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The international journal of cybernetics,
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**The beginning of a new
epistemology: in memoriam,
Gregory Bateson (1904-1980)**

Guest Editors: Monika Silvia Broecker and
Georg Ivanovas

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The beginning of a new epistemology: in memoriam, Gregory Bateson (1904-1980)

Guest Editors

Monika Silvia Broecker and Georg Ivanovas

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The beginning of a new epistemology: in memoriam, Gregory Bateson (1904-1980)

It has been the aim of this journal to honour the leading cyberneticians and systemicists of the past and also to acknowledge the contributions of those of the present day by publishing special-issues dedicated to them and their endeavours. In consequence, we have produced many “in memoriam” issues, features and “Cyberprofiles” in the 35 volumes already published, but have neglected to include any specifically dedicated to Gregory Bateson. We were therefore particularly grateful to Monika Broecker and Georg Ivanovas for their suggestion that such a tribute should be made, and that Bateson’s work should be recognised and honoured in this way.

As the invited Guest Editors of this special “in memoriam” double issue they have invited contributions which have been developed after consultation and dialogue between the authors, peer reviewers and the editors to produce this unique collection of papers. There is little doubt about the lasting value of these contributions and their importance in the literature that has been dedicated to Bateson’s life and work.

In his introductory paper to this memorial issue, Georg Ivanovas links the contributions that have been chosen and indicates the way in which they illustrate the many facets of Bateson’s many interests and endeavours. He believes that “Bateson’s contributions to epistemology for example, are so numerous that it would be impossible to even show their main implications” in this memorial.

In consequence any such memorial issue has to express the personal appreciation of the guest editors and their invited participants. We would wish to express our gratitude to all who were involved in the compilation of this memorial issue which we know, will be welcomed by the cybernetics and systems community as a timely honour and informative account of some of the many achievements of Gregory Bateson.

Brian H. Rudall
Editor-in-Chief, Kybernetes

GUEST EDITORIAL

Still not paradigmatic

Still not
paradigmatic

Georg Ivanovas
Milatos, Crete, Greece

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Abstract

Purpose – A personal introduction to the Gregory Bateson memorial issue.

Design/methodology/approach – Outlines Bateson's work and the content of the memorial.

Findings – Connects Bateson's legacy with the work of current authors and the general problems the world faces today.

Originality/value – Describes the necessity to use ecological principles as presented by Bateson.

Keywords Epistemology, Cybernetics, Complexity theory, Sciences, Arts

Paper type Viewpoint

Gregory Bateson's contributions to epistemology are so numerous that it is impossible to even show their main implications in this memorial. In order to describe Bateson's legacy appropriately, it would be necessary to present the whole upheaval of Western epistemology in the twentieth century – beginning with Russell's letter to Frege written on 16 June 1902, which induced a radical change in our understanding not seen since the time of the ancient Greek philosophers. Furthermore, everyone acquainted with Bateson's work will regard other aspects as important and essential. Therefore, I will take the opportunity to present my very personal view on Bateson.

For me, it is one of the milestones of Western science (a singular moment comparable to Archimedes' famous bath) when Bateson went to the zoo and asked himself how monkeys who play fighting know that they play and do not fight (Bateson, 1972, pp. 177-93). His discovery of a context, of a meta-information qualifying the content (the formal "information") led to the formulation of a complex communication theory. The idea of "double bind" (see Nardone and Portelli) was only one – although a prominent – concept emerging from these investigations. More important, however, was that it became possible to think about topics such as psychiatric diseases, communication, information, mind and others from a totally different point of view.

With Bateson started a better understanding of semantics (theory of interpreted relations and structures). Until then, science was mainly concerned with syntax (theory of uninterpreted signs), except for the long forgotten Peirce. Gotthard Günther who later developed a rather strict method to formalize what he then called polycontextuality showed that on the level of a two-valued, linear logic – the syntax (following the "tertium non datur" saying that something is or is not, and a third is not allowed) – there is only truth without environment and without meaning. As soon as contexts become involved there is meaning but no truth anymore (Günther, 1976, pp. 217-19).

This interplay of truth and meaning in changing contexts is crucial for a sound epistemology of complex processes. And here, I see Bateson's main contribution to scientific thinking. He tackled this problem from many different angles. The technique of double description is only one tool to achieve this (more in Kenny and Scarino).

But such rather simple techniques are still disturbing as they leave the linear track of reasoning. This is even more true for Bateson's first major contribution to scientific thinking, his concept of "schismogenesis" presented in 1935. Schismogenesis refers to an interactional pattern, a positive feedback mechanism, leading to discord and strife. The "symmetrical schismogenesis" where two parties get each other going using the same tools – like in the film "The War of the Roses" (on an individual level) or in an arms race (on a political level) – is easily understood. But the opposite, the "reciprocal schismogenesis" where one party does ever less whereas the other does ever more – like in the film "Dogville" – is still puzzling, although it is the same kind of cybernetic reaction. Describing alcoholism or violence in the family in such terms usually provokes arguments like that it is not tenable to make a victim responsible for his/her own harm. But this often heard argument misses something central. The point is not to ask who caused a situation as this question is too often related to the notion of guilt and punishment. The question is about patterns. If there is a responsibility it is the responsibility to understand patterns. Only then the attempt to change a situation might really contribute to a solution. Causal "solutions" are too often part of the problem. This is as true in family violence, climate change or health politics.

Bateson (1972, pp. 440-7) subsumed the usual linear approach under the notion "conscious purpose". Already in 1968, he presented a cybernetic model showing how linear interventions might induce unexpected and uncontrollable results. But the importance of this model has never been sufficiently acknowledged, neither in the Wartenstein Conference 1968 (Bateson, 1991) for which the paper was written nor in the following years. But the understanding of such patterns (and not of "causes") is probably the most crucial point in facing the enormous problems our world has today. (In this issue, Rudolph and Ivanovas *et al.* apply this concept).

Another rather simple epistemological tool Bateson adopted from Korzybski was the picture of "map and territory" (see also Holl). Bateson stressed again and again that our concepts are something different from what is happening and confusing the two would be like eating the written menu in a restaurant (with all the fine meals written on) instead of waiting for the real menu. Although this sounds funny and obvious, it is not. This shall be exemplified with a simple example from my field of research: a diagnosis is a description of a certain human condition, mostly in terms of pathophysiological alterations (which makes a lot of sense under certain conditions, but loses any relevance in other contexts). However, as soon as physicians start to treat a disease they have already eaten the written menu. This confusion about the reality of our concepts has major (mostly negative) impacts for any kind of research.

This was my background when Monika Broecker asked me to share with her the honour to be guest editors for this memorial. It was an interesting task for us to have a look at how Bateson's epistemology is understood and applied today. The result was rather surprising. It seems that Bateson's ecological concepts have not really become paradigmatic. That is, scientists still focus on assimilating the systemic concepts, developing fields where an ecological approach could be applied, and how. But hardly anyone really applies such concepts. This is quite obvious in biological research where the major journals talk ever more about the systemic approach. But the applied logic is still linear. A typical example was an article in *Science* magazine which explained recursivity with the *Babutschka*, the Russian puppet in a puppet in a puppet (Premack, 2004). But the *Babutschka* is linear, no recursion is involved.

Even in psychotherapy, where Bateson had a major influence during his life time his concepts and ecological thinking seems to lose influence as Thomas *et al.* demonstrate.

One explanation for this could be this strange specialization, which is currently regarded as scientific. There are epistemologists well able to handle a sound methodology. But they are not acquainted with special scientific topics. On the other side, there are many scientists, knowing a lot on their subject, but still work with a kind of felt epistemology without taking the discoveries of the last 100 years into account.

Our intention as editors was to demonstrate the whole range of possibilities how to use Bateson's concepts. That is, we tried to provide a kind of multiple description of how ecological thinking might be used, from rather linear approaches to sophisticated techniques of complexity. As Bateson himself was a master in sophisticated thinking, we decided to include some unpublished material by him. We start with a short reflection on adaptation including a hot topic of our days, the issue of intelligent design. Bateson points to the fact that unless we have a broader view all reasoning will remain rudimentary. Then Ray presents some unpublished texts of Weakland and Bateson focusing mainly on psychotherapy and anthropology, the fields where Bateson had his main influence, but also reflecting ecology in general.

Keeney shows in a field study on bushmen that theory and practice, psychology and anthropology go hand in hand, are interwoven. This is followed by two texts on Bateson's anthropological book "Naven" (Krause, Guddemi). It is a kind of double description where the authors develop their thoughts in a totally different direction. Nardone *et al.* review the concept of double bind, and Madonna proposes ways to use Bateson's ideas for further developments. Scientists with a more practical purpose are Bilson and Thorpe who try to use Batesonian principles to change social work on an institutional level. Rudolph has a similar aim but on a smaller scale. He used texts of Bateson to induce a more complex thinking in his students of social working in order to cope better with problems of violence and deviant behaviour.

Fedotov, the translator of Bateson's works into Russian, presents a kind of field study showing the practical difficulties he encountered. Russia is also the main topic of the article by Luksha and Tkachev. In using Bateson's epistemology, especially the concepts of value hierarchies and learning of higher order, they study the transition of Russians economy. The learning concept is also central in the following articles. Ivanovas *et al.* investigate the influence of "conscious purpose" in medicine, maintaining that a linear approach might do more harm than good when the wrong things are "learned". Very closely related is an article by Bateson linking addiction, adaptation and learning. The conclusions of these thoughts have been already published in chapter XII of *Angels Fear* (Bateson and Bateson, 1988). But for us it was important to show the wider structure of his thinking process. Von Goldammer and Paul then connect the learning of higher order to Günther's polycontextuality. With this article starts a series of more theoretical contributions, focusing on a deeper understanding of Bateson's legacy in the epistemological context. Montagini recalls the Macy conferences and the impacts (and the lack of impacts) they had. Lutterer compares Bateson's communication theory with Watzlawick's. Ray and Governor present a discussion of Bateson, Haley, Weakland and Jackson about learning, communication and the related philosophical background. Fischer elaborates more on this philosophical background, whereas Holl reviews the concept of map and territory in detail. Kineman and Kumar then take a more general view. They compare Bateson's

concepts about relationships with those of Rosen who also worked on relational thinking, although more formally. But the authors also forge links between these Western concepts and the philosophy of the Vedas which Bateson explored in the 1970s.

The question how things are related to each other, the “connecting pattern” was central in Bateson’s work. This is also the topic of the article of Volk *et al.* who look for patterns on a larger scale what they call “metapatterns”. Normal science has enormous problems with such concepts as the current scientific method is mainly based on comparable measurement. But, as Bateson regularly stressed, quantity never creates pattern. That is, a totally different approach is necessary to conceptualize patterns. Despite this scientific problem, the ability to perceive and understand patterns is a basic human ability. For example, even without previous knowledge test persons are, to some degree, able to predict how a chaotic sequence continues, something that is impossible if the sequence is random (Novak, 2002). That is, there is always a discrepancy between the ability to perceive and react to patterns and to formulate them.

It has always been the domain of artists to explore this field of perceived but not formulated patterns. And artists often tackle hot issues of the social and scientific development much earlier than scientists do. For the systemic world M.C.Escher is most famous. But van Gogh painted perfect turbulences (Aragón *et al.*, 2006) and Jackson Pollock created fractals (Taylor *et al.*, 1999), just to make a few examples. Another example is the work of Grossmann. When I first saw his “Discussions in a pub” I thought, as probably many of you: “Again such a piece of senseless modern art!” But in many discussions on the problem of modelling living processes I referred to Grossmann’s works. The difficulty to depict living processes became a kind of deadlock in genome and brain research. There are no cyclic arrows in physiology and pathways do not “exist”. They do not follow the logic of the *tertium non datur*. How are we able to depict processes like immune response or discussions in a pub appropriately? Michel Butor’s “Modification” or “James Joyce” “Ulysses” and even more his “Finegan’s Wake” have been nothing else than attempts to map what might be called mental processes. But how can we map such attempts? It is not the duty of artists to provide solutions to such questions. They just have to play with the problem.

May be it is not accidental that artists use Bateson’s concepts much more pragmatically – just as Klien does it for choreography and dance – than scientists do. However, many scientists use also art in order to develop a deeper understanding of the patterns they are concerned with. This is why we wanted to include a certain amount of “experimental epistemology” with a more artistic approach. Todesco, for example, elaborates on the term of information by the help of Bateson’s dog. For sure, many of you will not agree with his statements. This is why we included a reply by Fedotov with which many of you will not agree either. Again, the aim is not to state how things “really” are, but to sharpen our scientific tools and to improve our understanding of patterns through multiple descriptions. Then Kenny and Scarino play with Bateson’s dialogical structure of metalogues and Pawlik creates a kind of inner metalogue combining the legacy of Bateson and von Foerster. Knoop describes literature as a communication between an author and a reader. Finally, Nachmanovitch gives a more detailed analysis of the relation between art, science, and Bateson’s work.

The memorial ends with a more journalistic article by Feller on Gaviotas, a cooperative in Columbia, which works according to ecological principles, far away

from any scientific approach, demonstrating that there is no need of science to think ecologically and Nora Bateson reminds us that the important thing is how we think not what we think.

As stated before, many topics of Bateson's legacy are not included in our selection. One important is the notion of the "sacred". This can be best looked up in *Angels Fear* (Bateson and Bateson, 1988) or in texts available on the internet (Kenny, 1998). Another topic is the so-called semiotic approach, which has been presented somewhere else (*Cybernetics & Human Knowing*, 2005). Another, mostly forgotten contribution of Bateson (1974) is the edition of the book *Perceval's Narrative*, the autobiographical account of a psychotic episode. This description gives so many insights into the nature of perception, brain function and psychotic developments that it exceeds by far what we learn from scientific literature.

Finally, we would like to thank everybody who helped us to create this memorial including all the authors, peer reviewers and especially Mary Catherine Bateson who supported our work wherever she could and also provided us with photos of Gregory Bateson. Many thanks also to Barry Schwartz who selected and enhanced these photos and allowed us to publish some of his.

References

- Aragón, J.L., Naumis, G.G., Bai, M., Torres, M. and Maini, P.K. (2006), *Turbulent Luminance in Impassioned van Gogh Paintings*, Cornell University Library, arXiv.org., Ithaca, NY, available at: www.arxiv.org/abs/physics/0606246 (accessed 25 February 2007).
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Bateson, G. (Ed.) (1974), *Perceval's Narrative – A Patient's Account of his Psychosis 1830-183*, William Morrow, New York, NY.
- Bateson, G. and Bateson, M.C. (1988), *Angels Fear. Towards An Epistemology of the Sacred*, Bantam, New York, NY.
- Bateson, M.C. (1991), *Our Own Metaphor*, Smithsonian Institution Press, Washington, DC.
- Cybernetics & Human Knowing (2005), *Cybernetics & Human Knowing, Journal of Second-Order Cybernetics Auto Poiesis and Cyber-Semiotics*, Vol. 12 Nos 1/2.
- Günther, G. (1976), *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, Vol. 1, Meiner, Hamburg.
- Kenny, V. (1998), "Gregory Bateson's notion of the sacred", available at: www.oikos.org/vinsacred.htm (accessed 25 February 2007).
- Novak, R. (2002), "Masters of chaos", *New Scientist*, Vol. 173 No. 2333, p. 17.
- Premack, D. (2004), "Is language the key to human intelligence?", *Science*, Vol. 303, pp. 318-20.
- Taylor, R.P., Micolich, A.P. and Jonas, D. (1999), "Fractal analysis of Pollock's drip paintings", *Nature*, Vol. 399, p. 422.

