The Art of Conversation: Design Cybernetics and its Ethics

Abstract

Purpose

The paper discusses ethical principles that are implicit in second-order cybernetics, with the aim of arriving at a better understanding of how second-order cybernetics frames living in a world with others. It further investigates implications for second-order cybernetics approaches to architectural design, i.e., the activity of designing frameworks for living.

Design/methodology/approach

The paper investigates the terminology in the second-order cybernetics literature with specific attention to terms that suggest that there are ethical principles at work. It further relates second-order cybernetics to selected notions in phenomenology, pragmatism and transcendental idealism. The comparison allows for conclusions about the specificity of a second-order inquiry. In line with the thematic focus of this journal issue on the framing of shared worlds, the paper further elaborates on questions relating to the activity of designing 'worlds' in which people live with others.

Findings

The paper highlights that a radical openness toward the future and toward the agency of others is inscribed in the conception of second-order cybernetics. It creates a frame of reference for conceiving social systems of all kinds, including environments that are designed to be inhabited.

Originality/value

The paper identifies an aesthetics grounded in the process of living-with-others as an ethical principle implicit in second-order cybernetics thought. It is an aesthetics that is radically open for the agency of others. Linking aesthetics and ethics, the paper's contributions will be of specific value for practitioners and theoreticians of design. Considering second-order cybernetics as a practice generally dealing with designing, it also contributes to the wider second-order cybernetics discourse.

Keywords

second-order cybernetics, ethics, conversation, design, architecture

Paper type

Conceptual paper

The world in which we want to live

> Man is prone to seek novelty in his environment and, having found a novel situation, to learn how to control it. (Pask, 1970, p. 76)

> […] the alternative to reason, as a source for a universal system of values, is aesthetic seduction in favor of a frame of reference specifically designed to comply with his desires (and not his needs) and defining the functions to be satisfied by the world (cultural and material) in which he wants to live. (Maturana, 1980a, p. 58)

One can assume that most people would agree with the proposition that we, human beings, would like to live in a world that makes sense to us. We would like to live in a world in which what we do carries meaning, a world open for next generations to inhabit in a meaningful way as well. So, what makes life meaningful? And, what role can or should architects and designers play in engendering meaningful connections between human beings and the world they inhabit? The responses that have received substantial support and promotion in the past decade have been those that promised to provide us through concepts, such as the smart city, with a more efficient and better life. These responses are founded on the premise that technological progress, per se, means improvement. However, it has become apparent that technological progress by itself does not lead to a viable model (cp. Thrift, 2014). By positing that technological progress is a value per se and by setting it as an a priori, thus suggesting that the problems humanity is facing could be solved quasi-automatically, critical questions of what the foundations for a meaningful life are have been circumvented (cp. Maturana, 1997).

As scientific studies indicate, people have an intuitive understanding of what makes their life meaningful. They understand that 'technological progress' is not necessarily conducive to a greater sense of meaning even though they may enjoy the increased comfort and efficiency that technological advances confer. A happy life is not necessarily a meaningful life (Grewal, 2014). The most obvious response to the question of what makes life meaningful is 'love.' Love links us to the world and allows us to communicate in meaningful ways. Love is sharing without expectations, and yet, love is a tricky subject, as the term is trivialized and ubiquitously employed in the advertising strategies of myriad consumer products. While 'to love,' but not necessarily seeking to be loved or seeking for a large number of 'likes' and 'followers,' might be an obvious way for embedding meaning in life, a theory of love as a general theory could easily prove to be both too limiting and too open to create a viable framework for action. In the history of humankind, various attempts have been made, Christian theology being the prime example, to define love via an absolute as a basic ethical principle for living. It advocates the renouncement not only of war and revenge, but also of defense – and not only of oneself but of worldly love as well. Depending on how theory frames love, if it is linked to an absolute that is exterior to the world, as a framework for action, such a theory would necessarily require everyone to become either an idealist or believer. It is not a path everyone would embark on. Having existed for thousands of years, theories of higher order love have neither prevented war nor injustice. This is not to say that it doesn't make sense to speculate on an absolute wisdom governed by love. After all, we learn from stories, and they create opportunities for interpreting lived experiences in novel ways. A new world, in which human beings connect and engage with each other peacefully and meaningfully could be initiated via theories that rely on love as an external independent reality if all agreed on a specific narrative of transcendental love as a frame of reference, or if all agreed that any such tale is a valid tale. This, however, is not a feasible scenario.

