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Gregory Bateson's work brought systemic and cybernetic understanding to a wide range of domains, including ecology, communication, family therapy, education, and planning, and the future of our planet. It was not the range of domains that was remarkable, but also the variety of ways of understanding systems theory and cybernetics. In Bateson's work, epistemology, methodology and ontology, our ways of knowing, learning and being, become intertwined. One key question cutting across his work, which resonates throughout the essays in *Steps to an Ecology of Mind* as well as *Mind and Nature*, concerns the dynamic relationship between stability and tradition, on one hand, and change and adaptation on the other. Bateson's ideas invite serious reflection on questions such as: How do we act in concert with an ever-changing environment so as to allow us, and future generations, to adapt to unanticipated changes? How do we avoid getting trapped in traps of our own making?

A central theme permeating Bateson's approach to these questions is the importance of flexibility. Indeed, the final essay in *Steps to an Ecology of Mind*, "Ecology and Flexibility in Urban Civilization," raises key issues concerning both the importance of flexibility in systems as well as the ecological challenges of taking flexibility seriously. These challenges are central to Geoffrey Vickers' aptly titled *Freedom in a Rocking Boat*. Vickers opens with a short piece entitled "The Trap." The book as a whole takes a cybernetic approach to explore a core dilemma: how do we create opportunities to recognize when processes of self-correction and self-regulation are needed, while also recognizing that we may be creating constraints that make such self-corrections difficult. Vickers essentially asks what are the limits to freedom and flexibility in some environments, and how might we respond when realizing that it is we who designed those very environments in which such freedom or flexibility is problematic. With his image of "freedom in a rocking boat," Vickers invites us to see flexibility as a property of a whole system, tied to how we act in relationship to each other, particularly in turbulent environments.

He begins "The Trap" with:

> Lobster pots are designed to catch lobsters. A man entering a man-sized lobster pot would become suspicious of the narrowing tunnel, he would shrink from the drop at the end; and if he fell in, he would recognize the entrance as a possible exit and climb out again – even if he were the shape of a lobster.

<div align="right">(Vickers, 1971, p. 15)</div>

Vickers makes clear that we can actively design objects for trapping others, whether human or, in the case of lobsters, not human. To do so we need to have a sense of the movement of the other, but also of how the other senses its environment. We might ask how a lobster might design a trap for other lobsters, just as we might ask what a human must know, and be able to do, to design a physical trap for other humans. Vickers continues:

> A trap is a trap only for creatures which cannot solve the problems that it sets. Man-traps are dangerous only in relation to the limitations on what men can see and value and do. The nature of the trap is a function of the nature of the trapped. To describe either is to imply the other.

<div align="right">(Vickers, 1971, p. 15)</div>

Here, Vickers anticipates recent work on systems approaches to design thinking where needfinding (Faste, 1987) and empathy should precede how we "define" a problem and our agenda setting around that defined problem in advance of the creative idea-generating process. But Vickers, in his recognition of the relational aspect of trappers and the trapped does more, by recognizing the importance of constraint, both real and imagined, in trap-making. And then Vickers elegantly concludes his opening segment with:

> I start with the trap, because it is more consciously familiar; we the trapped tend to take our own state of mind for granted – which is partly why we are trapped. With the shape of the trap in our minds, we shall be better able to see the relevance of our limitations and to question those assumptions about ourselves which are most inept to the activity and the experience of being human now.

<div align="right">(Vickers, 1971, p. 15)</div>

Here, Vickers moves elegantly from the materiality of a lobster trap, to the notion of entrapment in general (which may include self-entrapment). Thus he opens up space for appreciating the ways in which we may be moving into

a trap, and further, seeing when the trap might be of our own making. The question, he implies, is: what are we taking for granted that enables our entrapment, and what do we do about it?

At the heart of Vickers' ideas on "freedom" and "trap" is a knowledge-in-action of flexibility. In this essay we seek to dive more deeply into the contradictions that emerge from attempts to reconcile stability and flexibility in diverse contexts. In turbulent worlds, such as rocking boats, we seek a means of establishing grounds for stability. Those grounds often offer us some comfort in knowing what to do when faced with uncertainty, and also ways of joining together to establish solidarity. Here, we are particularly interested in how it is that habits and rituals emerge as ways of guaranteeing a sense of stability. Yet those very habits and rituals may stand in the way of change or innovation when new forms are needed. Bateson's essay mentioned above, "Ecology and Flexibility in Urban Civilization," offers some guiding points for thinking about flexibility in social and ecological systems.