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Gregory Bateson

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Plate 1.
Gregory Bateson, circa
1940s. Photo by
Gregory Bateson.
Courtesy of the Institute
for Intercultural Studies

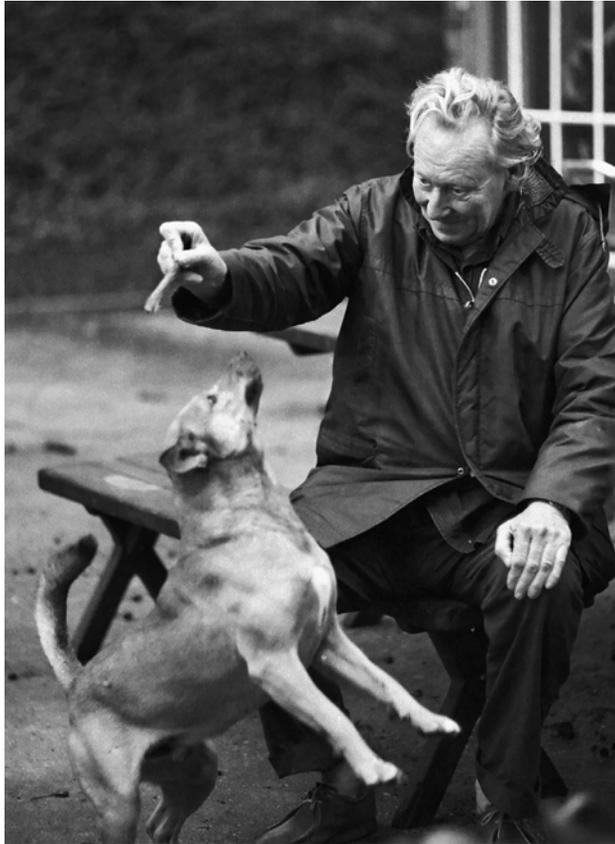


Plate 2.
Gregory Bateson and
Margaret Mead in the
mosquito room,
Tambunam, New Guinea,
1938. Courtesy of the
Institute for Intercultural
Studies. Photo by
Gregory Bateson



Plate 3.
Left to right: Barkev
Kassarjian, John Bateson,
Mary Catherine Bateson,
Gregory Bateson, and
Nora Bateson;
Kassarjian/Bateson house,
Hancock, New Hampshire,
circa 1969. Courtesy of the
Institute for Intercultural
Studies. Photo by
Lois Bateson





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Plate 4.
Gregory Bateson at home
in Ben Lomond, California,
1975. © Barry Schwartz



Plate 5.
Gregory Bateson at home
in Ben Lomond, California,
1975. © Barry Schwartz

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Plate 6.
Gregory Bateson at home
in Ben Lomond, California,
1975. © Barry Schwartz



Plate 7.
Gregory Bateson at home
in Ben Lomond, California,
1975. © Barry Schwartz





Adaptation, acclimation, addiction, remedy, etc.

Gregory Bateson
(Edited by Nora Bateson)

Adaptation,
acclimation,
addiction

855

Abstract

Purpose – This piece seeks to reflect upon the nature of adaptation and our usage of it with relation to design, addiction, and final cause.

Design/methodology/approach – This previously unpublished document was found amongst the manuscript papers for *Mind and Nature* in the Bateson Archives at the University of Santa Cruz Library Special Collections.

Findings – It appears that “adaptation” was a concept generated by lineal thinking and that as we move forward into a world of causal circuits, i.e. of mental process as that notion is here defined, we discover that “adaptation” is only another face of addiction.

Originality/value – It reflects on the issue of adaptation from a very different angle than in the usual scientific discourse.

Keywords Cybernetics, Evolution, Design, Adaptability, Addiction

Paper type Conceptual paper

Like all abstractions these words are human creations. They stand for ways in which men have divided up the world of classes of human experience. Cutting up the cake is not necessarily the only, or best way of dissecting the particular phenomena. Such dissection is, notably, done differently in every culture and even science has no monopoly on the “right” way of doing it.

From epoch to epoch, great thinkers and religious leaders have seen the problems of purpose, adaptation, and design in different ways. Is it even possible for both men and women to have precisely similar views of human or biological purpose? I doubt it. . .

In recognizing this diversity and ambiguity of the concepts which lie behind such words as adaptation, addiction, etc. as used in Occidental daily life, we shall do well to look carefully at the history of how the same words came to be used as landmarks in evolutionary theory.

It seems that these notions and especially the idea of design in nature were brought into the field of modern science rather late.

Aristotle had wrestled with problems of “final” cause and had suggested that teleological explanation surely permeated the phenomenal world. But there was, I think, no locking of horns between science and purpose till the eighteenth century. The teleology of the Greeks was seen by them as a sort of necessity, not as an expression of the ingenuity of a creator.

This latter view was however the chosen battle cry of Christian theology in the eighteenth century and its protagonist in England was William Paley, who was



defending Christian theology from evolutionary ideas almost a century before the *Origin of Species*. Paley's *Natural Theology* was published in 1802 but he had been lecturing in Cambridge in defense of the Biblical story of the creation 20 years before that, defending *Genesis* from the encyclopedists.

His argument was very simple. He told his readers to examine a watch and note that it was designed to tell the time of day in a cycle of 24 h. This instance of purpose was to be explained by the fact that the watch was indeed designed by a human designer. The reader was then invited to consider such biological phenomena as a crab's claw or a human hand and to note that these too were designed to fulfill a purpose, and this was to be explained – could be explained only – by the fact that they were created by a divine designer.

Thus, it happened that Lamarck (*Philosophie Zoologique* 1809), Chambers (*Vestiges of Creation of the Natural History* 1844), and Darwin (*Origin of Species* 1859) each successively fell into the assumption that the problem par excellence which a theory of evolution must solve was the problem of design in nature. This conflict itself was, in modern jargon, a product of “co-evolution”. “Design” was or became a problem by being a focus of controversy.

Today it behooves us to be a little more careful. So we ask precisely what it is that is called “adaptation” and whether there is really a problem of adaptation which demands an explanation. Above all, as the nature of what is called “adaptation” begins to emerge, we shall ask about related phenomena – “acclimation” “addiction” “remedy” “learning” and so on.

We start by the classical approach to relate “adaptation” to time. It was the temporal sequence of events which characterized Greek teleology, and it is this sequence that gives a name to this species of explanations. The Greek word “τέλος” means “end” and the notion of teleology was that the end of some sequence of events would be the exemplification of a pattern or form or immanent Idea. It was this final production that in some sense explained, for Greek thought; the sequence which had preceded it. This type of explanation was regarded as totally invalid by European scientists, at least from the Renaissance onward. It was asserted that never could a later event be regarded as cause of some earlier event. (It was not, of course, at all clear that the Greeks had thought that “τέλος” could be a “cause” in any modern sense of that word!)

In the 1930s this taboo on teleological explanation was still compelling and my first book, *Naven* was written within the premises of that taboo. It was a rather vigorous attempt to find out how adaptation could occur in the norms of a New Guinea culture. I had been trained as a zoologist and therefore accepted the taboo on teleology in its strongest form as a taboo on invoking mind even in the explanation of human behavior. For me, even Paley's watch was not to be explained by invocation of “design”. The writing of that book was a valuable discipline and the book itself is an example of the creative use of William Blake's “contraries” he says “Without Contraries is no Progression” (Blake, 1795), and, chafing against the limitations, I drove myself to the very edge of what later became “cybernetics”.

Back in the eighteenth century, however, the philosophic denial of final causes set the stage for Paley's argument – and for Darwin's rebuttal of it. If the observed phenomena looked as if they were determined by some “final cause” and if immanent “final cause” was disallowed; then appeal to a supernatural designer was expectable.

The structure of the logical trap was precisely what I have called a “double bind”. It looks like this:

The men of science had learned at a deep epistemological level:

- that “explanation” was necessary; and
- that the world was characterized by “adaptation”; and
- that “adaptation” was produced by “final” causes (i.e. by causation working backwards); and finally; and
- that to invoke final cause in the explanation of phenomena was invalid and heretical.

Under such circumstances people skip to a higher logical type. In order to retain “a” “b” and “d” above the forbidden premise, “c” “c” is simply pushed out of the rational world, (but still retained by endowing some supernatural entity with the characteristic which is disallowed at the worldly level).

The maneuver is itself “adaptive” in the limited sense that it saves the thinker from the pains of any thought which might disrupt deeply held opinion.

The “double binds” which characterize the history of scientific thought about “adaptation” are reflected in dilemmas which necessarily plague the evolving organism – a gain illustrating the parallelism between mental process and evolution. For the thinker, there is a continual danger, and an attraction, latent in extending conclusions beyond the limits of their immediate relevance; either what is true in some limited moment gets extended to all time, past and future, or what is true of some item gets extended to the class of similar items.

These are errors in logical typing and I have set the word “addiction” alongside the word “adaptation” [in the title of this chapter] to remind the reader that all “adaptation” is double faced.

Tennyson tells us:

The old order changed, yielding place to new
And God fulfills himself in many ways
Lest one *good* custom should corrupt the world . . . (Tennyson, n.d.).

In this case, the double bind is heroic. King Arthur is wounded and dying; a glorious epoch is over, and Sir Bedevere must take the sword, Excalibur, the symbol of that glorious epoch, and throw it away into the lake. The remedy too is painful and heroic.

In the fields of evolution, the double binds are masked as “specialization” and it is easy to forget that every “adaptive” step which makes the creature fit more precisely into some given niche carries with it the price of lessened capability to fit some other and perhaps more general context.

“What is good for general motors” may be bad for the larger context of the nation. The tactical advantage of one nation in the armaments race may be lethal for all the nations in the war. And so on. At any given moment – from moment to moment – it was “common sense” for the evolving dinosaurs to generate more armor . . . There are values (i.e. survival values) in immediate adaptation but against these must be reckoned, the values of flexibility.

It appears that “adaptation” was a concept generated by lineal thinking and that as we move forward into a world of causal circuits, i.e. of mental process as that notion is here defined, we discover that “adaptation” is only another face of addiction.

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In the circuitry of a cybernetic world, the self-corrective characteristic – the homoeostasis – is always limited, can only function within the limits of certain values of its parameters. Beyond those values, there is a change in “logical typing” and with that change a corresponding change in the sign (plus or minus, “good” or “bad” survival-promoting or lethal) of the value of the formerly adaptive feature. . .

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References

Blake, W. (1795), *Marriage of Heaven and Hell*.
Tennyson, A. (n.d.), *Idylls of the King*.



Bateson's cybernetics: the basis of MRI brief therapy: prologue

Bateson's
cybernetics

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Abstract

Purpose – To provide direct access to original documents relevant to the emergence of applied constructivist and cybernetic epistemology in the behavioral sciences.

Design/methodology/approach – This paper employs hermeneutic analysis

Findings – Direct evidence of the cybernetic, interactional theory articulated by Gregory Bateson provides the theoretical foundation for the problem formation, problem resolution model set forth by research associates at the Brief Therapy Center of the Mental Research Institute.

Originality/value – This is a rare, never previously published address by a principal founder of communication/interactional theory

Keywords Cybernetics, Structural analysis, Control

Paper type Conceptual paper

For many years whenever John Weakland, Paul Watzlawick, and Richard Fisch conducted training at the Mental Research Institute (MRI), they would begin by acknowledging three major influences – Gregory Bateson's theoretical, Don D. Jackson's pragmatic, and Milton H. Erickson's hypnosis – on the MRI Brief Therapy orientation. The contributions of members of the MRI Brief Therapy Center and the model of Brief Therapy they created (Fisch *et al.*, 1972, 1982; Weakland *et al.*, 1974; Watzlawick *et al.*, 1974; Weakland and Ray, 1995; Fisch and Schlanger, 1999) continues to be among the most influential orientations in the fields of family and brief therapy, serving as the pragmatic and philosophical foundation of more recently articulated advances in constructivism, social construction, post-modern, and clinical practice orientations (Watzlawick, 1984; Keeney, 1983; Ray and Keeney, 1993; de Shazer, 1994; Watzlawick and Nardone, 1997).

Conceptually, the central tenet of the MRI Brief Therapy model is straightforward and easy to grasp – difficulties are part of life and typically are handled in ways that they resolve themselves. Difficulties can become problems, viscous cycles and games without end, when ineffective attempts to solve inadvertently serve to maintain and perpetuate them. Successfully interrupt problem maintaining attempted solutions and difficulties resolve (correct) themselves and dissipate. When first introduced the

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problem/attempted solution framework was widely and enthusiastically accepted, becoming an essential part of the fabric of most systemically or interactionally-based models of clinical practice.

In June 1970, two years after the sudden and unexpected death of its founding Director, Don D. Jackson, MD, research associates at the MRI organized a conference in tribute to him. Gregory Bateson, long time colleague and former collaborator of Jackson, accepted the first Don Jackson award and presented the keynote lecture at the conference.

The survival of the original recording of Bateson's lecture, the First, Don D. Jackson Memorial Address, is due to John H. Weakland. Weakland, the first person asked by Bateson to join him when he formed his infamous Research Team at the beginning of the 1950s, also joined Don Jackson when he first founded the MRI in the late 1950s, as did Jay Haley, and the then recently arrived Paul Watzlawick and Richard Fisch. Weakland preserved numerous reel to reel recordings, paper documents, and films from The Bateson Team era and from the early era of pioneering work of researchers at the MRI. In 1987, at Weakland's encouragement I began organizing the Don D. Jackson Archive. Then shortly before his death in 1995 Weakland mailed to me three boxes of additional archival materials, including the original reel recording of this lecture by Bateson.

Listening to and organizing these materials, and contrasting them with the published work of the early pioneers' offers an extraordinary opportunity to closely study the evolution of the communication/interactional/cybernetic orientation. Many years ago now, while listening to this recording as it was being transferred to digital format I was struck by its significance. Having listened to it numerous times since, the wisdom and applicability of ideas contained in it, bring me back to listen to it again and again.

As background, in a proposal to Don Jackson dated September 15, 1965, Richard Fisch, MD suggested the creation at MRI of a "Brief therapy clinic and evaluation project." The project was funded and the team began seeing clients early in 1966. In June 1970, when Bateson delivered this lecture John Weakland, Paul Watzlawick, Richard Fisch were in the audience. Jay Haley had left MRI in 1967 to join Salvador Minuchin at the Philadelphia Child Guidance Clinic and, it is likely he was not present for Bateson's address. The lecture reveals the extent to which the MRI Brief Therapy model is grounded in Bateson's cybernetic epistemology.

What follows is a lightly edited transcript of John Weakland's introductory comments, followed by the full and unedited transcript of Bateson's original talk. The significance of Weakland's introduction and Bateson's address are self evident and therefore will be presented with a minimum of commentary, with three exceptions made primarily to help orient the reader:

- (1) several segments of each presentation that are of great relevance to cybernetic theory and application in practice are followed by brief comments;
- (2) headings have been inserted into Bateson's talk to orient the reader when he makes important shifts in subject; and
- (3) components of Bateson's lecture highly relevant to understanding:
 - cybernetic epistemology;
 - constructivism; and/or
 - exemplify the problem formation/attempted solution framework are highlighted in boldface.

Introduction

By John H. Weakland

I want to welcome you all ... our old friends and associates and many of you whom I hope will become our new friends and associates, or lacking that, since I am pleased to see that many of you are a little younger than we tend to be, at least our critics. The question then arises why am I up here? I will answer this I hope rather briefly. I am here I think to give a little background on this occasion of the first Don D. Jackson Memorial Award, and I think that I have been chosen for this purpose largely ... because I am the last of the Mohicans. By which I mean I am the last member still active at MRI of a group of people whose joint work laid a good deal of the foundations on the basis of which Don Jackson established the institute originally and on which its work continues. This being the case I could describe the history of this enterprise at some length and how it had become the MRI. I could go on about this particular group which was primarily composed of only five people including beside myself Jay Haley, Dr William Fry, and especially Don Jackson and Gregory Bateson. I could discuss our joint work on human communication, on schizophrenia, on how families operate and fail to operate, and on new approaches to therapy that began to develop but I really do not think that it would be appropriate to go into that at any length. And the reason I do not think so is that this would be about the past and the concern of our group then and its continuation now is toward the future instead ... I will only say one thing about this past because I believe, though I think many of you may disagree with me, that there is one thing about this particular point that remains equally significant for the future.

Our group was very small, only five people, essentially, yet it was remarkably diverse, in terms of our background, our training, our interests, our opinions, and by no means least our personalities. As a result of this our differences were frequent and they were considerable. Nevertheless, largely these took place within a context of a common concern, a common curiosity about human behavior and a belief in the central importance for this of how people communicate and interact with each other and I think as a result of this particular combination of similarity and diversity, our interplay and even our struggles were central for the gradual moving toward some sort of a development of some common fundamental ideas rather than moving rapidly towards some superficially agreed on views, and that is what I most hope may continue in the future:

Comment: In the years since the Bateson Team worked together much has been made of the differences that existed between various team members, with numerous after the fact comments made suggesting animosity existed, especially between Gregory Bateson and Jay Haley over the issue of Power (see, for example, Haley and Bateson's comments in Sluzki and Ransom, 1976; and Hoffman, 1993). Weakland's comments above go a long way to defuse and contextualize this issue by describing how such strongly held differences furthered rather than took away from the productivity of the team. Weakland's plea, "our interplay and even our struggles were central for the gradual moving toward some sort of a development of some common fundamental ideas rather than moving rapidly towards some superficially agreed on views, and that is what I most hope may continue in the future," has profound relevance to continuing efforts to clarify, use, and promulgate the Interactional View.

Now probably, I am also here to introduce our speaker because being an old colleague, friend, and former student, as you have heard, it has been thought that I could prepare you for his talk. However, I am not sure this is really either possible nor desirable.

I could make an attempt at this by discussing his varied career as an anthropologist, formerly as a zoologist, but I do not think I could ever cover but a fraction of the diversity of his work on primitive tribes, on families and psychiatric work, on the social life of dolphins, and anyway even to the extent that I could this would again be a reference essentially to the past, and it is certainly true that just as much as Don Jackson, Gregory Bateson has always been much more concerned about the future. So, on the one hand I cannot tell you what he is about to say and in any case I very strongly suspect from experience that rather than that he would prefer to meet and to stimulate all our accustomed and often stereotyped thinking with some surprises and challenges of his own. So, I will only say to you, here is Gregory Bateson, to speak for him self – Gregory.

