Guest editorial: Resilience and Ethics in Social Systems

This special issue follows from the 2017 conference of the American Society for Cybernetics (ASC), which took place in the week of the 7-12 August in Salem Massachusetts. The conference theme was "Resilience and Ethics: Implications", and its goal was:

> ...to increase the resilience of resilience by considering the many ways in which the concept is — or might be — understood. Psychology, business, systems, media, material science, and philosophy, among others, consider resilience a key concept, though each defines resilience somewhat differently and applies resilience in a different context.[1]

The use of the term 'resilience' goes back to the early nineteenth century, referring to "the capability of a strained body to recover its size and shape after deformation" (Merriam Webster, 2018). This term from engineering and the physical sciences was extended by ecologists to refer to the dynamic adaptability of biological systems. An early and well known example is Crawford Holling's paper 'Resilience and Stability of Ecological Systems':

> Resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and paramaters [sic], and still persist. In this definition resilience is the property of the system and persistence or probability of extinction is the result. (Holling, 1973)

The concept of resilience has also been adopted in psychology to refer to a quality present in an individual. For example, it has frequently been used in child developmental studies to describe a child's capacity to overcome adverse events (Masten & Coatsworth, 1998), including the ability to overcome extreme challenges such as famine, war, or serious physical or psychological trauma (Day et al., 2011). By extension from the individual to the group, organisations are also described as possessing the property of resilience if they can overcome unforeseen events in their environment. A clear example of this extension is a report on 'Organisational Accidents and Resilient Organisations' for the Research Council of Norway [2]. The report explicitly adopted the Merriam Webster definition of resilience as a physical property, and then applied it to organisational resilience in referring to the properties of "an organisation that has a capacity to accommodate failures and disturbances without producing serious accidents" (Morud et al., 2004).

The term 'resilience', therefore, involves the metaphorical application of a concept from physics and engineering (the capacity for recovery of a physical material from deformation) to three quite different domains: (i) the ability of a biological population to adapt to a changing environment, (ii) individual psychology, and (iii) social organisations.

Metaphors can provide creative insight, and the extension of the concept of resilience may well have been productive in moving forward our understanding. It has certainly been productive in creating a discourse—and generating academic activity. At the same time, the application of the concept in such different domains can create confusion about the mechanisms involved. It is hard, therefore, to disagree with Christopher Day et al. (2011) who describe 'resilience' as a multi-faceted and unstable construct. In particular, the shift of the concept from an ecological to a social context can be problematic. Whereas the ability to sustain itself is a precious quality of any ecological system, the same cannot always be said in terms of social relations (MacKinnon and Derickson, 2013; Derickson, 2016).

Within the multi-faceted domain of resilience, a distinction can be proposed. Some explanations of resilience identify a quality in a system whose presence itself explains the system's survival. This is the case, for example, in studies that identify a psychological trait of resilience (or the related quality of 'grit') and which assess its presence or absence in individuals. Other researchers, however, conceive of resilience as a dynamic aspect resting on the interaction between the attributes of an individual and the environmental and social factors that are intermingled in a person's life (Luthar & Brown, 2007; Day et al., 2011; Mansfield, Beltman & Price, 2014). From the latter perspective, resilience is a relational phenomenon, and is at least partially determined by the behaviour of individuals, and by the behaviour of those who determine the characteristics of the environment in which those individuals live. As **Pille Bunnell** (2019) puts it in her contribution to this issue, resilience can be understood "as a way of being in the world; a manner of attempting to articulate the complexities of our relationships in a systemic coexistence with each other and our earth". If we understand resilience in this way, in terms of our relationships with each other and with the environment, then it is a concept intimately linked with ethical considerations.

What then, can cybernetics offer to move forward research into resilience? Firstly, cybernetics has a long history of making sense of the similarities and distinctions in multiple discourses. The ideas of generations of cybernetic thinkers can be brought to bear in clarifying the isomorphisms and metaphorical relationships between the domains of the physical, ecological, psychological, and social. For example, Gregory Bateson critiqued the metaphorical use of the concept of 'power', derived from physics, in the domains of the social and the biological (see Bateson (1974) and Guddemi (2010)). It may be useful today to consider how Bateson would have viewed a similar metaphorical application of physical properties in the literature of resilience.

Secondly, one of the principal concerns of cybernetics has been to explain the on-going survival of systems and their adaptation to the environment. To take only two of the most evident examples, the formulation of autopoiesis by Humberto Maturana and Francisco Varela (Maturana and Varela, 1980) concerns precisely the self-reproduction of systems in a changing environment, while Stafford Beer's analysis of viability in the field of management cybernetics (e.g. Beer, 1972) has much in common with Holling's description of resilience (cited above). These and other cybernetic perspectives provide theoretical models that can be used to explain the structures and processes which enable entities to survive and thrive, or lead them to disappear. Two papers addressing this topic are: **Robert Cutler** and **Alexander von Lingen** (2019); and **Philip Baron** and **Anne Baron** (2019). The former relates to the practical design of resilient organisations with empirical reference to the European empirical Parliament's development of institutional capacities, while the latter paper proposes a set of common attributes that describe ethically resilient educators in both the tertiary and the pre primary level.