First is the juxtaposition of adaptation and what Bateson referred to as counter-adaptation. In other words, Bateson recognized that for many systems, an adaptation to a changing environment is sometimes done at the expense of retaining a variety that might be needed for future adaptation. The system, in making a successful short-term adaptation, may unwittingly make it more difficult to adapt to new conditions. That is, some of the "lost variety" could be of use in dealing with future unanticipated circumstances. Over time a rigidity accrues around what had been successful in an earlier context. Such rigidity can lead to extinction of the system and its environment. In other words, we sometimes trap ourselves in rigid adherence to short-term successful adaptations. Bateson's point was precisely about recognizing the need for an uncommitted potential for change, which is his definition of flexibility. At the same time, he recognized the importance of habit in that we often create shortcuts to do routine tasks so we don't need to re-invent the wheel each time. The kind of repetition so integral to habit also can be seen as forming a basis for ritual. The term, ritual, carries many shades of meaning but all converge around the idea of sanctifying tradition. What distinguishes ritual from mere habit is the use of symbols that imbue it with meaning. An added dimension of ritual is its relational valence which serves to link members to a larger collectivity and bond a social group,.

Habit and flexibility might in some contexts be seen as contradictory processes. Bateson realized this and chose to emphasize the importance of *ex-*

ercising flexibility, much as we need to exercise a muscle lest it atrophy. Yet exercising flexibility in certain contexts can also be a tricky business so that, much like the high wire artist that Bateson used as an example, we also often need to have a safety net. Of course, there is a recursive aspect to all of this inasmuch as how we participate in constructing a safety net entails the self-same issue of flexibility.

One further point stressed by Bateson was his idea of an economics of flexibility. That is, an increase in flexibility in one domain can be met with a decrease of flexibility in a different, but related domain. Thomas Hylland Eriksen offers an illustration of this in his book, *The Tyranny of the Moment*, as well as in an essay, "Mind the Gap" in a volume for the Bateson centennial (*Essays for an Ecology of Ideas*). He notes that mobile phones, and technology in general, afford a flexibility of space. For many occupations, we can be at "work" from anywhere. At the same time, they entail a loss of a flexibility of time since we are, in a sense, always available to "be at work."

In that same volume, one of us (Fred) wrote an essay that brought together Bateson's notions of framing and flexibility, entitled "Exercising Frame Flexibility." Although written over a decade ago, some of those issues continue to resurface in conversation with others about emergent tensions involving ideas of flexibility. These include the seemingly paradoxical idea that persons in conversation or dialogue need to assume that they have a shared frame in order to interact, but at the same time *not* assume that they have a shared frame in order to recognize what may underly a potential conflict, as a frame conflict. Put another way, when faced with frame conflicts, what manner of flexible strategies can allow for us to recognize and act, in collaboration with others? Another tension that continues to surface involves appreciating the multiplicity of frames possible in any situation, as a requisite indeterminacy. The setting for the earlier article was a scene of informal learning, a science center, where learning, play and entertainment often become co-mingling frames. We realized the importance of flexibility not only in the design process, but also in allowing ourselves, as designers, or teachers, to be pleasantly surprised by – and learn from – what might be viewed as an anomalous behavior.

As a property of sustainable systems, flexibility is an issue at the global level. However issues of flexibility can surface at the local level in everyday situations. We find that interactions with our students provide generative scenarios from which we have been able to draw insights about the interdependence of flexibility and stability or between tradition and novelty. These examples

may appear simple at first, but their simplicity belies a deeper set of systemic relationships that come into focus during reflective conversation, with our students and with each other. We felt that exploring some of these issues in conversation with each other would also illustrate the emergence of themes involving flexibility and, perhaps, traps. The following condensed conversations are based on courses in Communication that we teach at the University of South Florida, and which took place in the Spring term, 2017.

VIGNETTE 1:

Jane: You were telling me about an example of everyday interaction ritual that shows up in talking with students about their use of technology.

Fred: Yes, I teach a class called Communication, Culture and Community where we look at how community is created, including through different kinds of social rituals. In the latter part of the class we look at how the construction of community is altered by technology such as mobile phones. We read the work of Rich Ling who, in his book, *New Tech, New Ties*, talks about how mobile phones have created new ways of doing everyday life.