The first Don D. Jackson memorial address by Gregory Bateson

Let me say that it is an extraordinary pleasure as well as an honor to be here tonight. I have been around Palo Alto for the last two or three days seeing old faces, old collaborators, seeing where the problems that we started what, 14 years ago, I guess, have led. And I miss Don. Don had a quickness, and a lightness, in touch that is I think very important in handling problems of human behavior. I think he might have thought that some of our antics this evening a little funny and to come up to this platform and lighten our procedures a little. It would have been nice.

He was historically of course, a very important person. His original paper on family homeostasis was certainly one of the first, perhaps the first, major statement about the family as a system. And I thought I would talk to you about the implications of thinking of human groups, families, even the human individual, as systemically organized and what this means. And I thought that I would particularly organize the talk around the notion of power.

On the limitations and danger of power

Power is something which a very large number of people believe in and a very large number of people want. And if you want it, and if you believe in it, and you can find other people who will believe in it too, you can in a certain sense, have it. But, they say it corrupts. What does all this mean? First, of all, is the world the sort of thing in which the word power is an appropriate word to use to describe what goes on between people? The word comes from a physical chemical universe in which power is very definitely measurable in foot-pounds or in foot-pounds over time and that is a perfectly clear and meaningful concept. From this concept, we take off and make a metaphor, a way of talking about what goes on between people, which certainly is a very poor copy of that which travels over wires and lights those lamps. The copy is a dangerous one and of course, there is a whole mass of psychological thinking, practically the whole of Freudian theory, which in the end is rooted in theories of “energy.” And I have a kind of suspicion that these metaphors are not only wrong but also dangerous.

Causation is organized in circuit structures

What sort of a world is it that we are talking about? First, of all it is clearly a world in which causation is organized into circuit structures. If I say certain things to you which you either agree with or disagree with, and you respond to what I say in the end this

comes back to me, either heightening my reputation or disgracing me and turning me into a subject of mockery. But neither the height of reputation nor contempt has anything to do with wattage, power in that sense. All that we have said is that if you throw your bread upon the waters it will come back to you perhaps dry, perhaps wet.

The world is on the whole a circuit structured. Because it is structured in circuits we find that on the whole, if only we would leave it alone, the world is on the whole self corrective, and such a system as a redwood forest or a coral reef, if you would reduce one of the species of insects or plants in it by 10 percent and come back again five years later you will find that it has adjusted itself to about the figure that it was at before. If you import a number of that species and raised the operation of that species by 10 percent and come back in five years you will find its about down to where it was before. The system is self-corrective and it is self-corrective because it is circuit structured because what happens to this species, affects that species which affects that species which comes back and balances things up in various complex ways most of which are not understood. This is the central fact that ecologists are now talking about. Now, if that is the sort of world that we live in and we approach the redwood forest and say we want more weevils of a given species out of this forest, what is going to happen? Either we are going to over crop, kill, take away too many of those weevils or we are going to boost the thing in some way to try to get more weevils and whatever we do we shall in fact be arguing not in circuits but in lineal sequences. If I do this then that will happen then that will happen and there will be more of whatever it is I want to take out of the forest. I do not know why anybody would want weevils but they might. Maybe it would be lumber they would be wanting. But the case is still the same.

The point is that if you think in a certain way and that way of thinking which is the "if a then b then c, and we want c so we will go a, b, c." If that way of thinking is not in fact a reasonably good mirror, representation, of the way in which the thing you're attacking is organized you will wreck its organization, it is that simple:

Comment: Using simple cybernetic and cybernetic of cybernetic epistemology, Bateson outlines what became the essence of the problem formation/attempted solution framework, and the inevitable ecologically destructive ramifications of shortsighted actions aimed at making things better.

Now, what sort of a business is this? First, of all, obviously when you get above the level of redwood forests and coral reefs to consider human communities you again face much the same sort of problem, that what you do to increase the number of trolley cars in the city is going to reflect around and alter all the other variables and set off corrective resistances and so forth. The status quo at any given moment in such a system always contains self-corrective devices which will tend to perpetuate it.

Example one

The sort of thing that is very familiar is that if a social system, say, imposes prohibition on itself changes will be set on foot to keep constant that variable which prohibition would otherwise change. That is the concentration of alcohol in circulation of the system will tend to stay the same in spite of prohibition legislation. In order to maintain that constancy a new trade will be invented, that of the bootlegger, and in order to keep the bootleggers in order a new branch of the police force will be invented and so on. It will ramify like roots of a tree through the whole social structure. The result will be that when you have had prohibition for a few years, to take it off will

be a great nuisance to everybody and the total system will react to try to keep constant certain relations between criminals and police that were established during prohibition. You keep on trying to keep constant something, which was so before and is interrupted under the new system. Now if that's the sort of world you live in there is then a very serious question as to what we mean by the word power.

Comment: Attempted solution serve to maintain the status quo, becoming self perpetuating and ecologically destructive games without end.

Example two – a family

Now if you work with families and I used to be doing this here, you find families, for example, where one of the, an adolescent, say, is what is called psychotic – is troubled which the other members of the family are a trouble to that member and that member is a trouble to the others and you work along and you start to give that so-called identified patient a little more courage you will find first of all that you get protest from the other members that they tend to make those moves which will put the member down again and then they will say, even articulately, “I can see Joe's so much better but why is he getting so hostile?” And the battle will develop and if they cannot win then you may see the whole family swing around, focus on another sibling and put the heat on there, trying to maintain constant that which you as a therapist are trying to change.

Consequences and implications of believing in power

All this means that power is something quite different from what it is usually thought of as being. One of the things that it means, obviously, is that if you believe that there is such a thing as one-way power as distinct from round and round interaction, and if you seem to get it, then you will get the phenomenon called power corrupts. It corrupts not only the man who thinks he has it; it also corrupts those who think that he has it, who gives it to him. You see this is a myth which people can believe in and which has . . . *the belief in it* has very profound effects upon what happens. That must have such effects even though the myth is a very considerable distortion of what really does happen. And partly the myth is a dangerous myth because it is a distortion of what can happen. Now if this be so then it would follow that it is exceedingly dangerous to put into positions involving important decision, positions of high responsibility, people who believe in the myth of power:

Comment: Emphasis on constructivist and the second order cybernetic influence of belief, is a central theme present throughout the writings of Bateson and other members of the Palo Alto Group (Bateson, 1955, 1961; Jackson, 1955, 1960).

Example three – anthropology

I did considerable amount of fieldwork before World War II in Bali, in the Dutch Indies. And Bali has an exemplary social organization. It is ruled, the village, is ruled by its citizens who have an order of seniority. You become a full citizen when you marry. You and your wife are then jointly a member of the committee of the whole, so to speak. You climb up that ladder of members as other people cease to be members, you move up and there is a group of two couples, who are the top of the list under them the next two to make four couples, and these people are responsible. They are both religious

leaders and secular leaders in many ways. But there is absolutely no way in which you can alter anybody's position on that list. You drop off if you do not have any children, if you have one child, we will say a male, you are given another five years membership in which to have a female child. If you have another male child, well you are given another five years after that. If it becomes perfectly evident that you are not going to have a child of each sex you will drop off the list. When your youngest child marries you drop off the list, when your first great grandchild is born, you drop off the list. There are various sorts of ceremonial impurity, which will remove you from the list. Bigamy will remove you from the list. If the ceremonial impurity or the bigamy should cease you go back on the list and you go back into precisely the slot you were in before. There is no possibility of political maneuvering to try to get above or below anybody else on the list. This is, you see, really a democratic system. And it is designed to assign power to persons who are qualified for it by the fact that their youngest child is not yet married, their great grandchild is not yet born, they do not have the various sorts of ceremonial impurity that would disqualify them, but they are in general totally uninterested in power.

When the village meets to make a decision the citizens try to push the leaders into making a decision, the leaders try to push the citizens into making suggestions, and if the leaders make a decision which is not supported by the citizens they are fined. And they are fined quite a considerable sum. It works very nicely, but the system does not change at all easily. I do not know why anybody would want systems to change. If you want to make, want something to happen, as we did, we wanted to get the village orchestra out one afternoon when a musicologist was visiting us. It was explained that, the village orchestra performs on such and such calendric days as it might be Easter, Christmas, Michaelmas, and so forth. This was not one of those calendric days and they were sorry. But the heads had said that they would get the orchestra out and they got fined for having jumped the gun; they were corrected by their people. Now, the question you see if you believe in power, if you think the way the belief in power encourages people to think, you then start on various sorts of interaction with the system which tend to get more and more violent. You tend to escalate in various ways, and this is where things start to get interesting. I mean to a diagnostician.

Examples four and five – DDT and automobiles

Limitations of foresight: how attempted solutions can become future disasters

We are in the position in which today we also believe that we have a power over the world around us by way of our technology. That is, if we want more food out of our environment, we believe that we can get it by the use of insecticides to keep down the pests, fertilizers to make the squashes fatter and greener, and other devices. But we are still up against the same sort of problem and I think it is worthwhile to think for a moment of the extraordinary repetitive nature of the ecological problem. We have a population explosion on our hands. Out of population pressure we invent ways of increasing food supply, or we invent ways of moving people around better, the automobile, or we increase food supply by the invention of DDT. Fine, the history of these two objects is very much the same. First, of all the invention turns out to be enormously successful. A major industry is built up to make whatever it is, the DDT or the automobiles, etc. That system flourishes long enough so that the population pressure which it was designed to relieve is freed. That is you add DDT to your

total system, your population now rises over a period of 10-20 years, and about the time when you have therefore become totally dependant on the DDT, because your population has now risen to a point where you cannot do without it. You discover that the DDT is either toxic or immoral or fattening. You then face a very unpleasant situation in which you are addicted to what you thought was a source of power and now becomes an element of dependency, and a toxic one at that.

Timing: a logic for "going slow" and recommending non-change

The timing is a little interesting. DDT, for example, was discovered as an insecticide in 1939 by a Swiss named Mueller, who got a Nobel Prize for it. It was then a source of major usefulness in World War II and no doubt saved thousands of lives, and in the years following changed the entire vital statistics of the tropics in a way that was quite fantastic. In the year that DDT was introduced to Ceylon the death rate fell from, I forget now, the order of 28 to of the order of 18, something of this sort per thousand, a fall of a third. OK, now Rachel Carson's book came out, anyone know the date, about 1961, 1962? And this was already after the main scientific knowledge was available in the scientific world. That is to say that we really knew about 58 to 60 that DDT was a major toxic danger and that the birds certainly were gone and that much of our surrounding living world would be doomed. In 1969-1970, we began to think seriously about controlling the DDT, and maybe in the next three years we will manage to control it some. That is how the timing goes. Very slow lag, in which power is enormously reduced by the self-corrective devices of the status quo. You see it is not only the redwood forests that are ecologically organized. It is also the pesticide industry. They too have their ecological system, their corrective devices, which will see to it that when we are committed to a line of conduct it will be excessively difficult to change that line of conduct.

One of the interesting things about all of this, I do not know whether we shall live through it, we may, there is also the nuclear industry and others. What we are going to be doing is creating various sorts of things which will correct for various sorts of pressures, especially population pressure. As the DDT permits then the population to rise and having corrected we do not know what to do next. You see it is as if you are dealing with a mind. You could put it, if you like, that there is an old man in the sky, perhaps with a beard, who looks down and when he sees a species quarrelling with its ecology, he heaves a sigh and regretfully sends the fallout. But, of course, it is not necessary to imagine the old man in the sky because the fallout in fact is created by the species, that was quarreling with its ecology and the whole system has a self-correctedness about it which we try to escape from.

Do not forget that the smog is what the advertisers might call nature's way. As population increases more or less inevitably as any variable any measurable in the world increases, it will in the end produce changes in other variables, other values, which will tend to stop the increase, it is that simple. As population increases one of the things which it produces as a byproduct is smog. If it produces enough smog the smog becomes lethal and controls the population increase. This probably is the most humane way of solving the population explosion. There may be more humane ways, I do not know. We do not know of them. We know that on the whole, smog attacks the urban rather than the rural population. It is not likely to exterminate the species because it is too localized, whereas the atomic stuff of course, is much more dangerous.

There is something to be said for smog, and not disturbing it or cleaning it up until you know what you are going to do with the population problem; the moment you have an idea what to do with the population problem then start cleaning up the smog. Our power to elect pathways is not very great. Our power to control each other is not very great. The mess that we get into when we start to believe that we have power is formidable.

The Epistemologically Flawed and Dangerous Fiction of "I"

And one of the very severe troubles that lie at the root of this whole business is the separation of self from that with which we deal. We think "I" can cut down that tree. Or we think, "We" can beat that other nation; we can control the colored, or the lower classes. All these statements, which are essential on the same structural base, happen to be very largely nonsense. We are in general not separate from that thing which we think we can control. A much more correct way of thinking about the problem is of self as part of a system which includes self and that which you're trying to control. It is a difference between me versus you and me as part of something in this room, an effort, a joint effort perhaps to think straight. My contributions to that effort may be right or wrong, your contributions may be right or wrong. We may have a chance to discuss them, and the whole thing moves as an interactive business rather than moving as a unilateral control of any kind whatsoever. Now, perhaps the most interesting focal point of this whole "something versus the rest," as opposed to "something as part of a total," is in the case of mind versus body.

Example five – the alcoholic

I am the captain of my soul, says the alcoholic who is perfectly sure he can control his drinking. As long as his battle with the drink is fairly fierce and clear, he may be able to stay in that position. But, when he starts to win that battle, to feel that he is not really being tempted by the booze very much anymore, he suddenly finds that he has a glass of alcohol in his hand. That is, his control, "I am the captain of my soul," or whatever it is, only holds up to the point at which his imaginary antagonist keeps on fighting. At the moment the imaginary antagonist stops fighting his control ceases and he is off on a binge. He does not have control.

That is, I have been talking first about control, say between persons, or control between people and the environment, and now I have moved to the question of control within the person. Do I have control over me and in what sense? And every psychiatrist I think knows that I have very limited control over me. Whether any would be arguable, whether that control works at any immediate level would be exceedingly doubtful. I can in a sense, and perhaps the philosophers would not allow me to say this, train myself in certain ways. That is I can go jogging and can do enough jogging so that when I start to go up my Mount Tamalpais (outside San Francisco), I will be able to get to the top without panting as much as I would have expected. I can make certain changes in acclimation and adjustment, perhaps. The philosophers I think would say no. On the other hand, if I, what shall I say, begin to boast to myself, begin to fall under the illusion that I have an order of control that I do not have then I have less than I ever had. And all this, of course, is very relevant to all the work which we used to be doing, and which the MRI is still doing, with family therapy and the rest of it. The problem is how to let an individual, a system, achieve its adjustments.

Example six – anxiety and soothing an infant

If you were dealing with a small baby and you are in a hurry, for some reason, you will find that things go wrong in the relationship to the small baby. If you approach the small baby with the frame of mind as if you have infinite time, and infinite attention to give to it, now, you will find the baby will go to sleep very quickly. If you approach the baby with the notion, “it’s got to go to sleep in the next five minutes or I don’t know what I shall do,” you will find the baby is awake ten minutes later and you are still puzzled what to do.

In general, the problem is not exactly a problem of surrender but a problem of accurate assessment of what order of control, if any, you have and mostly you do not have much and when you have agreed finally that you do not have much, you may find that things go much more smoothly. Not merely by the fact of your, “giving in,” as it’s called but by the fact of you’re, “going with,” whatever it is.

Example seven – our ecology: further, implication of the belief in power and the separation of I and Thou

We were in Austria at a small conference and we had there Barry Commoner the ecologist and a number of people from various sorts of behavioral science and mathematics to consider these problems of control essentially. A psychologist in the group gave us a paper on the history of consciousness and the nature of awareness and purpose that people thought they had in various epochs. And he reached the point of the Renaissance and he discussed Leonardo, and particularly the painting of the Virgin of the Rocks with this, you know, holy family in the foreground and a fantastic Renaissance landscape behind. And our psychologist made the point that the extraordinary advance in the Renaissance period, Renaissance Italy, was the degree of separation between the family and the landscape. I mumbled something about this sounded somehow familiar. And Barry Commoner, the great defender of our ecology, came in with all his guns and said, “Burt,” which was the psychologist’s name, “What do you hold sacred?” Burt mumbled, I was chairman and was in a position to force him to an answer and rather uncomfortably he said, “The family I guess.” And Barry Commoner said, “Burt if you don’t hold the frogs in the waterfalls as sacred as the human family you’re doomed.” That is about the position we’re in. If we set it up as the family versus the frogs in the waterfalls we are probably doomed. We have been setting it up that way, as man versus his environment, ever since about 1800 and extremely clearly with Darwinian evolution, in which it was assumed that survival of the fittest argues that the unit of survival is the species or the family unit or the subspecies or something. Now, that way of thinking, which then sets the biological chunk against the circuit structure in which it is a part is, I believe, a lethal idea for any society that has enough technology to put the idea into practice. You cannot both think that way and be able to act according to your thought. If you only have a half-arc'd technology you are still safe. But the moment you have an effective technology and you think that way you have got to correct your thinking. There is no way of getting rid of the technology that I know of. The engineers are much too powerful. So the only thing to do is to change your attitude towards it, or it always ends in your death; it is that sort anyway. I do not know that I want to say much more; I think I have said it.