If a theory that incorporates love as a transcendental ideal does not make for a feasible framework, is there another way to frame what we do in such a way that meaningful living remains a possibility? The following passages outline how architectural theory has attempted to frame the world we live in with others with a specific focus on questions of meaning, and then proceeds to explore how second-order cybernetics provides for a quite different and more grounded approach to the question.

Worlds for discoverers and inventors

Architectural theory has engaged for many years in a project that attempts to respond to the question of what designing environments that allow for meaningful living could be. It has reflected this matter within the context of 'Being-in.' Relying primarily on the phenomenology of Martin Heidegger or Maurice Merleau-Ponty, who explicitly dealt with questions of living in time and space, architectural theory saw in phenomenology the possibility for a transfer, and for a vision of architecture as something other than a predominantly technical discipline. In this vision, the task of architecture is to anchor human beings in the world poetically and thus meaningfully. A well known example is architectural theory's recurrent reference to Martin Heidegger's interpretation of a poem by Hölderlin in the essay "… Poetically Man Dwells …" (Heidegger, 2003). To dwell poetically means to exist in the span between earth and an unknown god who is concealed by the sky. Poetic life is necessarily anchored in the world but accepts a transcendental unknown as the basic measure of life. The poem notes further that one can live happily with the knowledge of the unknown as the measure for life under the condition of an attitude of kindness. Translated in English, Hölderlin states: "[…] As long as Kindness, / The Pure, still stays with his heart, man / Not unhappily measures himself / Against the Godhead […]" (Heidegger, 2003, p. 277). Accepting the transcendental unknown as an essential measure for life requires kindness.

Phenomenology has made important contributions to architectural theory with the aim of eliminating conceptual separations between minds, bodies, environments, and cultures. It has actively worked on dissolving the separation between body and mind, which was embedded, via Descartes, in the scientific method as radical doubt. It does so, however, by positing a transcendental and thus external ideal as a framework. This detachment from practice has had an effect. While the phenomenological discourse has in theory provided us with an idea of what meaningful architecture could be, so far there has been only a limited influence on the practice of architecture at large. Very few architects can be named whose designs explicitly reflect the phenomenological discourse. The Swiss architect Peter Zumthor, known for his concern for distinct atmospheres, is often named in this context. The urban reality experiences a different trend. More and more cities are designed and built by property developers, who are not necessarily interested in the poetics of building. This is in line with a general trend toward economic efficiency that sees value in short-term profit. The architectural profession supported this trend, although not always consciously. It contributed to the current malaise of a built environment, that does not resonate with people's lives, when it shifted its attention from the sensuous to the scientific in the late 18th century, prioritizing 'objective' values in architectural design (Pérez-Gómez, 1983; Vesely, 2004). How could meaningful change be effected?

Like Heidegger's philosophy, Merleau-Ponty's development of the phenomenological project constitutes an alternative to the Cartesian dualist view. Merleau-Ponty's conception of the 'lived body' was not only discussed in philosophy and architectural theory but also the cognitive sciences, initiating a dialogue that is well documented in the academic literature, highlighting terms such as embodied cognition and situated cognition. Foundational in this context is the work of Francisco Varela, Evan Thompson, and Eleanor Roche *The Embodied Mind*, published in a first edition in 1991 (Varela et al., 2016).[1] Phenomenology has assisted the re-integration of the human body into conceptions of cognition (Dreyfus, 2008).

Evan Thompson has expanded on the previous collaboration with Varela, incorporating also notions of intersubjectivity as developed by Edmund Husserl into a project that operates elegantly at the intersection of neuroscience and phenomenology (Thompson, 2007). Many others could be named. There has been a wealth of publications in recent years. Shaun Gallagher and Dan Zahavi have likewise provided foundational work (Gallagher and Zahavi, 2008). The discourse has emphasized

[1] The second edition is a revised edition and has new introductions that consider critique related to the first edition's interpretations of Husserl's phenomenology (Varela et al., 2016) (Dreyfus, 1993).

the centrality of life's meaning in a world shared with others, but it has focused on analyzing rather than designing a meaningful world. Through its collaboration with the sciences, phenomenology has received considerably more attention than it would otherwise have and it has benefited from the trust that scientific results engender.