We look at how mobile phones alter the landscape and soundscape of community life, and change how we behave in public spaces. As part of this I give a fieldwork assignment that asks the students to challenge some assumption of social etiquette that involves the use of mobile phones. It builds on Goffman's concept, based on Bateson, of ritual as emergent in interaction. I encourage them to go to a place that might be a "third place" for them, where community life thrives, and first observe the use of mobile phones in that space and then do something that challenges an assumed accepted norm of behavior. I tell them to do it gently and not get too caught up in it since we have had some unfortunate incidents related to cell phone use in Florida. Typically, students will do things that involve challenging norms of proxemics, what is acceptable content of a conversation in a public space, where they conduct a conversation – things like that.

One of the students did a very creative thing that at first seemed like a misunderstanding of the assignment. She sat alone at a table at a Starbuck's coffee shop with her coffee and didn't take out her phone at all. Her way of doing the assignment was to challenge the assumption that you need to have your phone out if you're sitting by yourself in a coffee

shop. Her challenge was to recognize that we have a ritual in which people in coffee shops must have their cell phones out, not only out but typically visibly using them – we need to be looking like they are texting or doing something with the phone. So *no*t using the phone was a violation of the social code. The idea that we have become addicted to screens and devices was the basis of her challenge. It was different from what I thought people would do so it surprised me. For it to make sense, she took what she saw as everyone's habit in everyday life, this ritualized use of phones that can make you feel like you're not accepted in the coffee shop if you don't have your phone out.

Jane: So as she was sitting there what happened?

Fred: An interesting question. She talked about it and admitted that she got bored very quickly. So instead of looking at her shoes she started looking at other people whom she said looked back at her as though she was really odd. And in fact there were a few who looked as though they thought she was "hitting" on them because why else would she be sitting there without her phone if she wasn't trying to pick people up.

Jane: So she inferred that?

Fred: Well, she said that they looked at her in a way that you would pick up as meaning that "this person doesn't have a phone, and what are they doing?"

Jane: It's interesting that she had awareness of such a tacit rule. But I wonder if she was also doing a little more, perhaps also commenting, in her own way, on the evolution of the requirement for the mobile phone display as a totem for fitting in and belonging.

Fred: That's a great point. I agree that she was doing a little more. Five years ago it wouldn't have been so odd, so you could say the cell phone use in public was an "opportunity," something flexible, as if to say, "Okay, you can use your phone in a public space." The person at the next table in a restaurant having a loud conversation with their Bluetooth was annoying – not the norm but tolerated. But now it has become ritualized as a habit and almost a form of addiction, so the code breaking was to not have the phone. It was an interesting way of approaching the assignment. And you think that what has been lost is the freedom to *not* have a phone, so it speaks very much to Bateson's ideas about flexibility and safety nets. She realized she felt very vulnerable doing this. The ques-

tion was one of how do you create a safety net so you're not looked at as someone odd by not having a phone out.

Jane: how does it connect to ritual?

Fred: Perhaps the very idea of screen use in public spaces, especially if you are alone, has become ritualized as a way of occupying time and space? I am not sure.

Jane: And that becomes a different way of being together, it provides a kind of social order if everyone has her phone out.

Fred: It is a social order but the flexibility of not having your phone out is what got lost. Part of it for me is the very idea that she thought this is a violation of the code. I learned quite a lot, and was surprised. I hadn't thought of it as a violation, nor had others in the class, as a way of doing the fieldwork.

Jane: That raises the issue of social risk involved in code breaking.

Fred: She did joke about how she couldn't go back to that coffee shop. That's where the idea of exercising flexibility – if you think of the absence of the phone as a flexible option, and just being there and taking in the environment, exercising that flexibility can be socially risky without an appropriate safety net. It seems like a trivial example but I think you can come up forms of habit that this can extend to.

VIGNETTE 2:

Jane: In my family communication course we were discussing the concept of family rituals and in particular the tension inherent in the idea that ritual continuity is a way of honoring traditions even though rituals also need to evolve and adapt as families change over time. As an example we discussed the repetitive nature of family rituals, how, they carry messages of continuity, for example a Sunday dinner repeated week after week becomes an experience of connection for the family.

Fred: You had mentioned though that there were some ways that flexibility enters into the accrual of meaning in the ritual. How does change come in?

Jane: Yes, we were trying to think of examples of ritual adaptation, taking Bateson as a starting point to consider how any structured process requires some degree of flexibility in order to adapt to new circumstances if the ritual is to continue over time. One student mentioned that her family's Christmas Eve dinner had been an important annual family celebration but one year when the kitchen was being renovated they had to go to a restaurant instead. They enjoyed it so much that it took hold as a new way of celebrating Christmas Eve. In that example you could say that the tradition was enlivened by the change and given new energy.