I will say this more. That it is a reasonable estimate of an even chance within the next 20 years that we destroy everything that we have been calling civilization.

The sort of change I am asking for is not the sort of change that happens within 20 or 30 years. Obviously things are moving very rapidly. We hear now about the DDT and the Antarctic penguins. We hear nowadays that the pelicans of California have not had a baby for three years. Some thousands of pelicans, they cannot make eggshells. We have not yet heard of any serious disruption of the human reproductive system. It is not at all improbable. We do not have long.

Conclusion

The ideas presented in this lecture were not new on the part of Bateson; by 1970 he had researched, written about, and taught these ideas for well more than a decade. Members of the Palo Alto Group, Weakland, Jackson, Haley, and Fry, who had worked with Bateson during the decade long series of research projects out of which these ideas emerged, and Watzlawick and Fisch also had heard and read them before. To this writer, however, Bateson's June 1970 address at this MRI conference, when the Brief Therapy Team were four years deep into the process of creating their model, is a vividly clear and uncompromising articulation of cybernetic epistemology and its implications. Within the subsequent four years the MRI Brief Therapy Team would continue to apply in clinical research the use of these ideas, and formally publish the problem formation – problem resolution model which is their legacy.

Bateson had significant theoretical differences from some of his early colleagues, especially Jay Haley and perhaps to a lesser extent others. The differences show clearly in this address. In this talk, Bateson offered to his colleagues a lucid critique of the use of the metaphor of "power" in descriptions of interactional and therapeutic process, and a warning about the potentially disastrous consequences of shortsighted interventions. It is as true today as it was 37 years ago that too few scholars in the sciences including the field of psychotherapy, to include many practitioners of MRI Brief Therapy, take Bateson's criticism seriously; while some such as John Weakland, Bradford Keeney, and others understood and embraced Bateson's warning.

Thank you Gregory Bateson, Don Jackson, John Weakland, Richard Fisch and Paul Watzlawick for articulating so clearly a non-power based understanding of problems, how they are perpetuated, and how to help desist from problem maintaining behavior. I earnestly hope Gregory Bateson was wrong about our species ability to change and our chances for survival. With pollution and global warming, oil and other addictions, the non self referential tendency to blame others and the current dismal state of international affairs, optimism may well be unfounded.

References

- Bateson, G. (1955), *A Theory of Play and Fantasy*, in Bateson, G. (1972), *Steps to An Ecology of Mind*, Ballantine Books, New York, NY.
- Bateson, G. (1961), *Minimal Requirements for a Theory of Schizophrenia*, in Bateson, G. (1972), *Steps to An Ecology of Mind*, Ballantine Books, New York, NY.
- de Shazer, S. (1994), *Words were Originally Magic*, Norton, New York, NY.
- Fisch, R. and Schlanger, K. (1999), *Brief Therapy with Intimidating Cases – Changing the Unchangeable*, Jossey-Bass, San Francisco, CA.
- Fisch, R., Weakland, J., Watzlawick, P. and Bodin, A. (1972), "On unbecoming family therapists", in Ferber, A., Mendelson, M. and Napier, A. (Eds), *The Book of Family Therapy*, Science House, New York, NY, pp. 597-617.

- Fisch, R., Weakland, J. and Segal, L. (1982), *The Tactics of Change – Doing Therapy Briefly*, Jossey-Bass, San Francisco, CA.
- Hoffman, L. (1993), *Exchanging Voices*, Karnac Books, London.
- Jackson, D. (1955), “The therapists personality in the therapy of schizophrenics”, in Ray, W. (Ed.) (2005) *Don D. Jackson – Essays from the Dawn of an Era*, Zeig, Tucker, Theisan, Phoenix, AZ.
- Jackson, D. (1960), “Introduction”, in Jackson, D. (Ed.), *The Etiology of Schizophrenia*, Basic Books, New York, NY, also in Ray, W. (Ed.), (2005), *Don D. Jackson – Essays from the Dawn of an Era*, Zeig, Tucker, Theisan, Phoenix, AZ.
- Keeney, B. (1983), *Aesthetics of Change*, Guilford Press, New York, NY.
- Ray, W. and Keeney, B. (1993), *Resource Focused Therapy*, Karnac, London.
- Sluzki, C. and Ransom, D. (1976), *Double Bind: The Foundation of the Communicational Approach to the Family*, Grune & Stratton, New York, NY.
- Watzlawick, P. (Ed.) (1984), *The Invented Reality – How Do We Know What We Believe We Know?*, W.W. Norton, New York, NY.
- Watzlawick, P. and Nardone, G. (Eds) (1997), *Terapia breve strategica*, Raffaello Cortina, Milan.
- Watzlawick, P., Weakland, R. and Fisch, R. (1974), *Change: Principals of Problem Formation & Problem Resolution*, W.W. Norton, New York, NY.
- Weakland, J. and Ray, W. (Eds) (1995), *Propagations – Thirty Years of Influence from the Mental Research Institute (MRI)*, Haworth, New York, NY.
- Weakland, J., Fisch, R., Watzlawick, P. and Bodin, A. (1974), “Brief therapy: focused problem resolution”, *Family Process*, Vol. 13, pp. 141-68.

Further reading

- Ray, W. and Don, D. (2005), *Don D. Jackson – Essays from the Dawn of An Era*, Zeig, Tucker, & Theisan, Phoenix, AZ.
- Watzlawick, P. and Weakland, J. (1977), *The Interactional View – Studies at the Mental Research Institute, 1965-1974*, W.W. Norton, New York, NY.

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The influence of Gregory Bateson: legacy or vestige?

The influence
of Bateson

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Abstract

Purpose – To assess the recent influence of Gregory Bateson on publication within the field of psychotherapy.

Design/methodology/approach – Literature survey of all accessible literature from 1996 to 2006, utilizing citation search engines for identification purposes followed by reading and evaluating the most relevant publications.

Findings – Research that investigates Bateson's ideas is promising but scarce, and theoretical development that builds on his constructs is rare. Apart from frequency in citation, his contributions seem to be more durable than generative.

Research limitations/implications – Owing to the volume of data, a complete survey of literature was impossible, focusing our work on psychotherapy for this paper. Other projects surveying fields such as management and sociology should be undertaken to assess Bateson's influence.

Practical implications – Practice should be tied to theory-building and ongoing research rather than nostalgia, myopic commitment to ideals, or myth. Purposeful commitment to cybernetic theory and practice development is needed.

Originality/value – Few literature reviews have attempted to conduct a survey this broad. It is believed this has been successful in addressing actual publication practices.

Keywords Cybernetics, Literature, Psychology

Paper type Literature review

As readers can see within this volume, a host of professionals around the world revere the contributions of cybernetician, scientist, and anthropologist Gregory Bateson. Over the past few years, tributes to Bateson have been written celebrating both his 100th birthday (2004) and the 50th anniversary of his Palo Alto team's seminal paper on schizophrenia (Bateson *et al.*, 1956). This outpouring of admiration continues, and even a cursory reading of publication citations within the field of family therapy reveals his influence and continued presence.

Theory development has always been prominent in family therapy, a field that has maintained its creativity since the middle of the twentieth century. With Bateson's work in the forefront, the term "systemic" has defined the field and empowered the



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creation of clinical models. But do his ideas continue to guide the field? Anyone who has studied systemic therapy is familiar with the works of Gregory Bateson. But how central are these ideas to recent development in family therapy (or psychotherapy in general)? Is Bateson a vital legacy, one whose contributions continue to exert major influence? Or are current authors merely giving his ideas a “tip of the hat” to add credibility to their own, which have little connection to and fail to build upon his work? Has Gregory Bateson become vestigial, a mere appendage tacked on to a list of more relevant sources?

Our curiosity concerning the influence of Bateson’s writings has led us to examine a vast and varied collection of publications, taking us in directions and exposing us to ideas that we could not have imagined prior to this project. This paper surveys publications from the past ten years that cite and purportedly credit the work of Gregory Bateson. Because of the volume of information we encountered, most of our summaries will be limited to the fields of family therapy and general psychotherapy while identifying other fields and disciplines currently influenced by Bateson that we have only begun to explore in hopes of satisfying some of our curiosities.

Methods

Citation search engines such as the *Social Science Citation Index* (SSCI, 2007) and the *Science Citation Index – Expanded* (SCI-E, 2007) allow researchers to search publications and locate references across disciplines and languages. These search engines survey publications to locate all possible citations of a certain author or published work, even if the citations are inaccurate. An exhaustive search for all citations of Bateson’s body of work found over 430 of his articles, letters, chapters, books, speeches, and other printed materials cited in the past decade, resulting in nearly 7,400 total citations.

The SSCI generally surveys publications within the social sciences, while the SCI-E covers physical and biological sciences. To create a manageable collection, we began to limit our search to references located by the SSCI. Within this social science-oriented search, the majority of Bateson citations were found in the field of business and organizational management followed by the academic fields of clinical psychology, family studies, and education. Because some disciplines offer greater opportunities for publication due to the sheer number of journals, periodicals, and other printing outlets, one cannot assume that Bateson is more influential in (for example) management than in family therapy. However, the wide range of disciplines citing his work – including nursing, anthropology, communication, and psychiatry – reveals the broad appeal of his theories and social criticism.

To narrow our survey of related literature, we limited our search to publications that referenced Bateson’s three most cited publications: the article “Toward a theory of schizophrenia” (Bateson *et al.*, 1956) and his two best-selling books, *Steps to an Ecology of Mind* (Bateson, 1972a) and *Mind and Nature: A Necessary Unity* (Bateson, 1979). All publication dates, editions, and issues were gathered by the SSCI search engine, revealing an extraordinary range of topics and disciplines tying themselves to Bateson. We searched the SSCI from 1996 to 2006 across all English publications and found the following. Bateson’s (1972a) *Steps to An Ecology of Mind* was referenced over 2,800 times, by far the most popular of his publications. Next, the 1956 article on schizophrenia was cited nearly 1,300 times. And finally, citations of *Mind and Nature* totaled nearly 1,100.

We then sorted the publications citing at least one of these three most common Bateson citations from those referencing other works by Bateson. The first sort was by discipline, discerned by reading both the title of the publication and the journal description. We set aside nearly all publications in management, sociology, and education simply because the sheer volume would overwhelm any team's ability to make sense of a qualitative data set so large. (Some notable exceptions will be referenced below.) The publications that remained were most closely related to mental health professions. We then read the abstracts of these publications, a total of nearly 1,000. Publications that purported to focus on one of the following names and terms (or derivations) were carried forward for further examination: Bateson himself, cybernetics, systems, communication, theory development, mental illness ("schizophrenia," "psychosis," etc.), family, relationship, family therapy, or any key Batesonian concepts such as double-bind, levels of learning, framing, epistemology, deuterio-learning, and so on. Although we may have missed some relevant publications from this time period, it is unintentional; and if we do not mention some contributions readers may believe are significant, it is our hope that further literature reviews will pay appropriate tribute to those that we have neglected.

What follows is a review of what we believe to be the most relevant literature citing Bateson's work in the past decade within psychotherapy and particularly that which is related to family therapy. We intend to highlight significant contributions as well as comment on disparities and inadequacies. Finally, we will attempt to summarize our work to date and make recommendations for further study and development.

Bateson's legacy

Brief biographies

Within the field of family therapy, the works of Stagoll (2006, 2005) are outstanding reviews of Bateson's life and legend. "Bateson was our hero, our guiding star" in the 1970s, what Stagoll (2006, p. 121) calls "those heady days of family therapy." His tone is personal without much nostalgia, and these articles should be required reading for all students of systems and family therapy.

Also worth noting are three works that fall outside the psychotherapy community. Lipset's (2005) and Wardle's (1999) pieces, published in the field of anthropology, have value for those seeking detail of Bateson's life and the people who influenced him. Of special note is the work of Charlton (2003). A treatise on the concept of "grace," his timeline of Bateson's life – including personal experiences, changes, relationships, and an extensive list of Bateson's publications – is the most exhaustive we have located. Finally, there are others, including Keeney (2005) and Marshall (2004), who offer tributes to Bateson's influence and presence in a more autobiographical form.

Publications with an historical focus

Celebrating the 100 years since Bateson's birth in 1904 brought forth several significant papers worthy of note. Tributes abound, with Beels (2002), Imber-Black (2004) and Pakman (2004) among the most prominent. However, instead of celebrating renewed interest in Bateson's work or his theoretical influence, most tribute pieces document a decreased influence among authors associated with systemic therapy while calling for a re-evaluation of current theoretical trends.

Beels (2002, p. 81) offers a long-term, first-person account of theoretical influences within family therapy and notes what might be called a waning of Batesonian influence within the field:

Family therapy ... appears to be drifting, without much protest, into a varied stream of healing practices where its unique conceptual contribution, "systems thinking," is less and less asserted or defended. It has even been questioned, in some quarters, whether 'systems thinking,' is the *sine qua non* of theory in family therapy.

He is "alarmed at the ease with which eternal verities such as 'systems thinking' can be set aside" (p. 67) and the general abandonment of significant historical influences. Even while Beels points out shortcomings in the ideas that emerged from Bateson's Palo Alto group, he is concerned with directions that fail to acknowledge and appreciate those who first scouted the terrain.

Cullin (2006) is one who promotes revisiting the double-bind theory. He calls for us to re-examine the etymology of concepts whose meanings have become diffused:

(Terms such as "systemic" and "enmeshed," or even "transference") are all terms that originally meant something more than, or different to, what is denoted by their current employment, overused as they are, and devoid of any real depth of meaning through being disconnected from their intended context (p. 140).

This work shows appreciation for the research legacy of the Palo Alto group and challenges family therapy to attend to current experience and thought around paradox, a fitting tribute to the tone of the original (Bateson *et al.*, 1956) project and context.

Pakman (2004, p. 413) believes that Bateson has become a "name distant and receding", one whose influence is more global than direct. He speaks of family therapy as a field "that honors, as it should, the spirit but not the letter of 'Gregory Bateson,' still making a difference in our lives and work" (p. 423). Pakman's premise is that Bateson's *oeuvre*, his entire body of work, is what continues to inform the field. To him, the idea that Bateson's theories are rarely being expanded or built upon does not diminish their value to the discipline. This fits well with the context of Pakman's article, for although the fourth issue of *Family Process* in 2004 was dedicated to Gregory Bateson, only Imber-Black's (2004) and Pakman's (2004) articles even acknowledge Bateson's work. Proposed as a tribute to Bateson, almost none of the authors found his work relevant enough to cite. Their theoretical and clinical developments seem, at best, loosely tied to the philosophical tradition within systemic family therapy.

Others who pay homage to the Bateson legacy in family therapy are also noteworthy. Ray's (2004) review of the Mental Research Institute (MRI) notes Bateson's contributions within that venerable group of researchers and clinicians, while another of his articles (Ray, 2005) is a brief but fitting tribute honoring the mutual influence experienced by Bateson and the late Heinz von Foerster (Thomas, 2005). Lutterer (2005) also notes this Bateson/von Foerster recursion. He articulates how von Foerster adapted Bateson's ideas and terminology, appealing to the readership to continue developing the untapped resource he calls "systemics" that emerged from the work of these two cybernetic giants. Finally, Visser's (2003) history focuses on both the conceptual and the chronologic. This overview traces the path of Bateson's concepts of deuterio-learning and double-bind prior to his creation of the Palo Alto group in the early 1950s and advocates for their current relevance.

Recent theory-building work, 1996-2006*Family therapy/psychotherapy*

Most theory-building in the clinical fields that include the work of Gregory Bateson is integrative; that is, those who continue to take Bateson's ideas seriously are attempting to merge his theories with other philosophical traditions, including postmodern and poststructural. Others are overtly dismissive of Bateson's cybernetics, while others quickly exclude early systems ideas as irrelevant or erroneous.

Anchin (2003) shows ambition, attempting to integrate recently popular theories and models with cybernetic theory and clinical approaches. Although he focuses on the individual as the cybernetic unit, family therapists would benefit from his careful integration and illustrative case study, as he creates space for valuable concepts such as amplification and complementarity within such applications as existential, solution-focused, and narrative therapies. Cybernetics is the metatheory within Anchin's approach; he is loyal to basic constructs and believes his theory holds together because of these systemic assumptions.