Considering the above, it is consequent that architectural phenomenologists, such as Harry Francis Mallgrave, Juhani Pallasmaa, and Alberto Pérez-Gómez, recently called for a more intensive collaboration with the cognitive sciences (Mallgrave et al., 2015) (Pérez-Gómez, 2016). It is hoped that this collaboration leads to a closer attachment of phenomenology to practice, and a rethinking of architectural practice on a larger scale. However, can we assume that science can provide for a bridge to a practice of designing?

Founded in 2003 by the San Diego Chapter of the American Institute of Architects (AIA), the Academy of Neuroscience and Architecture (ANFA) has fostered the collaboration between architectural practice and both the cognitive neurosciences and phenomenology. Neuroscientist Fred H. Gage, known for having discovered stem cells in the adult human brain in the 1990s, was invited to give the theme presentation at the 2003 AIA meeting. He presented scientific evidence that human beings are neurologically changed even in adult age by the environments they live in. Until the discovery of stem cells in the adult human brain, one had assumed that neurogenesis, the genesis of authentic neurons, would only occur up to a certain point in the development of a living being and that the structure of the brain would then be fixed. This understanding also supported the conceptualization of the human brain as a kind of computer and initiated numerous related research projects in Artificial Intelligence (Gage, 2003). The situation has changed. It seems now far less likely that one can model thinking machines (cp. Dreyfus, 1993). The structure of the brain is not fixed, and besides, questions of cognition do not depend solely on the structure of the brain. Further research with mammals provided more evidence to which extent environments influence what we are. Gage's paper states:

> By exposing experimental animals to enriched environments, or changing and modifying environments so they contain more stimulation, we can increase dramatically the total number of cells that exists, even within a short period of time. This increase in the division of cells persists in such a way that the animals that survive end up with as many as 50% more neurons that they would have had under other circumstances (Gage, 2003).

There is something reassuring about scientific results that have been visualized via experiments. Knowledge is reassuring, wisdom less so. The scientific method operates within limits, but within these limits the rules are clear, engendering trust. Scientific evidence therefore creates a sense of urgency and relevance, even if the questions it addresses are not necessarily new. We still do not have any scientific evidence as to what constitutes an enriched or stimulating environment for us, human beings. What is stimulating for lab animals is not necessarily stimulating for human beings.

In the text *Ethics and Second-order Cybernetics* Heinz von Foerster suggests that there are two kinds of human inhabitants, discoverers and inventors. The discoverers are those who look at the world from a scientific point of view. The inventors are those who consider the observer as part of the system they observe. Those who want to be discoverers, he suggests, "will most likely become astronomers, physicists and engineers." Von Foerster further suggests biologists, poets and family therapists to be among the inventors. The two types of human inhabitants can live together without any problems, he further outlines, "as long as the discoverers discover inventors, and the inventors invent discoverers" (von Foerster, 2003, p. 294). One can assume that it is this attitude that made cybernetics possible as an inter-disciplinary endeavor. The above mentioned call for a closer collaboration between the cognitive sciences and design is a reminder of the times when the second-order version of cybernetics initiated a dialogue between the cognitive sciences and architectural design, notably via Gordon Pask and his students at the *Architectural Association* in London. Michael Arbib, a long time contributor to cybernetic literature, is among those who have been involved in the recent revival of the dialogue between the cognitive sciences and architecture

(Arbib, 2018). The integration of phenomenology into the conversation is promising, considering that phenomenology and second-order cybernetics share common roots. Both have developed from a scientific base and through a critical inquiry into the methodology of science. They both inquire into the paradox that science claims objectiveness on the basis of a methodology that relies on subjective observation. Both benefited from the philosophical investigations of Immanuel Kant into subjective observation and its relation to objective or universal truth. They both reject the idea that claims for objective truth can be made through a methodology to which an attitude is implicit that sees the world as a reality existing independent from acts of observation. Husserl calls this attitude the "natural attitude" (Husserl, 1954, p. 153). The natural attitude is implicit in all scientific inquiries. Nevertheless, Husserl's aim was not to reject positive science. His aim was to complement the positive sciences by adding a "depth-dimension" (see Marbach 1982, p. 440). Terms, such as love, generosity, kindness, or empathy – depending on the author's inclination – are inscribed in both projects and reflect in this context an openness in the approach to thinking, which goes beyond the framework that is described by the scientific method. And yet, there is a fundamental difference. When phenomenology asks "how perceptual experience of transcendent objects is possible" (Overgaard 2002, p. 213) the focus of second-order inquiry is on the question "how am I doing what I am doing" (Maturana 2012, p. 162). There is a shift from the transcendental to the worldly sphere in which we act.

