 74-83]. Günther made an important step in the development towards a trans-classical logic when he recognised that only in the thinking I-subject, thinking can be conceived as

reflection. Other subjects – You-subjects – appear from the position of the thinking I also as pulling themselves out of the world, however, what is at the basis of this process in the You-subject appears not as reflection but as will (see [51]).

> The You is an "object of second order" that is capable to offset itself both from me (the I) and from the world – the objects of first order. It is thus "a Third, *free from both*". [15, p. 83]

The You-subjects – we could also call them Others – cannot be conceived in binary, first-order logic as having agency. If they are conceived as having agency, they must be conceived as a Third in a second-order logic. The response of second-order cybernetics to the insight that first-order approaches essentially leave us alone with our selves – as other beings cannot be thought of as having agency – is the construction of a structure that allows for the possibility of agency of others while at the same time acknowledging that this agency can never be defined (see [52]). Gordon Pask's development of Conversation Theory is such a response and it is crucial in this respect [9, 33]. Through conversation that involves circularity, feedback and recursive action, each participant creates understandings. Whether the other understands what I understand can never be proven, but if living rather than life is the focus of our attention – if thus, the *how* is considered more important than the *what*, then this proof is of no importance. It would, anyway, make limited sense. There is no mean-ing in proof. Second-order thinking is the response to a situation that acknowledges logical undecidability of what the world is we live in. To assume the possibility of a world that is different from our understanding, and to assume with it the possibility of agency of other living beings, remains a matter of choice (see [10]). Making this choice could be seen as an act of generosity, and as such, second-order cybernet-ics combines both an epistemology and an ethics. With the unknown at its basis it grants agency to others.

1.3 On Delight

The nexus of second-order cybernetics is generally considered to be in the United States where the *Macy Conferences* took place beginning in the early 40s, and where von Foerster directed the Biological Computer Laboratory (BCL) at the University of Illinois from 1958 to 1975. However, in Britain cybernetics was also developed and engaged in from early on. The so called *Ratio Club* organised meetings in cybernetics from 1949 to 1958. Membership was limited to those who "had Wiener's ideas before Wiener's book appeared" [21, p. 101]. Ross Ashby was part of the *Ratio Club*, as was Alan Turing and other notable figures. While participants on both sides of the ocean exchanged ideas and influenced each other, it must be noted that there is something distinct about "what can be loosely called the British cybernetics movement" [21, p. 91]. This distinctness is owed to a great extent to Gordon Pask who actively fostered the links between cybernetics and art as well as design. Pask's career in cybernetics started in the early 50s when he was still an undergraduate

student at the University of Cambridge. He was a pioneer in interaction and built interactive machines since the early 1950s [9, p. 656]. The best known of these is *The Colloquy of Mobiles*. It was exhibited in the influential *Cybernetic Serendipity – the computer and the arts* [40] exhibition of 1968, generally considered as the first media art exhibition. Gordon Pask notably was directing the cybernetic committee for Joan Littlewood's and Cedric Price's *Fun Palace* [25, 26]. Although never built, within the field of architecture, the *Fun Palace* project is generally still considered the model for thinking responsive architecture. Pask taught at the *Architectural Association* [9]. He contributed to Roy Ascott's *Groundcourse* at the Ealing and Ipswich art schools [37]. He was well received in educational programmes, but notably, also in those of art and design that would be considered avantgarde today. He also wrote plays and invented new types of theatres [28, 29]. He was well ahead of his time, theorised and practiced art, design and science, and influenced many [17, 30]. He has left an indelible mark on Britain's experimental art and design scene (see [7, 8]).

As mentioned above, *Conversation Theory* [33], conceived by Pask and later developed into a theory of *Interactions of Actors* [34, 35], can be seen as bridging the gap between a thinking 'I' and an Other whose agency can only be assumed but never known in a scientific sense, as the agency of the Other is outside the realm of classical logic (see also [23]). The bridge that Conversation Theory provides is a response to the problem that emerges once one recognises that subjective experience is the basis for a judgement. If scientific reasoning is rejected for processes of living on the basis of the arguments outlined above, and thus the act of observing is included into the analysis with the observer central to enquiry, at the basis of enquiry there is subjective experience and we face the problem that communicability is basically undecidable. In summary, in second-order cybernetics we face a problematics on a general level that had been recognised in the philosophy of art centuries earlier. One could indeed conclude that the questions that we encounter when including acts of observation into the analysis of processes are basic questions of aesthetics, and they have explicitly been recognised at least since the *Critique of Judgment* of Immanuel Kant published in 1790 [22]. Kant's critique of aesthetic judgement has influenced aesthetic thought since its publication. It is notable that even Martin Heidegger – although in general dismissive of Kant's philosophy – was judging Kant's aesthetics favourably [41].