Another integration can be found in Stone Fish (2000), a paper that shows careful thought and brings several theoretical streams together. Stone Fish combines Wynne's epigenetic model of relationship development with Bateson's theory of complementarity and symmetry, attempting to bridge the problematic gap between hierarchy and power pointed out by feminist scholars within family therapy. While others have simply dropped the argument and concluded that hierarchy, power, and abuse are inextricably intertwined, Stone Fish moves into family developmental territory in an attempt to move the discussion away from conclusions toward a more tentative position: given an inherently hierarchical position such as mother-young child, how can one enhance growth and minimize (or even avoid) the abuse of power? She builds on the work of Sluzki and Beavin (1977) by folding Bateson's idea of appropriate symmetry in complementary relationships into Wynne's relationship development model, moving this obviously hierarchical mother-child relationship through time from dependence toward what she calls mutuality. A significant work, Stone Fish's article gives the field a taste of possibilities, offering a carefully constructed theoretical model that holds both developmental and clinical promise.

Chiari and Nuzzo (2006) take Bateson's ideas and attempt to create a theory of identity that is more satisfying than social or psychological theories have offered to date. Drawing heavily from Bateson as well as Buber, Kelly, G. H. Mead, Varela, and Maturana, Chiari and Nuzzo develop a defensible position for identity as a reflexive third position located in the interactional, or the space between the individual and the social:

In a psychology of participation, quantities and qualities are irrelevant with respect to a professional understanding of personal suffering. To look at the person rather than at the individual or at his or her social world implies looking at the dynamics of the inter-personal processes in which he or she is involved, and looking for the possibilities and the constraints that they imply. His or her difficulties have to be understood as difficulties in the maintenance of a conversation with the world, that is, in terms of adaptation (p. 271).

These authors clearly connect themselves to Bateson's ideas of complementarity and adaptation as well make as a clinical commitment to the concept of binocular vision in this innovative theory they call "hermeneutic constructivism" (p. 257).

Fergus and Reid (2002, p. 59) also believe systems theory as conceptualized by Bateson has current value: "We would suggest that systemic thinking, when not

reduced, is complementary to constructivism and dovetails smoothly with postmodern epistemology and therapeutic practice". They hold that:

... the systemic model has endured over the years because, as a heuristic device, it has helped therapists restrict the search space of family dynamics to a manageable size, and, as a therapeutic model, it has helped therapists render descriptions that are of pragmatic utility (p. 58).

These authors move away from systems theory as a way to explain what is real (an objectivist position) and return to a Batesonian sense of system-concept-as-metaphor. While they admit that early systems theorists subjugated the individual (leading to a rash of criticism and rejection of the theory itself), Fergus and Reid believe that this diminution of the person in the system was ignorant of Bateson's admonitions regarding the hubris of conscious purpose and control. So, in this paper they draw more attention to broader contextual influences and attempt to reinstate systems theory without the trappings of first-order systems reification. To Fergus and Reid, the therapist must be a second-order cybernetician who is both participant and observer, tentative in his or her conclusions and cautious when intervening.

Finally, Westerman (1998) builds on ideas from several traditions as he takes on a major tenet of psychoanalytic theory, the concept of defense. He reconceptualizes "defense" from an internal mechanism to an interpersonal experience that results from misguided attempts to disengage from relationships with others. Citing "The Logical Categories of Learning and Communication" (Bateson, 1972b), he creates a convincing argument for a relational understanding of defensiveness:

A person is an agent-in-a-situation. It is not possible to find a place outside the situation that actually undoes our connection to the relationship, the responsibilities inherent in being a participant who has taken a certain stance in the relationship at an earlier point in time, or the concrete reality that in most cases pursuing wished-for outcomes opens up the possibility of feared consequences (p. 300f).

Westerman also calls for research that examines verbal and nonverbal communication in problematic interpersonal relationships, bridging the theoretical and the pragmatic. This work creates new connections between a reified concept ("defense" as an individual mechanism) and current postmodern emphases on local knowledge, agency, and relationship. A revival of logical typing (Bateson, 1972b) may breathe life into logical typing and other time-honored but neglected Batesonian concepts.

Reflections and comments

The scarcity of literature in the field of psychotherapy that builds upon the work of Gregory Bateson both puzzles and concerns us. Mostly, this dearth creates new questions for us: are his theories less applicable to the field, having faced serious attempts at deconstruction over the past quarter century? If his theories still have heuristic and/or scientific value, why is it that writers are not building on them? Or could it be, connecting to Pakman's (2004) thread, that Bateson's legacy is and should only be historical and indirect?

Theory-building in other fields

Owing to the restrictions we have placed upon ourselves for this paper, we cannot thoroughly discuss the development of Bateson's ideas in other fields. However, for purposes of comparison, we believe it is important to mention a few.

In anthropology, scholars including Keeney (2007) and Marshall (2004) continue to highlight past contributions as well as future promises intertwined with Bateson's ideas. Qualitative researchers are continually refining both theory and method based on Bateson, including Marshall (2004), Krause (2003) and Hawkins (2004). The field of education is rich with Batesonian theory development, as one can easily see from a reading of Reason (2007), Rawson (2000) and Bloom (1999). Business and organizational management theory depends heavily on Bateson's concepts, as developed by Roach and Bednar (1997), Hawkins (2004) and Visser (2003). Ethics and sociology continue to draw both inspiration and conceptual guidance from Bateson, with Scott (2006) and Stokes (2006) being but two very recent examples. And, commentary and theory development in areas as diverse as global conflict theory (Kowalski, 2005; Price, 2002) are borrowing from and developing Bateson's ecological ideas.

Of the psychotherapy theory articles mentioned above, Chiari and Nuzzo (2006) offer something both continuous and novel to the field. Their article is an excellent example of integrative theoretical work that attempts to fit earlier concepts (ala Bateson) with more recent emphases (such as postmodern and deconstructionist theories). What seems to be lacking across all of these publications is evolution. For example, Chiari and Nuzzo (2006) have written several articles developing their theoretical position, but Stone Fish (2000) has not. An *SSCI* search for this paper reveals that only one publication has cited Stone Fish (2000) in the past six years, and we cannot locate further development of this theory by the author herself. Although the article by Fergus and Reid (2002) is a fairly recent publication, we would expect that their thorough work in theory integration would have received more attention; however, using the *SSCI* program, we found that only one publication in the past four years has cited this work.

Here, we call attention to but a few publications outside of psychotherapy, but readers need to know that the most expansive work in the Bateson theoretical tradition is found in contexts besides mental health. With organizational management and education leading the way, systemic ideas are alive and well. The struggle for viability seems to be in the psychotherapy field, especially within family therapy.

Schizophrenia and Bateson

History and theory

Although the vast majority of the nearly 1,100 references to "Toward a theory of schizophrenia" (Bateson *et al.*, 1956) are cursory, some merit review for this paper. In keeping with our focus on the continued influence of Bateson and his writings, we have chosen articles that stand out for one of two reasons:

- (1) their utilization of Bateson's double-bind theory of schizophrenia; or
- (2) the obvious absence of his theory in the article.

For example, the article by Adityanjee *et al.* (1999) is an historical overview of the etiology, diagnosis, and treatment of schizophrenia in the twentieth century. What is interesting to us is that they make only passing reference to the 1956 article by Bateson and his colleagues under the heading, "American concepts of schizophrenia" (p. 441), and there are few references to family-related etiology throughout the article. This peer-reviewed publication was written by psychiatrists and only reviewed English-language articles, which could account for some bias, but the discrepancy

between this review and other literature reviews in the mental health field regarding the family's role in schizophrenia is remarkable.

Hartwell (1996, p. 274) traces the historical influences of the "schizophrenic mother concept" and shows evidence that it runs much deeper in US social experience than the Bateson group alone. She places "Toward a theory of schizophrenia" (Bateson *et al.*, 1956) in the middle of two debates: psychiatry and gender. Hartwell articulates what Adityanjee *et al.* (1999, p. 290) simply ignored, stating her premise that "the schizophrenic mother concept was essentially an American phenomenon". Placing this concept into a context of gender within the USA, she notes that "the 1977 Beyond the Double Bind Conference in New York marked the death of the schizophrenogenic mother concept. In the same year, the International Women's Year Congress took place in Houston, marking the achievements of feminism" (p. 290). Her article adds a social context to the more familiar psychiatric debate, making a significant contribution.

Bertrando (2006) offers a European perspective that contrasts with that of Adityanjee and colleagues. Bertrando paints an historical picture of the family approaches to both understanding and treating schizophrenia. In the earliest phase of family treatment of schizophrenia (1955-1965), Bertrando gives credit to Bateson and his colleagues for developing an elegant theory, but she criticizes the same ideas for lacking empirical support and their bias against non-diagnosed family members. She feels that the Milan team approach, which she places from 1975 to 1985, moved from a causal to a more coevolving understanding of the emergence of schizophrenia with one person in a family, an understanding she feels is still relevant (and utilized) today. But the primary intervention with families of schizophrenic patients, covering the past 20 years, is psychoeducational. The most recent family approach is difficult to see as interventive; since schizophrenia is now viewed as a chronic psychiatric illness requiring medication, the therapist has become an educator, molding the family into a supportive role. In fact, Bertrando points out that family involvement within the overall treatment plan for a person diagnosed with schizophrenia is seen by some as stigmatizing, to be avoided all together. Her view of a more hopeful future in this area would be an integration of systemic principles with psychoeducation, bringing more dignity to all persons involved. This could be accomplished by combining current biological explanations and treatment of schizophrenia with non-blaming family education and intervention that focuses on interactional patterns that can exacerbate or ameliorate problematic behavior.

Research

Several publications report on current research concentrating on people diagnosed with schizophrenia and their family contexts. Bayer (1996), for example, applies both a systemic theoretical orientation and a system-sensitive methodology in this interview-based qualitative research with families. He holds firm to a tradition within family research and specifically examines the concept of disconfirming communication patterns, stating that "decades of family interaction theory and research have revealed communication patterns that distinguish families with schizophrenic members from other families" (p. 22). In addition he says this:

The communication patterns of the 20 families examined in this research were consistently more egocentric and disconfirming in families where the identified patient was diagnosed as

schizophrenic . . . This research supports the schizophrenic family interaction theories and research . . . of Laing and of Bateson and the Mental Research Institute (pp. 28-9).

Bayer (1996) is not alone in asserting the relevance of communication in these identified families. Dallos *et al.* (1997) conducted a study of young adults diagnosed with schizophrenia together with their families. Their theoretical orientation attempted to combine concepts from Bateson such as contextual fit and double-bind communication with social constructionist notions of identity and problem narratives:

We suggest that systemic concepts of recursive actions complement these theories (labeling theory, role theory, and social constructionism) by emphasizing the dynamic processes whereby family members may attach increasingly negative and pathologizing meanings to actions, leading to one or more members becoming identified as ill, pathological and deviant (p. 370).

Their research, tied closely to systemic concepts regarding “increasingly pathological identification of the difficulties” (p. 372), extends the Bateson team’s theories without being identified with any schizophrenic tendencies. Dallos *et al.* (1997, p. 372) theorize a cascade of debilitation: behavior that professionals find disturbing is often assigned a psychiatric diagnosis, which may lead to “selective attention” on the part of the family and set up “an escalating loop of increasingly pathological identification of the difficulties” which can “increasingly come to organize (the identified patient’s) identity around the label, leading to a ‘psychiatric career’”. They later describe differences in their study’s families using terms like “hostile dependency” (p. 395), revealing their beliefs in the usefulness of distinctions drawn nearly a half a century ago by Bateson and his colleagues. They close by emphasizing that the “‘how’ and not just the ‘what’ we communicate is important” within the context of their study (p. 396), echoing communication tenets from the Bateson projects in Palo Alto.

Reflections

There is little doubt that, for those who have only given family therapy theory a cursory glance, Bateson is closely connected with the 1956 paper, “Toward a theory of schizophrenia.” This brings a bit of sadness to us, for many often categorize Bateson as a theorist with anti-family (at best) or misogynist (at worst) tendencies before investigating his broad contributions. Although scarce, there is some research support for some of the notions he and his Palo Alto colleagues proposed: when considering schizophrenia, family context matters. Perhaps, the best summary of this tension can be found in an excellent article by Miklowitz (2004, pp. 683-5, emphasis added) that reviews literature related to the role of family systems in severe psychiatric disorders:

This review has demonstrated the utility of family systems approaches to understanding major psychiatric disorders. Underlying disturbances in family or marital systems may be evoked by the emergence of illness symptoms in one or more family members, but these disturbances have recursive effects on the course of the individual’s disorder. This view is distinct from *the traditional family systems view* that labels psychiatric illness in one member as a *product* of the dysfunctional patterns of alliance, hierarchy, organizational structure, or interactional patterns of the family . . . The most effective format for family interventions is still in question.

The 1956 paper is usually seen as a final work by those who only have this paper from which to draw conclusions. For those who have a wider Batesonian repertoire, “Toward a theory of schizophrenia” is just that: towards a theory. What Miklowitz (2004) offers is

much more Batesonian. His review proposes a systemic conclusion of multifinality; that is, different outcomes are expected from similar etiological sources because of contextual responses. A family has an impact on, and is impacted by, the behavior and experience of the person diagnosed with schizophrenia. To view this disorder in any other way is too reductionistic and simplistic and cannot account for differences in outcome. We believe the concept of multifinality is an extraordinary heuristic tool, a more viable approach than biological or family-based theories alone. We believe most of the authors reviewed above would agree that further study into the diagnosis/diagnosed recursion, as well as the circular influence among diagnosing professionals, diagnosed persons, and families, is warranted.

Concluding thoughts (open to recursive correction)

We find the breach between calls to revisit Batesonian epistemology and the lack of theory development around his ideas interesting. Theories influencing the field of family therapy over the past 10-15 years have little connection to theories on family development or interaction. In the late 1980s, theorists ignored systems thinking (at best) or declared cybernetics to be dead and danced on its grave (at worst). Our view is that reviving the best of Gregory Bateson would reenergize a field seeking a compass heading, recreating a systemic orientation that has been lost on a generation of psychotherapy practitioners who either eschew cybernetics or are enamored by other theories they believe have greater heuristic and/or clinical value.

Pakman (2004) paid tribute both to Gregory Bateson and to his collective works, stating that Bateson's oeuvre is perhaps more important than any of his individual publications or concepts. Pakman's premise may be accurate, as it seems that most of the Bateson citations we reviewed were perfunctory, lacking commitment to the very sources they were citing. Of the more than 1,000 abstracts and articles we reviewed, the vast majority only paid lip-service to Gregory Bateson. Instead of developing his ideas, they referenced his work to add credibility. The preponderance of references seemed tangential, referring to Bateson's ideas to show a superficial connection to systemic rigor without the commitment needed to enhance or (dare we say) improve the heuristic or practical value of his theories.

Bateson believed that people try to apply theory too rapidly, moving too quickly toward practical application instead of attending to the recursion of pragmatics and aesthetics. He wrote: "Theory is not just another gadget which can be used without understanding" (Bateson, 1991, p. 150). There are respected scholars who believe Bateson and his devotees overextend cybernetic theory. As Johnson (2001) states, "it was both Keeney's (1983) and, as we have seen, Bateson's (1972b, p. 7) contention that such apparent errors in thinking about serious human issues had opened the door to imminent and global tragedy". But we believe the pendulum of family therapy theory has swung too far the other direction. Having been criticized for messianic tendencies, system theorists have retreated and allowed other non-systemic theories to dominate the landscape, resulting in a loss of contextual integrity and constrained theory development.

There are many scholars who persistently point the way for those seeking systemic direction, some of whom deserve mention as we close. First, Keeney (2007, 2005, 2004, 1983) continues to embrace cybernetic epistemology in his study of global healing traditions. His *Profiles of Healing* book series (www.ringingrocks.com) has received

accolades from reviewers for its anthropologic, historical, and spiritual value. And the Institute Gregory Bateson in Belgium (www.igb-mri.com) perseveres in its quest to promote the ideas of Bateson within mental health and social policy (Wittezaele, 2004).

Systemic theorists, researchers, and clinicians have an ethical responsibility to address current and projected challenges facing families and other intimate relationship systems. It is our hope that a revival of systemic ideas as articulated by Gregory Bateson will lead to new dialogue among those engaged in family theory, research, and clinical work.