Fred: So there might even be a second-order ritual consisting of repeatedly developing creative ways of being together?

Jane: Right. So I mention all of that because it was a kind of preface to looking at more radical forms of ritual innovation. The one I presented to the class was a divorce ritual. I showed a YouTube video of a couple who had decided to recognize their divorce with a ceremony in the same church where they were first married. They invited family and friends and there was a candle that they lit their separate candles from, and they made statements similar to wedding "vows" about why at this juncture it was important for them to do this ceremony in community with family and friends.

Fred: So you showed this YouTube video to the class?

Jane: I showed it to the class and the students seemed to struggle with it. Some said, "That would never work in my family. My parents are divorced and it was so acrimonious they would never be able to plan a ritual like that together.'" But one student was especially troubled by what she saw as the implications of this divorce ritual. She said watching the video made her feel sick. Even though her parents are divorced (as were those of several other students in the class), she felt the ritual legitimized divorce, something a wedding ceremony is designed to preclude. I think she was saying that if a wedding truly "weds" people, how can you dissolve the bond with another ritual?

Fred: So the innovation was both in the context of what they established *as* a ritual as well as how they went about doing it. Because it seems it had some elements you would think of as fitting with previous rituals. Similar to the "coming together" of a wedding, the "coming apart" used symbolically elements.

Jane: Yes, in the sense that any ritual has a performative aspect, this ritual was designed to symbolically perform the divorce in relation to the community, to reconfigure relationships.

Fred: But it has this interesting paradoxical quality of coming together to come apart.

Jane: Yes, right. The student's reaction made me think that you need some shared frame in order for a ritual to accomplish its purpose. In her case, she (the student) could not see herself as part of that frame. So I think she took it very seriously but the result was to show the limits of innovation.

Fred: What aspect of that was novel to her? What was disturbing?

Jane: Well, she and other students in the class said they had never seen anything like that or heard of anything like that. But I think she was reacting to the blending of what she thought should be separate symbol systems.

Fred: Right, it was also the sacredness,

Jane: For her the sacredness was wrong, given the occasion.

Fred: But it is an interesting challenge even to the notion of flexibility within the couple that was no longer a "couple" that is worthy of being commemorated. They used the ritual, right? Could you imagine them coming together once a year to commemorate the divorce?

Jane: It seemed to be done out of a caring concern for the larger system to be helped to adapt to this change.

Fred: In a way it was an opening up of what we usually consider a closing, to the larger system. It really was an improvisation that made use of existing symbol systems to create some sort of flexible structure to commemorate something that it wasn't.

Jane: Right, they didn't want the usual fragmentation where the allies of one spouse don't talk to the other spouse, they wanted to heal the breach. But what struck me in the context of flexibility was the student's response.

PATTERNS ACROSS THE VIGNETTES

We can see in both examples how the concept of ritual, paradoxically, opens avenues for exploring naturally-occurring opportunities for flexibility and innovation. We can also see how questions of flexibility emerge against a backdrop of what could be an over-organized system, as well as how these questions come to the surface at different levels. For example, we have the flexibility/rigidity couplet in the content of each example, such as holding to the possibility of not using one's phone as an uncommitted potential for change in a social setting. But we also see it at the relationship level in the sense that we as teachers learn from unanticipated responses and actions of our students. Perhaps these examples are about flexible listening and our learning to be surprised. How does one design for surprise, while allowing for holding to "the lesson?" Jeanne Bamberger and Don Schön, in the essay "Learning as reflective conversation with materials," talk of the importance of *giving reason* in learning relationships. Rather than simply seeing a response as anomalous, this involves asking of ourselves the hard question: "within what way of understanding might this response make sense? It is a way to link another form of bending, reflexivity, to flexibility. We might wonder what questions we should ask of these situations to allow flexibility of inquiry to emerge

As noted earlier, these examples are at the level of local everyday life. It is important to recognize parallels with broader, global situations in which we are dealing with questions at the intersection of environmental and economic issues when the two are pitted against each other as competing frames, with inflexibility in one requiring flexibility in the other. Thomas Hylland Eriksen's "Overheating" project, which explores crises of economics, national identity, and environmental issues as interconnected frames for action would be a good example of bringing Bateson's issues of flexibility to a global level requiring a search for new forms of innovation in both content and relationship. These new forms of innovation might require also rethinking an adherence to traps of education into professional "cultures", such as what it means to be a scientist, to create new possibilities for civic dialogue around environmental issues. And this latter might lead to an exploration of whether the very paradigms on which our educational institutions are built have participated in these traps, a question Bateson asked in his letter at the conclusion of *Mind and Nature*.