Heinz von Foerster pointed out that the freedom to decide only exists in the context of questions that are "in principle undecidable," i.e., which are not "already decided by the choice of the framework in which they are asked" (von Foerster 2003, p. 293). Frameworks that are open in this radical sense, being "in principle undecidable," are thus the only frameworks that allow people to make decisions. At the very end of *Ethics and Second-Order Cybernetics* von Foerster provides a general guideline for making decisions: "Tell them they should always try to act so as to increase the number of choices. Yes, increase the number of choices!" (p. 295). Increasing the number of choices ensures that the framework remains a framework that is open for decisions.

In the transition from first to second order, by the inclusion of the observer in the observations, cybernetics left the secure framework of the scientific method, which avoids through its method contradictions, ambiguities, and undecidability. In turn, however, cybernetics gained social relevance, by discussing questions not disconnected from living in the world and with others but from within living (see Chapman, 2019; 2019b). These questions are not to solve but to decide. This makes sense only when there is also the freedom to decide. Under these circumstances, language and understanding are at the center of inquiry, and second-order inquiry becomes a framework that deals in the widest sense with questions of designing (see Glanville 2006).

Reconsidering the issue of what stimulating environments could be, and considering as well the context of a framework that in its openness reflects freedom, the question to which extent universal communication under conditions of subjective freedom is possible, gains importance. Art has repeatedly and in radical ways opened the question on what language can be and accomplish, and how it is possible that different individuals with entirely different life experiences, even with different cultural backgrounds, recognize a work of art as art and their encounter with it as an aesthetic experience. Famously, Immanuel Kant dedicated one of the two parts of his *Critique of Judgment* to aesthetic judgment, addressing the problematics of universal communication under the condition of subjectivity (Kant, 1987). Kant's solution, which is now well embedded in Western thought, bore the genius author by whose extraordinary sensibility the rules of nature are transferred into the work of art. While Kant does not assume that we can arrive at an ultimate objective description of the world, he suggests that we can 'think' the idea of nature in the encounter with it (p. 128). According to Kant, it is because the work of art reflects the rules of nature that it is capable of universal communication. Questions of aesthetics have been of major importance subsequently to German idealism and phenomenology. Heidegger's essay on the *Origin of the Work of Art* makes a prominent example (Heidegger, 2000). With Heidegger, the world acts in the work of art. The truth of the world speaks in the work of art through its openness. In second-order cybernetics and its relative radical constructivism, questions related to the potentiality of art and design, it

could be argued, are foundational, but they are approached from a pragmatic rather than from an ontological point of view.

Dimensions of living

It is generally well known that cybernetics evolved as a cross-disciplinary inquiry into goal-directed circular-causal processes with negative feedback (Heims, 1991, p.14-16). While the specifics of cybernetic history cannot be covered in this paper, it is important to note that from its very beginning the project of cybernetics made questions of language and understanding central to its inquiry. Margaret Mead's presentation at the first annual symposium of the American Society for Cybernetics in 1967 provides an excellent account:

> I specifically want to consider the significance of the set of cross-disciplinary ideas which we first called "feedback" and then called "teleological mechanisms" and then called "cybernetics" – a form of cross-disciplinary thought which made it possible for members of many disciplines to communicate with each other easily in a language which all could understand. […] We thought we would go on to real interdisciplinary research, using this language as a medium. (Mead, 1968, p. 2-3)

Mead further suggested that the cybernetic ideas, which initiated the new society, should be applied to its structural organization. The paper was later published as *Cybernetics of Cybernetics*[2] and is viewed as an important step in the development from first- to second-order cybernetics. Clarity in the definition of terms was essential, but for the discoverers to discover inventors, and the inventors to invent discoverers (cp. von Foerster, 2003, p. 294) a kind of radical openness granting freedom to others to make decisions was of key importance. The following passages trace the terms indicative of the openness of second-order cybernetics, making it a framework for the sharing of ideas. The term love, for example – alluded to at the beginning of this paper – is indeed part of cybernetic literature.