References

- Adityanjee, A.Y.A., Theodoridis, D. and Vieweg, W.V.R. (1999), "Dementia praecox to schizophrenia: the first 100 years", *Psychiatry and Clinical Neurosciences*, Vol. 53, pp. 437-48.
- Anchin, J.C. (2003), "Cybernetic systems, existential phenomenology, and solution-focused narrative: therapeutic transformation of negative affective states through integratively oriented brief psychotherapy", *Journal of Psychotherapy Integration*, Vol. 13 Nos 3/4, pp. 334-442.
- Bateson, G. (1972a), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Bateson, G. (1972b), "The logical categories of learning and communication", *Steps to an Ecology of Mind*, Ballantine Books, New York, NY, pp. 279-308.
- Bateson, G. (1979), *Mind and Nature: A Necessary Unity*, Dutton, New York, NY.
- Bateson, G. (1991), "The double-bind theory – misunderstood?", in Donaldson, R.E. (Ed.), *Sacred Unity: Further Steps to an Ecology of Mind*, HarperCollins, New York, NY, pp. 147-50.
- Bateson, G., Jackson, D.D., Haley, J. and Weakland, J.H. (1956), "Toward a theory of schizophrenia", *Behavioral Science*, Vol. 1, pp. 251-64.
- Bayer, D.L. (1996), "Interaction in families with young adults with a psychiatric diagnosis", *The American Journal of Family Therapy*, Vol. 24 No. 1, pp. 21-30.
- Beels, C.C. (2002), "Notes for a cultural history of family therapy", *Family Process*, Vol. 41, pp. 67-82.
- Bertrando, P. (2006), "The evolution of family interventions for schizophrenia: a tribute to Gianfranco Cecchin", *Journal of Family Therapy*, Vol. 28, pp. 4-22.
- Bloom, J.W. (1999), "Patterns that connect: rethinking our approach to learning and thinking", paper presented at the Annual Meeting of the American Education Research Association, Montreal, April.
- Charlton, N.G. (2003), "A sacred world: the ecology of mind, aesthetics, and grace in the thought of Gregory Bateson", unpublished doctoral dissertation, Lancaster University, Lancaster.
- Chiari, G. and Nuzzo, M.L. (2006), "Exploring the sphere of between: the adoption of a framework of complementarity and its implications for a constructivist psychotherapy", *Theory & Psychology*, Vol. 16 No. 2, pp. 257-75.
- Cullin, J. (2006), "Double bind: much more than just a step 'toward a theory of schizophrenia'", *Australian and New Zealand Journal of Family Therapy*, Vol. 27 No. 3, pp. 135-42.
- Dallos, R., Neale, A. and Strouthos, M. (1997), "Pathways to problems: the evolution of 'pathology'", *Journal of Family Therapy*, Vol. 19, pp. 369-99.
- Fergus, K.D. and Reid, D.W. (2002), "Integrating constructivist and systemic metatheory in family therapy", *Journal of Constructivist Psychology*, Vol. 15, pp. 41-63.

- Hartwell, C.E. (1996), "The schizophrenogenic mother concept in American psychiatry", *Psychiatry*, Vol. 59, pp. 274-97.
- Hawkins, P. (2004), "A centennial tribute to Gregory Bateson 1904-1980 and his influence on the fields of organizational development and action research", *Action Research*, Vol. 2 No. 4, pp. 409-23.
- Imber-Black, E. (2004), "Meaningful voices, old and new", *Family Process*, Vol. 43 No. 4, pp. 411-2.
- Johnson, S. (2001), "Family therapy saves the planet: messianic tendencies in the family systems literature", *Journal of Marital and Family Therapy*, Vol. 27 No. 1, pp. 3-11.
- Keeney, B.P. (1983), *Aesthetics of Change*, Guilford, New York, NY.
- Keeney, B.P. (2004), *Bushman Shaman: Awakening the Spirit through Ecstatic Dance*, Destiny Books, Rochester, VT.
- Keeney, B.P. (2005), "Confessions of a cybernetic epistemologist", *Kybernetes*, Vol. 34 Nos 3/4, pp. 373-84.
- Keeney, B.P. (2007), "Batesonian epistemology, Bushman N/om Kxaosi, and rock art", *Kybernetes*, Vol. 36 Nos 7/8.
- Kowalski, R. (2005), "On terrorism and the politics of compulsion", *World Futures*, Vol. 61, pp. 188-98.
- Krause, I.B. (2003), "Learning how to ask in ethnography and psychotherapy", *Anthropology & Medicine*, Vol. 10 No. 1, pp. 3-21.
- Lipset, D. (2005), "Author and hero – rereading Gregory Bateson: the legacy of a scientist", *Anthropological Quarterly*, Vol. 78 No. 4, pp. 899-915.
- Lutterer, W. (2005), "Systemics: the social aspects of cybernetics", *Kybernetes*, Vol. 34 Nos 3/4, pp. 497-507.
- Marshall, J. (2004), "Living systemic thinking: exploring quality in first-person action research", *Action Research*, Vol. 2 No. 3, pp. 309-29.
- Miklowitz, D. (2004), "The role of family systems in severe and recurrent psychiatric disorders: a developmental psychopathology view", *Development and Psychopathology*, Vol. 16, pp. 667-88.
- Pakman, M. (2004), "On imagination: reconciling knowledge and life, or what does 'Gregory Bateson' stand for?", *Family Process*, Vol. 43, pp. 413-23.
- Price, D. (2002), "Past wars, present dangers, future anthropologies", *Anthropology Today*, Vol. 18 No. 1, pp. 3-5.
- Rawson, M. (2000), "Learning to learn: more than a skill set", *Studies in Higher Education*, Vol. 25 No. 2, pp. 225-38.
- Ray, W. (2004), "Interaction focused therapy: the Don Jackson legacy", *Brief Strategic and Systemic Therapy European Review*, Vol. 1, pp. 36-45.
- Ray, W. (2005), "On being cybernetic", *Kybernetes*, Vol. 34 Nos 3/4, pp. 360-4.
- Reason, P. (2007), "Education for ecology: science, aesthetics, spirit and ceremony", *Management Learning*, Vol. 38 No. 1, pp. 27-44.
- Roach, D.W. and Bednar, D.A. (1997), "The theory of logical types: a tool for understanding levels and types of change in organizations", *Human Relations*, Vol. 50 No. 6, pp. 671-99.
- SCI-E (2007), *Science Citation Index – Expanded*, available at: <http://isiwebofknowledge.com> (accessed January 28).
- SSCI (2007), *Social Science Citation Index*, available at: <http://isiwebofknowledge.com> (accessed January 28).

- Scott, B. (2006), "Reflexivity revisited: the sociocybernetics of belief, meaning, truth and power", *Kybernetes*, Vol. 35 Nos 3/4, pp. 308-16.
- Sluzki, C.E. and Beavin, J. (1977), "Symmetry and complementarity: an operational definition and a typology of dyads", in Watzlawick, P. and Weakland, J.H. (Eds), *The Interactional View*, Norton, New York, NY, pp. 71-87.
- Stagoll, B. (2005), "Gregory Bateson (1904-1980): a reappraisal", *Australian and New Zealand Journal of Psychiatry*, Vol. 39, pp. 1036-45.
- Stagoll, B. (2006), "Gregory Bateson at 100", *Australian and New Zealand Journal of Family Therapy*, Vol. 27 No. 3, pp. 121-34.
- Stokes, P.A. (2006), "Identity: articulating cybernetics and sociology", *Kybernetes*, Vol. 35 Nos 1/2, pp. 124-47.
- Stone Fish, L. (2000), "Hierarchical relationship development: parents and children", *Journal of Marital and Family Therapy*, Vol. 26, pp. 501-10.
- Thomas, F.N. (2005), "I see that I see: a hero's impact on a family therapist", *Kybernetes: The International Journal of Systems & Cybernetics*, Vol. 34 Nos 3/4, pp. 343-52.
- Visser, M. (2003), "Gregory Bateson on deutero-learning and double bind: a brief conceptual history", *Journal of History of the Behavioral Sciences*, Vol. 39 No. 3, pp. 269-78.
- Wardle, H. (1999), "Gregory Bateson's lost world: the anthropology of Haddon and Rivers continued and deflected", *Journal of the History of the Behavioral Sciences*, Vol. 35 No. 4, pp. 379-89.
- Westerman, M.A. (1998), "Reconceptualizing defense as a special type of problematic interpersonal behavior pattern: a fundamental breach by an agent-in-a-situation", *The Journal of Mind and Behavior*, Vol. 19 No. 1, pp. 257-302.
- Wittezaele, J.-J. (2004), "A systemic and constructivist epistemology for a relational vision of a man", *Brief Strategic and Systemic Therapy European Review*, Vol. 1, pp. 11-18.

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Batesonian epistemology, Bushman *n/om-kxaosi*, and rock art

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Abstract

Purpose – Aims to define the conceptual tools of Gregory Bateson's epistemology – the nature of difference, logical typing, and recursion – and to apply this to understanding how we can approach the analysis of ethnographic reports of the Bushman *n/om-kxaosi* (shamans) and the Bushman rock art of Southern Africa.

Design/methodology/approach – The paper argues that kinesthetic interaction with *n/om-kxaosi* provides a vehicle for learning their way of construing the world.

Findings – The *n/om-kxaosi* have a kinesthetic lexicon and a set of dominant metaphors rooted to their ecstatic body expression that provide coherence to their ways of healing and spiritual understanding. The previously assumed incoherent nature of Bushman religious views noted by anthropologists is argued to have been the consequence of underestimating the importance Bushman thinking gives to circularity and transformation of all aspects of their experience.

Originality/value – Illuminates the analysis of the Bushman culture.

Keywords Cybernetics, Epistemology

Paper type Conceptual paper

What is a Bushman *n/om-kxao's* (shaman's)[1] experience in the healing dance and how can we, as outside observers, talk about it? Is the Bushman *n/om-kxaosi's* way of knowing specifiable in metaphors and concepts derived from another culture, particularly from one that relies more upon textual rather than kinesthetic knowledge? What can we learn from kinesthetically interacting with the *n/om-kxaosi* during the dance? Can outsiders enter into the Bushman *n/om-kxaosi's* experiential universe? If so, how can this be talked about in a way that both honors the integrity of Bushman knowing and provides an opportunity for scholarly engagement and dialogue? Finally, how can the reported experiences of Bushman *n/om-kxaosi's* contribute to understanding historic Bushman rock art images that presumably communicate about their ecstatic healing way?

These are the questions I have pondered over the last 15 years. I have danced with numerous Bushman men and women *n/om-kxaosi* throughout Botswana and Namibia and over the years I have been accepted as a *n/om-kxao*, one of their shamans. My preliminary ethnographic work with this culture is presented in *Kalahari Bushman Healers* (Keeney, 1999) and *Ropes to God: Experiencing the Bushman Spiritual Universe* (Keeney, 2003). In this essay, I aim to discuss how the ethnographic epistemology of Bateson (1972) may be used to address the questions initially posed.

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Bateson, an anthropologist who used cybernetic (and systems and communicational) ideas to help discern pattern in social interaction and human experience, believed that he helped form a science of inquiry based upon nonphysical ideas. Interested in metaphors of pattern rather than material, he defined his intellectual work as rooted to these conceptual tools: “the nature of the relation between name and that which is named, the nature of recursive systems, and the nature of difference” (Bateson, 1977, p. 337). After a brief account of each of these conceptual tools, they will be applied to questions regarding Bushman shamanism and rock art.

Inspired by Whitehead and Russell’s theory of logical types, Bateson moved their work outside of mathematics (where it was the name of a stopgap found when a logician was confounded by paradox – and later refuted as unnecessary), and reframed it as a classification method to keep track of the different orders of abstraction used in description and explanation. Logical typing, that is, keeping tabs of the “levels” of discourse, was Bateson’s method of conducting a natural history of human communication.

As Bateson proposed, logical typing was the underlying muse inside Lewis Carroll’s wonderland where *Haddock’s Eyes*, “the name the song is called” is neither “the song” (which is *A-sitting on a Gate*) nor “the name of the song” (which is *The Aged Aged Man*). Similarly, the Ju’hoan word for God, *!Xon!a’an*, is different from their word for the name of God, *G ≠ kao N!a’an*. They call these names of names “respect words” and they are used when directly uttering a name would risk too much evocative power.

Logical typing also helps us distinguish “healing” as a name of contextual organization rather than regarding it as a name of simple action. For the Bushmen, the simple actions inside a context of healing include trembling hands and bodies, singing, clapping, tightened abdominal muscles, and shrieking sounds. None of these actions in themselves defines healing. Healing comprises the more encompassing pattern that weaves and choreographs the various actions into a context that facilitates transformational experience.

When contemplating Bushman shamanic experience, we can further identify differences of abstraction between our terms and those Bushmen use to depict their experience. For example, the Bushman word *!aia* is a different class of metaphor than the psychologist’s notion of “trance.” As I will argue, most Bushman metaphors associated with their spiritual experience emphasize never-ceasing change and transformation rather than marking unique “states of consciousness.” As Biesele (1996, p. 142 in Deacon and Dawson) describes the shaman’s work, “magical potency is transferred or used for transformative processes”. “Transformation,” a different order of abstraction than “trance,” is a difference that can alter our understanding of Bushman shamanic experience and rock art.

Bateson found that distinguishing the diverse orders of abstraction that are held within one’s descriptions, explanations, and knowing, was the key to revealing the matrix of both enriching and impoverishing experience, whether humor, poetry, and religious insight, on the one hand, or madness and suffering on the other. For example, eating the menu (the name of the food is a different order of abstraction than the food) may provide a moment of comic relief in a Marx Brother’s skit, but it is regarded as a matter of schizophrenia when done in the context of a restaurant where nutrition is sought. Similarly, Bushman folk tales are filled with innumerable examples of shifting

and misplaced abstractions. In their stories, a hunter can become the meat or an animal can become the hunter. Or a piece of leather can turn into an eland.

Bateson argued that beyond the difference of abstraction between simple action (e.g. “trembling hands”) and context (e.g. “healing”) is a more encompassing weaving, a “transcontextual weave,” as he once named it, providing experiential order to the goings on within. For example, schizophrenia, Bateson (1976a) argued, was to be found in the nature of a transcontextual weave or maze, not in the lower order abstractions of simple action or context. His first name for such a maze was “double bind,” suggesting that the difference between schizophrenia and creative expression was due to the patterning of double (and multiple) levels of contextual weaving (rather than any over-emphasis upon brain neurochemistry). In the case of the Bushman *n/om-kxaosi*, they see themselves oscillating between two different realities called First and Second Creation. This leaves them particularly susceptible to doubly bound entanglements, a breeding ground for creative expression and freshly inspired shamanic experience.

In the ethnographer’s descriptions and explanations of the Bushman *n/om-kxaosi*, abstractions are easily mistyped, ignored, or confounded. The simple actions of a jerking or shaking body are part of more abstract patterns of interaction where singing and dancing and touching provide context. And finally, the dancing and shaking, along with cultural stories and beliefs, dreams, rock art images, and social relationships are woven together in a transcontextual maze whose specification is a higher order abstraction than the descriptions of simple action, interaction, and context.

When we reduce A *n/om-kxao*’s experience to being a trance state or an hallucination, we risk trivializing the inseparability of that experience from the whole transcontextual maze that holds it, along with a polyphony of other equally deserving descriptions and a wide diversity of explanatory levels. The Bushman’s spiritual universe cannot be reduced to mere neurophysiology without losing sight of the contextual and transcontextual forms and processes that engulf neuronal firings.

Over the years, Bateson made it clear, though his arguments became more abstract, that double bind was a groping for an epistemology that sought to discern the ways in which experience is a weave of multiple levels and differences that both interacted and organized themselves reflexively. Double bind moved from being the name of a pattern of interaction to becoming a way of pointing to a transcontextual maze or weave. It finally became Bateson’s reference to the way he was looking at patterns of interaction, context, and the larger weavings that connect and self-interact, what we can call “Batesonian epistemology.”

Bateson’s second tool, a concern with the nature of recursive systems, highlights his long-term commitment to the science of cybernetics. While standing in this discipline, he called his work, “cybernetic epistemology,” what he also regarded as a formal science of mind. Whereas his use of “logical typing” emphasized the multiplicity and reflexivity of communication, “cybernetic epistemology” emphasized its cybernetic organization. Both referred to a science of mind that was articulated in terms of levels of abstraction and circular/recursive pattern.

Bateson was part of the famous Macy Meetings that examined circular causality in the 1940s. Along with Norbert Wiener, Warren McCulloch, Heinz von Foerster, and others, they sought to identify causal patterns in nature that were circularly organized. Here, the outcome is fed back to the performing system and this news about

performance influences future conduct. Feedback was more than “a report given back,” but was about news (conveyed as a “difference”) that made a subsequent “difference.”

The paradigmatic change brought about by shifting from a lineal to a circular causality is no easy matter – perhaps as difficult to achieve as habitually seeing the earth as revolving around the sun rather than seeing the sun rising and setting each day. Even decades after its original conception, cybernetics, circular thinking, and feedback are arguably as misunderstood and underappreciated today as they were in the beginning, perhaps more so[2].

As Bateson and other cyberneticians considered the image of circle, they became aware that what they were considering was more akin to an Ouroboros, the mythical snake that swallowed its own tail. In other words, every time events went around a cybernetic circle, the whole circle was brought inside the whole. The name of this circular process of digestion was “recursion.” For an example of a simple recursion, consider the definition of a Bushman shaman’s ancestors. The shaman’s parents are ancestors, but the parents of any ancestor are also ancestors of the shaman and on and on, with each recursion bringing forth more ancestors.