Cybernetics also offers a valuable point of reference in light of criticisms of resilience such as those of Kate Driscoll Derickson (2016, p. 161), for whom resilience "fetishizes the status quo and is not suited to the emancipatory social change desired by groups that have employed the term". Talk of increasing resilience has been critiqued as regressive in that maintaining existing economic and social relationships sustains the inequalities and injustices that these relationships produce. This aspect of resilience is addressed in a contribution to this special issue by **Dai Griffiths** (2019), who argues that the methods of governance inspired by neoliberalism can lead to the unconsidered maximization of transparency and accountability. This, he proposes, can suppress the unacknowledged and unrecognised conversations and

processes that contribute to the resilience of both the organisation and its members. To understand resilience in this socio-economic context we must therefore always ask resilience *to what*, *of whom*, *to whose benefit* and *by what process.*

Geoff DeVerteuil and Oleg Golubchikov (2016) have suggested a critical reframing of resilience as a "metaphor for change, not against change", understanding it as a necessary underpinning for future transformations. This approach may find support in the combination of stability and change that is a feature of cybernetic processes. Consider, for instance, the eponymous cybernetic example of steering a ship. We can understand the cybernetic system of steering in terms of resilience, as the maintenance of a steady course despite changes in the environment. This ability to maintain a trajectory is essential *not just* to reaching the destination to which one is heading *but also* to the ability to change direction, for instance to explore new areas of coastline that were not known at the outset of the journey. This combination of stability and the generation of new possibilities (interpretations and observations) is a quality of cybernetic actions. These include conversation, learning, reflection, and designing in diverse contexts, as explored in contributions to this issue from **Philip Baron** and **Christiane Herr** (2019), and **Megan Ryland** and **Tom Scholte** (2019). Herr and Baron present a comparative analysis of their cybernetically informed pedagogy that emphasises ethical settings for learning on the basis of equality and social inclusion in the classroom context. They highlight the role of adaptation as an important feature in their respective approaches that are adapted to their distinctly different contexts—China and South Africa. Ryland and Scholte use a blended methodology (grounded theory and action research) to study forum theatre as a means to increase context awareness in the workplace where participants are experiencing conflict.

Of course, one can also speak of the resilience of the field of cybernetics itself. In his time as ASC President, Ranulph Glanville (2011) stressed the need for cybernetics to be practiced in the light of its own insights. In this, he echoed Margaret Mead's (1968) address to the inaugural conference of the ASC, where she challenged the society to apply the ideas of cybernetics to itself. This observation led to the development of second-order cybernetics, which Glanville (2009) suggested should have "the role of the conscience of cybernetics" in order to maintain the coherence of the field:

> ...it's where we look at the concepts and assumptions that cybernetics runs on, or which it tries to explain, and where we attempt to deal with them in a manner that reflects our understandings—i.e., cybernetically. That's how the cybernetics of cybernetics actually is the cybernetics of cybernetics! So I believe there is an area (perhaps only tiny) where we care for what is at the heart of cybernetics, making sure it's healthy and growing well. (Glanville, 2009, p. 198)

In this light, this special issue includes papers concerned with core second-order cybernetic themes of recursion and the inclusion of the observer. **Lance Nizami** (2019a, 2019b) presents a critique of infant pyschophysics, using the perspective of second-order cybernetics to show that experiments to determine hearing thresholds in infants actually infer an ability of the laboratory as a whole. **Faisal Kadri** (2019) connects Glanville's (2001) discussion of *as_if* and *as_is* to theories of measurement, and in so doing builds a valuable bridge between second-order cybernetics and scientific practice. **Thomas Fischer**'s (2019) paper presents a critical review of Glanville's arguments regarding transcomputability and the value of being out of control, distinguishing between strict control and the testing of exhaustive permutations. **Ben Sweeting** (2019) extends second-order cybernetic reflections on ethics and design, putting

forward a way in which ethics may be applied recursively to itself, in the sense that ethical discourse is an activity to which ethical considerations and questions apply.

As can be seen from the brief descriptions of the papers above, this special issue is informed by a wide range of cybernetic models and explanations. Both the ASC and cybernetics more generally are characterised by the diversity of participants' disciplines and backgrounds. This heterogeneity creates a challenge to the idea of strict academic disciplines. Transdisciplinary and meta-disciplinary approaches are commonplace in the conversations, presentations, and academic publications, with antidisciplinary ideas valued. It is our hope, as editors, that the contributions will enrich current perspectives on resilience in individuals and social systems, and that cybernetics continues to make significant interventions in this field.

Publication process

The ASC is pleased to continue its relationship with Kybernetes, which has previously published special issues developed from ASC conferences in Troy, NY (Glanville and Sweeting, 2011), Asilomar, CA (Glanville and Griffiths, 2013), Bolton, UK (Glanville et al., 2014), Washington, DC (Baron et al., 2015), and Olympia, WA (Baron et al., 2017).

In keeping with the publication tradition of the ASC, a paper publication track was available to those who submitted abstracts prior to the conference. The abstracts were reviewed by the conference organising committee. The authors of the accepted abstracts were then invited to present their work at the conference. Authors were invited to submit their final paper drafts through the ScholarOne portal after a two month interval, allowing time for them to revise and develop their work in light of discussions and debate at the conference. At this stage, the call was also opened to ASC members who had not attended the conference, who were invited to submit work in response to the theme. Each paper was then subjected to a rigorous double-blind peer review including the guest editors' reconciliation. The reconciliation, which is also a feature in the ASC publication approach, is meant to assist the author in tying together any divergent peer reviews. Authors were requested to acknowledge reviewers' comments, which are checked by the guest editors for the adequacy of response to review critiques, keeping in mind that reviewers may also need to be challenged. This approach to publication was born out of the legacy of Ranulph Glanville and his supportive approach to scholarly publications. In this light, the method that the editorial team follow should also reflect a cybernetic approach: cybernetics is not just a way of thinking, it is also a way of doing.

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[1] http://asc-cybernetics.org/asc2017/

[2] 'Organisational Accident' here refers to rare but serious malfunctions involving both technology and many people operating at different organisational levels. Examples include nuclear power plant meltdowns, aviation disasters, and banking crashes.