The questions about what kind of environments we should want to live in have been lingering since at least the beginning of the 20th century, when the biologist Jakob von Uexküll highlighted that living beings cannot be conceptualized as disconnected from their concrete living environments (Umwelten[3]), that every being is made by and makes its Umwelt (Uexküll, 2014, 1926). Humberto Maturana's *Biology of Cognition* (Maturana, 1980a) expanded on Uexküll's model that carries notions of circular causality. Based on this, Maturana and Varela further expanded the understanding of living beings by conceptualizing them as autopoietic systems. In the introduction to the collection of the two essays that are constitutive for the conception of living systems as autopoietic and cognitive systems, Humberto Maturana emphasizes the phenomenon of love as an ethical principle, essential for the survival of human beings as social living systems (Maturana, 1980a)(Maturana and Varela, 1980). Love in this context is an ethical principle that is grounded in biology.

> Among human beings, the basic stabilizing factor in the constitution of a social system is the phenomenon of love, the seeing of the other as a partner in some or all the dimensions of living. (Maturana, 1980b, p. xxvi)

It is generally recognized by second-order cybernetics thinkers, that the notion of love explicates a basic human desire to connect. The term as such is, nevertheless, not frequently used in second-order literature, except when – and this is Maturana's project – at the same time the task is undertaken to ground and redefine the term to liberate it from the many fuzzy

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[2] The title was assigned to the paper by Heinz von Foerster who acted as the editor of the publication.

[3] Contemporary literature in the English language tends to use the German term *Umwelt*, in plural *Umwelten*, when speaking of Uexküllian concrete living environments to avoid confusion. Specifically, Umwelt should not be confused with the term lifeworld (Lebenswelt), which indicates a concept defined by Edmund Husserl. The two are distinctly different concepts.

meanings that popular usages assign to it. Associations to a supernaturalism, for example, that is in contradiction with second-order positions for its implicit support of a conceptual separation of bodies and minds (cp. Bateson and Bateson, 1988, p. 6-7) are generally avoided. It is important to keep in mind that cybernetics was developed in conversation with and for the dialogue between disciplines. The basis for such a dialogue is a frame of reference that meets consensus.

In general, the discussion of *meaning* is excluded from research in the natural sciences (see also Brier, 2008, p. 230), and it is for this reason not surprising that Maturana's comments exploring the ethical implications of his and Varela's research are placed in the introduction of the collection. They were originally intended to become the appendix to the *Autopoiesis* text but were never published as such (Maturana, 1980b, p. xxiv). Maturana's introduction can also be read as a commentary on the events that put an end in 1973 to Salvador Allende's government in Chile and its attempts to create bottom-up socialism, notably with the assistance of cybernetics researchers. Designed to foster the participation of workers in the management of the state's economy, the computer network Project Cybersyn was developed from 1971 onwards with British cybernetician Stafford Beer as principal engineer. It famously assisted the Allende government survive a strike organized by the opposition in October 1972 (Medina, 2011), but against the military coup in September of the next year, the government had no means. In 1980, when Maturana's comments were published, Augusto Pinochet had already governed Chile for seven years. "An absolute totalitarian society must negate love as an individual experience because love, sooner or later, leads to an ethical evaluation of the society that the loved one integrates," writes Maturana (1980b, p. xxix).

Notions of love remain for Maturana a subject of ethical concern and a point of entry to an inquiry. Developed in the mid-90s by Maturana in cooperation with psychologist Gerda Verden-Zöller, *The Origin of Humanness in the Biology of Love*, edited by Pille Bunnell (Maturana and Verden-Zöller, 2008), proposes an evolutionary history of the human lineage that is radically different from the version that argues for understanding humanness as guided by aggression and competition – a point over-emphasized by Darwinism. *The Origin of Humanness* proposes that the human lineage has evolved with its specific characteristics and with language as a medium for conversation only because of the conservation of habits and preferences that focus on care and love, and precisely not on competition and aggression. While the work has numerous philosophical implications, it is not per se a philosophical work. It is the work of scientists, and it is, interestingly, because it is the work of scientists and because the text relies on scientific reasoning that the text succeeds in grounding the term love and in returning it to us as an ethical principle. Maturana and Verden-Zöller firmly embed notions of love in the biology of human beings, and by doing so liberate it of the associations to superficial popular usages on the one hand and supernaturalism on the other. It is an astonishing work. The text performs a fundamental liberation of the term love as if it was a work of art, and yet it appears to be of key importance that the text situates itself within science. In science, through the scientific method, what is recognized as truth is questioned, exposed to doubt, to be re-questioned, validated or dismissed. By its method, science performs and re-performs to create a consensual frame of reference. It is difficult to imagine how this act of liberation could have been initiated except through the form of scientific discourse that we, readers, commonly accept as a valid frame of reference. The text emerges as a reminder of the fundamental aim of science to perform acts of liberation.