In cybernetics, recursive systems are circularly organized systems that feed back the whole of themselves, thereby maintaining their integrity/autonomy while changing in relationship with the circumstances. Bateson’s three tools may now be argued to be different recursive forms of one tool – that of the nature of difference. As Weber and Fechner first proposed when they founded experimental psychology, what we perceive is “difference” (ratio) rather than “thingishness” (Fechner, 1860). We find, however, that there are differences of difference and some make a difference of abstraction – the entry of the first recursion. Bateson made reference to the theory of logical types to indicate differences of difference (it would have been better had he differentiated his use of typing from Whitehead and Russell – perhaps calling it “Batesonian typing”). “Batesonian typing,” an accounting of differences of difference, itself implies differences between the name and the thing (name) named and the one doing the naming. The inseparability of the observer and the observed means that the logical typist is never separate from the name and all the names of the name. The system is organizationally closed, as Maturana and Varela (1992) once put it, and the name of this dynamic process of inclusiveness is recursion – the whole feeding upon itself.

This quick tour of Bateson’s epistemological tool kit enables us to proceed with certain cautions. Namely, we will never be able to be separate from the descriptions we make and the phenomena we behold. More accurately, there is no mythological “other” whether in psychotherapy or anthropology, that can be known independent of social interaction. The therapist and client are an interacting recursive system, handling and mishandling all sorts of differences. The same holds for anthropologists and the cultural members they encounter. They jointly comprise an interactional system, each influencing the other. We seldom pay attention to how the therapist is being directed by the client to come up with useful utterances or how the cultural subject is directing the anthropologist to behave in a certain way. Each member of an interactive system is influencing the other. Double, even multiple, descriptions of the interactive scenario are necessary to help build up a sense of its systemic wholeness.

I have addressed these issues in greater detail for the field of family therapy in *Aesthetics of Change* (Keeney, 1983). I will now attempt a brief sketch as to how this applies to the ethnography of a Bushman *n/om-kxao* and the analysis of rock art. Since I

disregard the idea that the ethnographer (or rock art scientist) and the “other” can be separate, my work with the Bushman *n/om-kxaosi* is deliberately interactive. I believe, like a systemic therapist, that knowing about the other is not separate from knowing about oneself, accomplished by open dialogue and interaction with the other (rather than pretending to “objectively” interview and assess the other), thereby creating an interactional system that has its own form of autonomy and cybernetic circularity.

In the early days of family therapy clinicians used to say things like, “One diagnoses a family by seeing how they respond to one’s efforts to change them” or quoting the cybernetician Von Foerster (1974, 1981), “If you want to see, then first act.” This suggests that saying that you saw a depressed client says as much about your interaction with the client as it does about the client (or you). And saying that your client is mad translates to saying that your interaction with that person is mad.

Transposed to anthropological fieldwork, what the anthropologist observes is information about the “observing system” which includes the constructivist participation of the observer/writer. It is no surprise that Marxist-oriented anthropologists saw socialism in the Kalahari or that feminists saw women’s issues and that clinically trained observers saw clinical process. Similarly, self-professed agnostics will seldom perceive anything about “spiritual experience,” but instead, will encounter reports about “trance” and “hallucination.” Poets, musicians, and mystics, on the other hand, are more likely to hear testimonies about aesthetics and the sacred. The observer will always be in the observed. The opposite is true as well.

Perhaps, a more sensible (and ethical) approach to fieldwork would include a confession or testimonial record of the investigator so as to set forth what the investigator is putting into the observing, their tacit assumptions held about the meaning of life. To a certain extent, various postmodern experiments have played with this inclusion, though typically shying away from acknowledging a commitment to the postmodern sentiment and how it influences what is seen and not seen, heard and not heard, felt and not felt.

The cybernetic view, to which I sometimes subscribe, is inspired by patterns seen in nature, the circular/recursive organization of biological processes. When ecologies and living systems are seen this way, a view of circularity is assumed when looking at how people interact. Modeling a theory of social interaction and everyday life based upon the cyclical processes of nature is how many indigenous cultures, including the Bushmen, make sense of their experience. I propose that the circular/cyclical/recursive view of Bushmen is of the same logical type as that of a cybernetic epistemologist. Though the formal metaphors differ, both are inspired and organized by the same source – the circular nature of nature[3].

Another consideration (and confession): cybernetics, when played out as a form of social interaction, is nothing other than improvisational performance. Rather than reciting or enacting a predetermined script, the improvisationalist joins whatever is present and then flows with it, like a jazz musician who accepts another musician’s melodic (and harmonic and rhythmic) line and elaborates it in a spontaneous and natural way. Each subsequent behavior is shaped, influenced, and determined by the outcome brought about by the previous behavior. In other words, improvisation is the name of a feedback process where circular/recursive interaction organizes the way things move.

Of course, there are more factors to consider. The fieldworker may be improvisational, but may also want to publish an essay. And the Bushman *n/om-kxao* may be hungry and looking forward to a meal with the ethnographer. All these practical matters, from metabolism to professional aspiration, are always present. But in the flow of interaction, the current of improvisation moves the ongoing encounter to have a life of its own, fed by a tuned responsivity to one another and the emergence of a whole living conversation. In such an interactive situation, each participant may become more open to the possibility of mutual reciprocity and friendship.

With these professed assumptions about the author's adherence to circularity and improvisation, I will now address the key experience of the Bushman *n/om-kxao*. It is not "trance," as so many reports have claimed, even calling their healing dance a "trance dance." The ground of experience for a Bushman *n/om kxao* is shaking. Shaking can induce a kind of trance, what has been called a "kinetic trance" by psychiatrist David Akstein (1992). Trance in itself may not be particularly relevant to the act of healing. As Marshall (1999, p. 61) reports with respect to healings that take place outside the dance: "At special curings the healers may or may not go into trance. Trance is not essential to healings; it is not a power in itself and does not increase the healer's power." At the dances, however, trance states or what Katz *et al.* (1997) call "an enhanced state of consciousness" routinely occur. They are brought about by highly aroused emotional states and ecstatic body movements rather than by the classic routines of hypnotic trance induction that call forth deep relaxation.

What has been overlooked by generations of scholars is that trance is less important to the *n/om-kxao* than shaking or what they call *thara*. A Bushman is not considered a *n/om-kxao* unless his or her body shakes – legs, abdomen, hands, arms, and head may all shake while engaged in ecstatic performance. Bushmen determine whether you are a *n/om-kxao* by whether and how your body shakes when you are in the dance or what happens when they place their shaking hands on your body. To understand the Bushman *n/om-kxao*'s way of knowing requires first looking at their shaking and how they make sense of it.

The Bushmen's shaking brings them into mystical and shamanic realms of experience, where any percept is seen as transitory and capable of shape-shifting. Here, past and present are not separate, nor are humans and animals. Entry into this experience is brought about by shaking, which, in turn, is facilitated by music and dancing. To reduce the insights of mystical experience to "trance" or "altered state of consciousness" risks being as trivial and non-illuminating as saying that all religious practice from meditation to choral music and theological dialogue are traceable to an altered state. Furthermore, giving a name of a name does not constitute explanation, but constitutes what Bateson called a "dormitive principle" As Moliere depicted this: why does opium put people to sleep? The answer: because there is in it a dormitive principle – *virtus dormitiva*. Similarly, why is that client crazy? The answer: because he has schizophrenia.

Why does the *n/om kxao* see a thread (*!hui*) or rope to God? A reductionist's answer: because he was hallucinating. Why was he hallucinating? That is easy: because he was in a trance or an altered state of consciousness. And why was he in trance: because of altered brain neurology. Consider the names and names of names that are generated – altered neurology, altered consciousness, trance, hallucination – all dormitive metaphors with none constituting formal explanation in Bateson's method of analysis.

Early in his career, Bateson studied how dance can be an entry into ecstatic experience and mystical realization when he conducted fieldwork with Margaret Mead in Bali. In one of his papers, "Components of socialization for trance," he describes how spinal reflexes can go into oscillation – they are called "clonus." For example, when the weights and angles of the foot and leg are arranged in a particular way, an oscillation will take place in the muscle of the calf. This clonus is a vibrating and shaking of the leg. The same neurophysiological process may take place in other body limbs and parts.

Learning to shake in Bali and in the Kalahari is a kinesthetic socialization that prepares people for mystical experience, a temporary entry into altered awareness. In discussing this learning process, Bateson (1975b, pp. 152-3) proposed that clonus is a cybernetic oscillation like a buzzer circuit: if the circuit is "on," then it will go "off"; whereas when it is "off," then it will go "on." Over and beyond this simple on-off oscillation, there is homeostatic control presumably coming from the brain that calibrates the whole circuit, typically serving to bring things back to a resting (non-shaking) state of affairs. By repressing this higher order control, one can continue to tremble and shake, while having, in Bateson's (1975b, p. 153) words, "a reflexive experience of seeing his or her leg in involuntary movement; and this oscillatory trembling can serve the same function as that of involuntary hand movements in the induction of hypnotic trance. The involuntary movement is first a detached object of perception: 'I see my leg move but 'I' did not move it."

When you believe that you are not moving your body, there are various implications: either something else is moving it (an ancestral spirit, deity, or unseen force) or your mind has left your body, or a part of your body has a mind of its own. In the latter case, often present for the Balinese, a part of the body becomes a whole system in its own right with full mental characteristics. This helps account for why the Balinese believe their cemeteries are haunted not only by ghosts, but also by the ghosts of separate limbs.

Bateson (1975b, p. 153) explains that this belief is derived from their experience of separate body parts shaking: "By extension from the experience of clonus, the various perceivable parts of the body become, in fantasy or mystic experience, each separately animated. If the arm or the leg can act of its own accord – (and, indeed clonus is a completed self-corrective circuit; it is a true aliveness) – then a similar separate aliveness can be expected in any limb."

The spectrum of integration-disintegration fantasies (Is it a whole? A part? Parts becoming wholes? Wholes becoming parts?) suggests a diversity of entities, from separated animated limbs to supernatural beings. From the animated parts of the bodies that go back and forth between being parts and whole, the Balinese confirm that the universe is populated with many different kinds of aliveness, animation, movement, and spirit.

The same diversity of parts becoming wholes and wholes becoming animated parts is found in Bushman folklore. The Bleek/Lloyd collection of X/am Bushman tales about the trickster/Kaggen includes a tale about some young girls carrying a dead Hartebeest (/Kaggen in disguise) that has been cut up as meat, only to find, on the way back home, that the parts are alive and able to rejoin, enabling the antelope to run away. In another/Kaggen story, an eland is created out of a piece of leather. A leather sandal is put in a pond and then fed with honey. As in Bali, a Kalahari part can become alive and either remain a whole in itself or re-emerge as a part of its previous whole.

There is a particular demonstration of hypnosis that further illustrates this discussion of part-whole dialectics. Namely, a subject may be put into trance and given two contradictory suggestions:

- (1) “your arms and hands are heavy and cannot move”; followed by the command to
- (2) “raise your arm.”

Because the interpersonal nature of hypnosis is built upon the client’s trust of the hypnotist’s definition of the situation, there is no interfering awareness of any contradiction in the messages. The subject assumes it is appropriate to obey both commands and does so either by hallucinating that her arm moves or hallucinating that her whole body levitates. An experience is constructed that satisfies the conditions of both injunctions. Note that the resolution to this dilemma is contradictory and incongruent in kind: in consensual reality, the arm remains still; while in an alternative reality, the arm rises.

Bushman *n/om-kxaosi* and many other shamans and mystics throughout the world can be seen in a similar kind of bind. Faced with two prescriptions of reality – that of Newtonian gravity and that of the spiritual mythopoetic landscape where bodies may levitate and fly, both are pronounced as equally true. The solutions and resolutions to the contradictions between these two worlds may result in mystical experience, where an invented world accommodates both. The creative act of producing a mystical world is no trivial feat and, following Bateson’s lead, should be cautiously reduced to neuronal firings and brain chemistry if and only if we are willing to do the same in our explanations of poetry, music, and mathematical invention.

When faced with a conundrum that tempts the abstract idea that another entity or force is causing the movement, there is an immediate clash of views: “I am controlling my body” versus “someone or something else is in control.” A resolution may entail an inventive solution like the one found in the hypnotist’s office. The shaking shaman, whose shaking mirrors the back-and-forth dialogical tension between contraries (or variant realities), may experience shape-changing into another form (a bird, lion, ancestral spirit, or cloud) and enter another experiential realm. Or the shaman may find an entrance or thread that carries him into another world. These are well-known experiences to the *n/om-kxaosi* who shake in the Kalahari.

How is it that shaking can first result in questioning the *locus* of one’s body control and then subsequently open the door to mystical experience? It is important to acknowledge that any experience of being out of control is quite a shock to the psyche. It is arguably the experience we fear most, whether being out of control of our circumstance, body, emotions, or thoughts. When we surrender to being out of control and imagine another agent being in control, we move one step closer to entering an experiential reality where the gods and spirits are present. As one operates with this belief, other experiences may follow – feeling, hearing, and even seeing the ancestors or spirits as well as journeying to their home place. Again, these are the experiences of the *n/om-kxaosi* as well as for the Balians or shamans of Bali.

Is the mystic’s act of creation all that dissimilar from how others create everyday consensual reality? In other words, is the shaman’s resolution of two logically distinct proposals really that disparate from the everyday construction of objects? In a classic experiment conducted by Held and Hein (1958), newborn kittens raised in the dark with

limited light were placed in a carriage and basket and prevented from moving about space. When released after a few weeks, the kittens behaved as if they were blind. Having light enter the eye was not enough for the experience of sight. Both kittens and human infants must learn to coordinate motor movement with sensory stimulation. Seeing objects is a consequence of sensory-motor coordination.

Might a belief in an imagined reality that is coordinated with appropriate movement be seen as a recipe for constructing an alternative experiential universe? Bushman *n/om-kxaosi* shake themselves into dislodging the habituated sense of being in charge of their bodies. This invites the possibility of a transforming reality (or what they call entry into First Creation). The more their “self” is shaken from its everyday position (Second Creation) the more likely the culturally heard stories about their primal spiritual universe (First Creation) will take shape and present themselves in their experience. Learning to coordinate the shaking in relationship to an imagined world of spirit so as to bring about an entry into an alternative experiential reality may be as great a feat as a child learning to construct an experience of an object and a material world.

Piaget (1962) successfully demonstrated that all levels of cognition arise from the concrete activity of the whole organism, that is, in sensory-motor coordination. As Varela (1999, p. 8) puts it: “the world is not something that is given to us but something we engage by moving, touching, breathing, and eating.” To see the Bushman spiritual universe, the *n/om-kxaosi* must act – shaking themselves through coordinated choreographies that involve many levels of communication, belief, and sensory experience. We might consider the Bushman spiritual universe as no constructively different than everyday consensual reality – it, too, is a five-channel sensory and multiple motor coordinated hallucination, to build upon R. D. Laing’s metaphor.

We have been examining ways of knowing the construction of a Bushman *n/om-kxao*’s experience. It is also illuminating to look at how Bushman *n/om-kxaosi* have historically communicated their own shamanic experiences. Lewis-Williams (1981; Lewis-Williams and Dowson, 1989), the originator of the shamanistic hypothesis of rock art, proposed that some of the rock art images found in Southern Africa derive from the unique experiences of shamans. When we look at how they experienced their world thousands of years ago, we not only probe what may have been going on with them, we also open the door to discovering more about our own ways of knowing. How we approach understanding rock art teaches us something about how we attempt to know the Bushman *n/om-kxaosi* of the last century.

David Lewis-Williams partially based his understanding of Bushman rock art on the neurobiological research of Siegel (1977) and others who studied the phenomenology of altered states of consciousness. In brief, they proposed that as human beings go into trance or altered consciousness, they move along a continuum of hallucinations beginning with lines, grids, dots, zigzags, chevrons, nested U-shapes, filigrees, and vortexes (entoptics) and then move toward constructing more complex images (construals and iconics).

It may be tempting, as it has been done in a film about the Bushman healing dance shown at a museum in Southern Africa, to depict a dancing Bushman *n/om-kxao* as first entering a light trance and “seeing” the so-called entoptics and then falling deeper into trance, entering the mythological iconic landscape of their religious beliefs. My own experience as a shaman and the data from years of

conducting ethnographic interviews with numerous Bushmen *n/om-kxaosi* indicate that there is rarely a simple progression from simple dots, lines, and grids to the assemblage of more complex images, including tunnels, ropes, and ladders which, in turn, take one into the elaborated hallucinations of the ancestral and divine beings.