It might be helpful to look at some of the notions and terms that are used in second-order cybernetics, and specifically by Pask, and in Kant's aesthetics. The term *purposive*, for example, ranks prominently in Kant's aesthetics and so it does in cybernetics. The concept of purposiveness is so important to cybernetics that the First Annual Symposium of the American Society for Cybernetics, published in 1968, was entirely dedicated to *Purposive Systems* [46]. Purposive systems are considered to be adaptive and self-organising. All living 'things' are considered to be purposive, including human beings. Maturana and Varela introduced the term *autopoiesis* to specify in detail how living beings self-organise through purposive behaviour [27]. *Autopoiesis* is the organisation of living things.

I restrict the following passages to an outline of how human beings fit this notion. According to Pask, human beings are entities that are curious and want to learn. They seek novelty and pleasure or delight [31]. Within this context, a learning process is a self-replicating or self-stabilising process [33, p. 151]. One could state that human beings constantly renew themselves by looking out for that which they do not know – the uncertain – initiating then a learning process that enables them to address the situation in a purposive manner. Pask speaks of *control* in this context, but the meaning of control in second-order cybernetics is enabling – not restricting. Control relates to the initiation of a self-renewal process as we attempt to address a situation for which we had no means prior to encountering the situation. It is a process through which we learn to address new situations. If we recognise the importance in the seeking of delight or pleasure in that which is new, then of specific interest to us are environments and situations that are, as Pask puts it, *aesthetically potent* [31]. We find in Kant's aesthetics very similar notions. Already with Kant, aesthetic art is related to pleasure. Interestingly, Kant differentiates between two forms of pleasure of which each belongs to one form of aesthetic art – agreeable and fine art. What Kant considers to be agreeable art can be understood to be what we would call today entertainment. The form of pleasure that Kant relates to agreeable art immediately speaks to our senses, but the pleasure that relates to fine art reaches us through "modes of cognition" [22, p. 305]. The work of art animates the mind, and it is *purposive*. Purposive, according to Kant is what suggests order without defining it. In what is purposive we recognise the possibility of order. All fine art, according to Kant, is purposive in this sense. Kant writes:

> Fine art, on the other hand, is a mode of representation which is intrinsically purposive, and which, although devoid of an end, has the effect of advancing the culture of the mental powers in the interests of social communication. [22, p. 306]

> For the ground of this pleasure is found in the universal, though subjective, condition of reflective judgements, namely the purposive harmony of an object (whether it be a product of nature or of art) with the mutual relation of the faculties of cognition (imagination and understanding) which are requisite for every empirical cognition. [22, p. 191]

What Kant calls purposive can be translated into Pask's *aesthetically potent*. In both cases the order of what we encounter is uncertain, and what "advances the culture of the mental powers" can be understood as the learning process that Pask refers to. That such a learning process serves our ability to interact with and in society is recognised by both. Both cybernetics and Kant make a distinction between purpose and purposive by referring with purposive to an order that is not definable but is possible.

There are nevertheless core differences between the reasoning in second-order cybernetics and in Kant's aesthetics. The most significant difference is that Kant relates the work of art to the living by introducing an external mediator – a kind of metaphysical stabiliser – that assists Kant in solving the problem of the communicability of understandings, and in bridging the gap that remains of what is essentially a system of first-order with a subjective observer – central to all aesthetic judgements – at the centre. Kant introduces the artist genius through whom "nature gives the rule to art." When encountering a work of art, according to Kant, while we recognise that

it is art and not nature, the work appears to us as if it was nature [22, p. 308]. The work suggests an order – it is an order of the living that cybernetics deems possible, but in contrast, Kant introduces what one could possibly call restricted decidability. The genius – and only the genius – in one way or another has access to knowledge that is beyond life. What the artist genius transmits – rather unconsciously – is the universal order. It cannot be anything else. The artist genius in Kant plays a role that is very similar to Plato's muse-inspired artist (see [38]). In both cases, the artists are mediators who assist the structuring of the creation according to the heavenly or natural orders. This way, works of art are structurally linked to the heavenly or natural orders and their messages can be conceived as universally communicable. Second-order cybernetics in contrast suggests that whether there is universal order is not decidable, nor can we assume that it is accessible. By focussing on the process of how concepts are shared, Conversation Theory circumvents the problematics of the necessity of both the assumption of a universal order and a mediator. It also circumvents the problem of a detachment of art or design from lived experience. Considering the history of the philosophy of art, second-order cybernetics can be seen as following in the footsteps of John Dewey who, in his *Art as Experience*, offers concepts for a theory of art that is grounded in nothing else but experience [5].