It is, however, the specific strength of second-order approaches, in contrast to first-order approaches, that they avoid prediction in favor of an openness that allows others to act. Consequently, the book concludes that we, human beings, have the capacity to design our world and by doing so also to define what we want it and us to be. The text is a prime example of second-order reasoning both in form and content as it returns agency to the participants in the conversation, in this case, the readers of the book.

Second-order cybernetic literature has integrated the notion of love as an ethical principle via other terms that carry its meaning or part of it, firmly embedding in its framework notions that relate to a willingness to give without expectations for receiving something in return. The notion of love is tacitly present in the term *generosity* that is frequently used by Ranulph Glanville (cp. Brier et al., 2015). According to Glanville, the term generosity was considered by Gordon Pask and his co-researchers the basic criterion for judging whether a cybernetic system is successful. The criterion for judgment was whether the system "aids people without taking away from them" (Glanville, 1988, p. 219). Stripped of allusions to passion, the term generosity goes beyond tolerance and embeds love as an ethical principle in second-order thought. Generosity avoids the evocation of the opposite hate – one could say that it sits between poles – and is well designed to accommodate the principle idea of a meta-language as a frame of reference.

Conversations, or the Germs of Novel Experiences

The work of Gordon Pask is of particular importance within the context of design and art. Having obtained a PhD in psychology, Pask was interested in frameworks for learning and engaged from the early 1950s onwards in the making of machines through which people's learning – in the widest sense – could be facilitated (Husbands et al., 2008). Pask's ideas of learning are based on the understanding that human beings are learning beings, i.e., they strive to learn. New knowledge and skills increase the chances of survival in the living world. Through learning, living beings stabilize themselves. They re-organize vis-à-vis an environment that cannot be fully known, which presents them with novel challenges. According to Pask, human beings seek situations, which provide the potential of novel experiences, and learn to master them (Pask, 1970, p. 76). Pask's approach is in line with certain positions in pragmatism. Theories of learning, as, for example, formulated by John Dewey (Dewey, 2007), resonate in Pask's conception of the human as a learning being. Also with Dewey, a basic consideration concerns the role of education as enabling. It should not be knowledge per se but rather the engendering of the potential for future action that education should be concerned with. Dewey emphasizes the independence of the person who learns. The focus of all Deweyan theories of education lies in an initiation of a capacity to construct strategies to learn. Considering the approaches to learning of both Pask and Dewey, one will realize that both see in aesthetic experiences the highest potential for learning (Dewey, 2005; Pask, 1970). Both also confirm a basic position of Kant's aesthetics, where art is considered to have the effect of advancing "the culture of our mental powers to [facilitate] social communication" (Kant 1987, p. 173). Art provides the highest potential for creating experiences that keep the process of self-organization alive.

Nevertheless, Dewey, in his work *Art as Experience,* questions whether past masterpieces shown in museums, detached from the life-context in which they were created, could still be considered objects with high potential for aesthetic experience. He argues that detaching works of art from the context in which they were created runs counter to the idea of art. In doing so, he questions Western aesthetics in general and its tradition (Dewey, 2005, p. 6-9). Kant, in contrast, follows Western traditions. As in Plato's conception of the muse inspired artist, he anchors the origin of the work of art via the character of the genius in knowledge that is essentially divine (see Westermann 2019). Conversely, Dewey anchors art in the place of its creation, i.e., in life. According to Dewey, aesthetic experiences emerge from everyday experiences, and in the tension of life, which oscillates between loss and recovery of union with an environment (Dewey, 2005, p. 15). An aesthetic experience is referred to also and synonymously as *an* experience, whereby experience can slide into being *an* experience. According to Dewey, aesthetic experiences "punctuate the stream of living" (Dewey, 2005, p. 7).