TOWARDS AN ECOSYSTEMIC FLEXIBILITY

To echo the words of the conference theme, exploring inspirations and challenges provoked by Bateson's work, what might our focus on flexibility invite? And what might be some resources for extending that invitation? We offer some thoughts below, as conversation points.

One is that we need to appreciate the relation between flexibility of content and flexibility in relationship. These are always intertwined.

A key resource for recognizing the communicative basis for this relation is the couplet of the exuberances and deficiencies of ALL utterances, as proposed by the philosopher Jose Ortega y Gasset. Ortega notes that every utterances is exuberant in that it says more than it intends, while at the same time, every utterance is deficient in that it says less than it wishes to say. Honoring Ortega's exuberances and deficiencies can be hard work, but it encourages us to hold to a flexibility of understanding all that we say (and hear) with another. In addition, it allows us the joy of surprise in listening, with all interaction becoming a joint improvisation. Honoring Ortega's exuberances and deficiencies, may allow us to avoid interactional traps of only hearing the self we would like to be. An extension of this would be to recognize the importance of flexibility in observing systems as well as in observed systems.

Margaret Mead, in her *Male and female* opens with "the significance of the questions that we ask." We might follow up on this by recognizing the importance of questions that open up space for generative exploration – flexibility in that sense – rather than relying on questions that, in closing off space, can act as traps, including for our own learning. This might include questions that we ask of our relationship to the ecosystems of which we are a part of, rather than apart from.

Bateson closes his essay "Ecology and Flexibility in Urban Civilization" by stating "the ecological ideas implicit in our plans are more important than the plans themselves." Here Bateson marks his commitment to a flexibility of process. It is a process rooted in an appreciation of an ecology of ideas that can allow what might be heard as "noise" in a system to become meaningful to the sustainability of that system and the larger system of which it is (and we are) a part – an ecosystemic flexibility as a necessary aspect of sustainability.

> "There is a crack in everything – that's how the light gets in."
> Leonard Cohen

REFERENCES

We have drawn extensively on Gregory Bateson's essay, "Ecology and flexibility in urban civilization," published in his *Steps to an ecology of mind* (Ballentine Books, 1972, reissued with University of Chicago Press, 2000). Bateson's ideas on change and stability appear throughout the various essays in that volume, as well as in his later *Mind and nature: A necessary unity* (E.P. Dutton, 1979). Jose Ortega's ideas of exuberances and deficiencies can be found in his *Man and People* (Norton, 1957) and his essay, "The difficulty of reading," in *Diogenes*, 28 (winter, 1959). We also rely on the theme of the trap, which is from Geoffrey Vickers' *Freedom in a rocking boat: Changing values in an unstable society* (Allen Lane, 1970). An extension of Bateson's ideas on the economics of flexibility to new technology can be found in Thomas Hylland Eriksen's *The tyranny of the moment* (Pluto Press, 2001), as well as in his essay, "Mind the gap." The latter appears in the volume, *Gregory Bateson: Essays for an ecology of ideas* (edited by Frederick Steier), which appeared as a special issue of the journal *Cybernetics and Human Knowing* (volume 12, 2005). Themes of exercising flexibility of frames also appeared in that same special issue, in Frederick Steier's essay, "Exercising frame flexibility. A fine description of Eriksen's Overheating project can be found in his *Overheating: An anthropology of accelerated change* (Pluto Press, 2016).

The work that inspired the first vignette was Rich Ling's *New Tech, New Ties: How mobile communication is shaping social cohesion* (MIT Press, 2010), while the ideas of ritual as emergent in interaction, which form the theoretical core of Ling's work are based on Erving Goffman's *Interaction ritual: Essays on face-to-face interaction* (Pantheon, 1982). The expression of "needfinding" as a key to design thinking is from Rolf Faste, and can be found in his essay "Perceiving needs" (*Journal of the Society for Automotive Engineers*, 1987). And Jeanne Bamberger and Donald Schön's idea of "giving reason" as a systemic notion for appreciating learning and learners can be found in their essay, "Learning as a reflective conversation with materials," in F. Steier (Editor), *Research and reflexivity* (Sage, 1991).