> Because experience is the fulfilment of an organism in its struggles and achievements in a world of things, it is art in germ. Even in its rudimentary forms, it contains the promise of that delightful perception which is aesthetic experience. [5, p. 19]

For Dewey all daily life experiences carry the germ of an aesthetic experience. It is in the rhythm of life in which he recognises the basic qualities that make an experience aesthetic. An aesthetic experience has a "developing movement towards its own closure" [5, p. 41]. This closure is a consummation, as Dewey outlines, not a cessation, or a stasis [5, pp. 35, 41]. Gordon Pask recognises in conversation the very basic human activity that holds the germ for the experiences that we seek, and develops from this what one could call a theory of living. Conversations consist also of movements towards closure, sometimes only temporarily to be re-initiated at another point in time. Closure is achieved through agreement or disagreement. In both cases unity is created as the identity of the participants is generally maintained. Conversations are purposive in the Kantian sense by carrying the *germ* of *an* aesthetic experience, or – as Pask would say – they are *aesthetically potent* [31]. Within the trans-disciplinary space of second-order cybernetics questions of designing are not exclusively related to the disciplines that range from architectural to information design. They are at the core of every activity (see [9]). Yet, art and design provide the novelty and delight we seek for as they constitute for us initiations to continuously recreate ourselves, not the least in order to maintain the connections to our social and physical environments. Because experiences that are aesthetic through providing novelty and delight are at the basis of conversation, second-order cybernetics is an appropriate theory also for processes that relate to the activities that create objects, environments, and situations aiming to provide aesthetic experiences.

1.4 For Tomorrow

As Pask outlined, and Glanville elaborated on, conversation is a non-deterministic interaction [9, 32] whose intrinsic characteristic is learning. The process of designing, in a very similar manner, if related to the act of conversing, is a process that is recursive, involves feedback and constant adjustment, while at the same time maintaining openness. A principle of radical openness is at the basis of second-order cybernetics and has been referred to as *cybernetic principle* by von Glasersfeld. Indeed, the cybernetic framework reminds us that "having no fixed goal but being open to all the possibilities that come along" [45] is a strength [43,44]. The principle of radical openness is found on various levels of hierarchy not only in the attitude of the cybernetic practitioner towards Others – as outlined above – but also in the very processes that we engage in. Second-order cybernetics locates design within an eco-system as part of our environment. Its focus of attention is always on the verbs not on the nouns – thus on designing rather than on design. This is in contrast to what is described in architectural theory treatises belonging – according to Pask – to the realm of *pure architecture* [30] – the latter constitutes a form of detachment. A similar critique can be found in Dewey's *Art as Experience* who initiates his aesthetics with a critique of the common understanding of works of art as belonging in museums and galleries and being detached from lived experience [5, p. 6]. The detachment is also created by the common forms of discourse. Second-order cybernetics provides an alternative to these forms of discourse and a framework that assist us in avoiding such detachment when engaging in activities of creating.

Based on Pask's *Conversation Theory*, Glanville conceives the process of architectural design as a conversation that the designer holds with him/herself or with others (see [12, pp. 1178-1179]). Exploration and play rank highly in such theorisation, and while the process is potentially infinite, we will at some point decide that what we have reached is either "good enough" or we will stop and start again [12, p. 1178]. This is similar to reaching an agreement or disagreement, even an agreement to disagree, in conversation. With John Dewey, we could say that what is considered "good enough" is a state that reaches a form of closure, of unity and of fulfilment [5]. Whatever is reached, however, always remains one possibility among many others. This is a strength also because the activity of designing is always oriented towards a future that we cannot yet know. Even if we assumed that the world can be defined, in designing we always face a future. In being oriented towards the future, activities of designing always face an unknown. We do not want to restrict the future, we only want to enrich the future. It is up to future inhabitants and participants to decide whether what we create is an enrichment that is *aesthetically potent*.

> La poésie ne s'impose plus, elle s'expose.
> Poetry does not impose, it exposes itself. [3, p. 181][1]

[1] The French 'plus' suggests that the correct translation of the line should be: "Poetry does not impose anymore, it exposes itself." The common translation however is the one given. It can be added that the 'not anymore' is most likely a response to Adorno's famous postulate that there can be no poetry anymore after Auschwitz.

Exposing itself could be understood as a weakness, but it is the strength of the poetic voice – of the reflected I – and the foundation of any endeavour that is open to the future because it acknowledges the agency of Others. With a radical openness at its basis, second-order cybernetics combines both an epistemology and an ethics. It provides a structure and a framework that is essentially a poetics of designing. Possibly, we can imagine the delight we would encounter if the "tomorrow" that Constant Nieuwenhuys described in 1956, became today.

> It is in poetry that life will reside. [4]

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