> Because experience is the fulfillment 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 esthetic experience. (Dewey, 2005, p. 19)

What is an aesthetic experience? An aesthetic experience, according to Dewey, generates a sense of

fulfillment that sets it off from the stream of everyday experiences, of closure and consummation but without cessation. "This closure of a circuit of energy is the opposite of arrest, of stasis" (Dewey, 2005, p. 41). Gordon Pask follows a similar path when he suggests that human beings seek for novel experiences, and thus for situations that are "aesthetically potent" (Pask, 1970). According to Pask, novelty emerges from the ordinary. It is anchored in life. While, with Dewey, aesthetic experience emerges from common general experience, in Pask's theory the point of departure is circumscribed more precisely and anchored in the intersubjective space. Pask defines conversation as the basic unit of human social life. Conversation engenders the potential for the development of novel experiences. It is thus the basic unit of art. By reducing Dewey's general term experience to the more specific conversation, Pask initiates a displacement that re-emphasizes the capacity of art to foster social communication.

> The word "conversation" is given an interpretation, which refines its common sense meaning. Conversation maintains the autonomy or identity of systems and, also, generates independencies between systems (human, societal, or others), which is a prerequisite of dialogue. (Pask, 1980, p. 1)

According to Pask, for self-organizing beings who strive to learn, the most basic and defining experience is conversation. The term embeds human beings in a social system. Conversation is the condition for dialogue and thus understanding (cp. Pask, 1975). A conversation is what "leads to the exchange of concepts" between participants (Pask, 1996).

Ranulph Glanville's work, dedicated to a second-order theory of designing, builds on Pask's research mentioned above. His Ph.D. thesis *Theory of Objects* from 1975 describes through formal language the conditions for entry into what Glanville calls the "universe of observation" (Glanville, 1975, 2013), and which frames all processes of design. The thesis marks the crossing to a second-order interpretation of the activity of designing as *in* conversation, which Glanville explored in depth in his later publications. A design task is a "wicked" task. It cannot be fully described. Instead the task emerges in the design process itself. Designing is thus never about finding *the* solution (Cross, 2007; Glanville, 2007; Sweeting 2018). A design task can be addressed in a multitude of ways. It is a classical case of a question that is – as von Foerster put it – "in principle undecidable." For this reason, the act of sketching, a basic design activity, also appears to have no immediate purpose. It is playful. Designing is a conversation that a designer holds with her- or himself, as well as with others. It is, as Pask states, a search for what is aesthetically potent. Glanville calls it "magic." Whether it is the ultimate magic, can never been known, but it can be decided whether it is "good enough" (Glanville, 2006, p. 105). Glanville had a lifelong interest in the relation of ethics and design (see Sweeting, 2018). In the paper *Try again. Fail again. Fail better: the cybernetics in design and the design in cybernetic*s Glanville specifically highlights that cybernetics and design "imply the same ethical principles" (2007, p. 1173). Design requires generosity, an openness of the mind. Without this, there can be no listening and thus no conversation.

In conversation, a space for the future and intersubjectivity emerges. Second-order cybernetics is projective - unlike science, which is predictive - and radically open to allow for the agency of others. It is in this openness that ethical principles are realized. Carrying the 'germ' of aesthetic experiences, second-order cybernetics initiates the conversations of those accepting the freedom to decide.

Conclusion

The paper outlined how architectural theory with the support from phenomenology has attempted to frame the world we live in with others with a specific focus on questions of meaning. It then proceeded to explore how second-order cybernetics provides for a different and more grounded approach to the question, initiating a shift from the transcendental to the worldly sphere in which we act. The paper discussed the principles of a second-order cybernetics approach to a framing of the world(s) in which we live with others. It compared them to key concepts in phenomenology as well

as selected theories in Dewey's pragmatism and Kant's transcendental idealism. By reducing Dewey's general term experience to the more specific conversation, Pask initiates, the paper argued, a displacement that re-emphasizes the capacity of art to foster social communication. Conversation engenders the potential for the development of novel experiences and can be considered the basic unit of art.

In conclusion, it can be stated that second-order cybernetics conceptualizes a framework that is radically open for the agency of others in an unknown future. It rejects detachment and transcendence toward absolutes – which would constitute a fixation. Instead it situates itself within the intersubjective space of conversation. Second-order cybernetics has grounded the concept of love in the biology of living and incorporated it as ethical principle in an aesthetics that makes a meta-framework. It assists us in maintaining a critical view of the processes involved in creating understandings of the world and in designing for those who live in a world with others. The paper has identified as ethical principle implicit in second-order cybernetics an aesthetics that is grounded in the process of living-with and that is radically open for the agency of others.

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