Lewis-Williams and Dowson (1989) correctly said that these stages of trance and hallucination are not “necessarily sequential,” “nor should the stages be considered discrete.” I further emphasize that we must always be cautious when using a model of three (or more) stages, each leading to the other in terms of escalating complexity, and guard against its tempting us to see the Bushman *n/om-kxao*’s experience as unfolding in this way.

The shamanistic hypothesis of rock art appropriately directs us to first consider what is going on with the body of the shaman and secondly, to give serious attention to the ethnographic reports of Bushman *n/om-kxaosi* about their shamanic experience. My work builds upon the Lewis-Williams orientation and extends it to consider more than retinal, optic nerve, and brain physiology, and to take into account other biological phenomenon associated with ecstatic body experience. When observing a Bushman healing dance we do not see subjects being given traditional trance inductions nor do we see relaxed individuals in hospital beds taking psychotropic drugs. What we see are shaking bodies and ecstatic performance. It is the biology of shaking that must be addressed as much as the neurophysiology of hallucination.

[I should note that using the term “hallucination” rather than “mystical vision” or “second eyes” (“seeing properly” or *kxae=xaisi*), to use a Bushman metaphor, already tells us as much about the community of observers as the observed. The first term, more associated with mental disease rather than creative expression, is potentially problematic and demeaning. The issue partially dissipates if we turn to more systemic definitions of hallucination (Maturana and Varela, 1992), that argue that from the perspective of the closed organization of the neurological system, there is no difference between a hallucination and a consensually shared perception.]

As far as the entoptics go (the dots, lines, and wiggles), they are seen throughout the world in a variety of states of consciousness, including light trance and daydreaming. Seeing lines and dots and wiggles in rock art is as much supportive evidence that they were NOT drawn by shamans as it can be considered evidence that they are characteristic of shamanic experience (Thurston, 1991). Among Bushman *n/om-kxaosi*, I find that entoptics are not the most important aspect of their experience (and may have no relevance). Beginning trainees trying to learn to enter enhanced awareness are the ones most likely to see entoptics and construals. The threads, lines, and ropes seen by shamans do not look like entoptics. They are more clearly defined and more akin to an iconic image (more elaborated and culturally identifiable images like birds, elands, and people). The “realness” and “immediacy” of an image are as important a consideration as its complexity when trying to determine whether it is entoptic or not, a point also made by Lewis-Williams and Dowson.

Nothing is simple about the phenomenology of the shaking Bushman *n/om-kxao*. As the shaking intensifies and the *n/om-kxao*’s consciousness alters, an often fragmented, whirling, and multi-faceted stream(s) of experience emerges. In the dance, there is no sensory deprivation or stillness or focus upon a particular stimulus or percept. To the *n/om-kxao*, the world often appears to be changing, disappearing,

re-appearing, super-focused, then out-of-focus, noticed, unnoticed, and always morphing, stabilized for only a moment and then shifting to something else, with the hierarchy of sight, sound, smell, and kinesthetic feeling constantly changing rank.

The most important experiences in the dance are arguably not visual images. It is heightened feelings (seeing properly) that most characterize a Bushman *n/om-kxao*'s experience. The bringing forth of these heightened feelings is called *!aia* and is referred to as "waking up" and "becoming one's true self" (and does not necessarily refer to a "trance" as has been so often reported). The music brings out energized shaking and the dancing intensifies it. Stomping on the ground helps initiate vibratory movement in the dancer's body. The emotion that accompanies this somatic ecstasy may vary anywhere between the swollen pride of delusional power (I can kill any lion or enemy) to that of being overcome with humbling love (My heart has carried me inside the heart of the Big God). Indeed, the two extremes of emotion felt in the dance that are acknowledged by the *n/om kxaosi* are selfish and greedy power (*!Xaua-khoe*) and heart-rising love (*!ka tsau' aun* which means "my heart rises").

Intense body arousal is known to be more associated with iconics or iconic percepts, fully developed images that are unavoidably influenced by cultural motifs and myths. Again, I find that the Bushman *n/om-kxaosi* do not typically progress from entoptics to construals to iconics, as theoretically plausible as that may seem. The dance is more about arousing the body and heightening emotions, both of which may or may not bring forth iconic vision.

How often are visions taking place in the dance? I believe the visual aspect of a Bushman *n/om-kxao*'s experience has been overplayed. Perhaps, if we had no records of rock visual art, but found historical rock auditory recordings (as difficult as that may be to imagine) of their ancient songs, then we would be making assumptions about the primacy of sound rather than vision.

Several elder *n/om-kxaosi* told me that they saw the thread or rope to God only once or twice in their life, usually in a visionary dream that took place after spirited dancing. Other *n/om-kxaosi* say that they often see the thread in a dance. With further questioning, they explain that in a highly charged ecstatic state, there is no difference between feeling the thread and seeing it. The *n/om-kxao*'s emotions are aroused by remembrances of the rope. Intensified shaking seems to stimulate an enhanced awareness of inner imagination.

As the heightened feelings escalate, *!aia* brings on shaking (*thara*). The *n/om-kxaosi* always feel the vibrations, the shaking, the body jolts and jerks. When the *n/om* or medicine gets hotter, one cannot help but vocalize wild sounds, doing so in a stylized, though improvised manner. *N/om-kxaosi* have their own style of shaking as well as a unique way of making ecstatic sounds. As Biesele (personal communication, 2006) points out, the "stylized, though improvised" conduct of Bushman *n/om-kxaosi* is the heart of their ecstatic expression.

When the ecstatic shaking hits its peak, the *n/om-kxao* loses the ability to speak language. Only sounds can be shouted or screamed. In this state of arousal, the *n/om-kxao* is not sure what is being seen or what is being voiced. Not being able to control sight or voice further contributes to authenticating their presence in a spiritual reality. (As an aside, I should note that as important as this spontaneous and energized sound making is to a Bushman *n/om-kxao*, any dots or lines coming out of a Bushman

rock art image's mouth need to be re-considered. For the dancing shaman, it is one of the most important indicators that full ecstasy has been reached.)

In the height of ecstasy, a familial feeling may flood a Bushman *n/om-kxao*'s consciousness that longs for the presence of the whole mythological universe – the threads, ropes, the animals, the ancestors, and so forth. [Note: experiences of “self-empowerment” are frequently viewed by the *n/om-kxaosi* as an early stage of shamanic development or as a choice to travel along a bad rope – the rope of sorcery that can bring harm to others.] In the most intense arousal of the body, feelings become inseparable from imagined sights and sounds. Feeling the thread or rope becomes indistinguishable from seeing it and feeling the ancestors is no different than seeing them. This “feel-seeing” (along with other sensory combinations such as “feel-smelling”) is the consciousness of synesthesia.

The primary transforming vision for a Bushman may take place in a special dream, called a *kabi*, which takes place while asleep, where there is an encounter of the mythological landscape with its ancestors (though rarely, if ever, involves the part animal and part human creatures called the “therianthropes”). The perceived “realness” of this visionary experience distinguishes it from a regular dream. In fact, the Bushman *n/om-kxaosi* call this kind of visionary experience a “visitation” (*kabi*) and it is contextually marked as something other than a “dream” (*!un*). The emotional power and significance of a *kabi* stays with the *n/om-kxao* forever, along with the songs and dancing that accompany it. The remembered “seen” and “heard” shamanic world is a source of inspiration that lies ready to stir their deepest emotions and help carry them further into the realm of ecstatic shaking.

There are widespread differences among the details regarding experiences and beliefs of Bushman *n/om-kxaosi* and this is something Bushman culture is known for (Biesele, 1993; Guenther, 1999). They are able to hold a wide diversity of experiences without harming the culture's religious integrity. What remains constant among all the *n/om-kxaosi*, however, concerns what takes place in their bodies. They shake and quake, jerk and jolt, tremble and vibrate, and they make noise and sing music. As the music and rhythms of the dance help the *n/om-kxao* enter into deeper shaking, their bodies bend over and their arms extend behind their back, looking like the postures drawn on ancient images of rock art. Arguably the shaking bodies of the early ancestors were also filled with ecstatic arousal, triggering postures that took place automatically like a natural reflex.

As the intensity of a *n/om-kxao*'s ecstatic experience escalates, the shaman's dance transforms into a stomping motion (Keeney, 2003). This takes place as the gut feels like it has become a pump, sending trembling waves up the chest and spine. [In a film of the Bushman giraffe dance, a closeup of a *nom-kxao*'s abdomen clearly shows this movement of muscular contraction traveling up his chest – see Keeney, 2003.] Here, the over-breathing and guttural sound-making (called *!Xoan*) combine to make the body look like it has an inner piston of internal movement. This is when the *n/om-kxao* prepares to enter the highest realms of shamanic experience. Most importantly, this is when the Bushman *n/om-kxao* climbs the rope (*n'uan-tso*) to the sky village where the ancestors live. The stomp becomes a climbing of a ladder or rope into the highest realm of ecstasy (sometimes they climb down into the earth rather than up into the sky – in both places they may find the village of the ancestors and gods).

The whole transcontextual maze that holds Bushman shamanism necessarily includes the arousing music and rhythms, the visitations/dreams of a mythological place and time, the cultural stories about the Original Ancestors, the variety of visionary experiences that take place while aroused and calm, and most of all, the shaking and quaking and trembling. In addition, the *n/om-kxao*'s shaking body is not separated from other bodies. The shake is shared and passed on to other non-shaking bodies and combined with the shaking of other bodies. Bushmen *n/om-kxaosi* hold one another and shake together, increasing the ecstatic arousal of all who are shaken.

With all these considerations in mind, I propose that rock art is more than a representation of a *n/om-kxao*'s inner vision. It is an expression inseparable from the relationships realized through ecstatic body experience, connected to what was seen in dream and imagined in myth. It may include hallucinated entoptics and construals (though I believe these are rare and probably unimportant), unconscious or conscious influences of gender, family, hunt, and place, and a deep longing for a fully felt presence of the sacred, though synesthetically seen and heard.

Rock art provides a mirror for seeing the epistemology of rock art scientists and at its best, has become part of the dance itself, where the shifting imaginations of the scientists dialogue with the shifting forms on the rock. When the ropes of relationship connect the scientists with the *n/om-kxaosi* of past and present, there is an acknowledgement of aesthetic expression derived from shaking bodies where the arrows shot into the hunted animals recycle as arrows of sickness and arrows of healing and arrows of inspiration, going in and out of bodies and imagination, enacting a never-ending dance of death and rebirth.

Bushman *n/om-kxaosi* sometimes appear to not give any importance to maintaining or enforcing any particular elaborated explanation of their ecstatic experience. Some people in the villages have not even heard some of the talk that shamans share with one another. The Bushmen believe that the important teaching is done by the Gods and ancestors through the dance and *kabi*, inspired by music and rhythms that arouse and awaken the body to tremble and shake. To them, the dance is a gift from the Sky God who communicates through song and dance.

The most important shamanic interactions are believed to cross the boundaries of a Bushman's skin – for example, receiving an arrow of healing music from the Sky God or receiving an arrow of sickness from a malevolent shaman, whether dead or alive. When this first takes place, it often feels like a thorn or needle or nail has been pushed through the skin. There is subsequently a lot of “needle and arrow talk” among the Bushmen (Keeney, 2003). It is one of the most important topics in their culture. Bushman *n/om-kxaosi* are the ones who give others needles and arrows (||*Auhsi* and *tohisi*, respectively). They take out “dirty needles,” clean them, and/or reinsert new and fresh needles. The needles, which come from the Sky God, hold the essence of life. Without them, they feel loss of vitality and become sick and die.

N/om-kxaosi believe they have a collection of needles and arrows [note: needles come from the Sky God and the women's *G'loah* dance, while arrows come from the animals] that sleep in their body, near the base of their spine or along the side of their abdomen (what they call the *gabesi*). Music and dancing wake up the needles, make them hot so they can boil and climb up the spine as a steam that goes out the top of the head, only to fall to the ground, cool off again, and re-enter the bottom of the dancing *n/om-kxao*'s feet. Round and round the needles go, making the

n/om-kxao hotter and hotter, feeling more and more of what is regarded as a spiritual essence with its accompanying intense body arousal. When the needles get hot, new and inexperienced *n/om-kxaosi* want to cry because they are overcome with emotion or they move toward the burning coals because they are intoxicated with a delusional sense of power, while the strong *n/om-kxaosi* stay on their feet and stomp away, moving the ecstatic expression up and out of their body, sharing it with others, in an effort to revitalize the life of the whole community.

Bushman talk about needles, threads, ropes in the sky, and the Sky God, is always loose and right-brained. There is no rigidified misplaced concreteness implied in their relation to these metaphors nor do they see it as “as if” thinking. However, *n/om-kxaosi* differ with respect to their wisdom and capabilities for entering mystical experience. The most revered elders grasp for religious truths that unify and heal, where less respected (though often feared) *n/om-kxaosi* give into magic which is often divisive and degenerate. The former *n/om-kxaosi* dance to experience their unity with the past ancestors and with the weather, land, animals, plants, and neighbors. The *n/om-kxaosi* who succumb to power (rather than familial and mystical love) seek appetitive control of whatever suits their desire. Being experts in transformation (and experiential shape-shifting), most *n/om-kxaosi* are familiar, over and over again, with both sides of this territory.

Rock art scientists sometimes believe that an image was formerly used to magically help bring forth a successful hunt. Others, like Bateson (1976b), see an atonement (at-ONE-ment) for the killing of another member of creation. Should not we assume that there were as many reasons for painting the art as there are interpretations made by present day scholars? At least one painter must have listened to several *n/om-kxaosi* talk about their shamanic experiences in the dance, as well as heard various elders tell the cultural stories and myths, had a dream or *kabi* that brought something new to the mix, been regularly shaken in the dance, and then allowed their hand to create something that is related to all that had been cognitively (and bodily) absorbed. Perhaps, they, too, went into an enhanced awareness as they painted, and surprised themselves as their unconscious had more of an opportunity for uninhibited expression. In conclusion, the interpretation of rock art should assume that there were as many different reasons and inspirations to paint as there are different reasons and inspirations among today’s *n/om-kxaosi* in the Kalahari.

Though there is no *Summa Theologica* among the *n/om-kxaosi*, there are shared patterns of performance and hermeneutics that we can identify. To begin with, we can distinguish between inexperienced and experienced *n/om-kxaosi*, finding that each group tends to share commonalities[4]. The former are more likely to talk about power, worry about the pain associated with receiving needles and arrows, and fear the malevolent forces at work in the spiritual universe. On the other hand, the more experienced *n/om-kxaosi* want to receive needles, have learned to move past the mirage of power (what is called the “first station” of a dance where the fire tempts one to enter it) into the deeper feelings of mystical love and longing, and seek help from the ancestral spirits and gods (second and third stations of the dance). Of course, things are never quite this simple to classify. From time to time, an experienced *n/om-kxao* will existentially stumble and fall, perhaps acquire a drinking problem, and start boasting about having the power of sorcery. Nevertheless, in spite of the differences between and among the beginners and elders, all their understandings are rooted to

shaking bodies that trigger ecstasy and the metaphors associated with these body experiences.

The *n/om-kxaosi* mostly talk about needles (and arrows) – particularly about receiving and giving them. Hot needles (made hot by singing and enhanced feelings) are the metaphor most associated with body shaking (*thara*). A needle holds the *n/om*, the spiritual essence or presence (or power) that comes from the Sky God. A *n/om kxao* is an “owner of *n/om*,” someone who is able to hold *n/om*. When ethnographers encounter talk about “needles,” they have entered a conversational domain of Kalahari shamanic discourse.

The other most frequently discussed topics among *n/om-kxaosi* are the threads, ropes and one’s visitations (*kabi*) with the ancestral spirits and Sky God. *N/om-kxaosi* are particularly interested in hearing about how their ancestors (and the Sky God) have gifted them with knowledge and song and dance. For a very experienced Ju’hoan *n/om-kxao* (a *G || aqba-n!a’an*), the most important talk is about the Sky God’s ostrich eggs. They believe that these eggs hold the needles, ropes, and songs and that a person is not a “Heart of the Spears” until this ostrich egg is received as a gift from the Sky God.

For the Ju’hoan *n/om-kxaosi* I have studied, these are the dominant metaphors in their discourse: ostrich eggs from Sky God, needles (and arrows), cleaning dirty needles, threads, ropes, songs, *n/om* (crudely translated as those things associated with the highly charged feelings experienced in life), visitations (*kabi*), and the various dances (e.g. *G!oah*, giraffe, elephant, eland, bee). Their personal experiences and explanations may differ, but they all use these metaphors. Similarly, all *n/om-kxaosi* have familiarity with the shaman’s kinesthetic alphabet or lexicon – the body trembling, vibrations, shaking, quaking, jolts, jerks, and spontaneous voicing that constitute their performance of shamanism.

In shamanic discourse, the dominant metaphors are used as shorthand for making reference to certain kinds of body experience (heated needles: shaking; cleaning needles: body jerking; *n/om*: particularly associated with strong singing (among many other references); God’s ostrich egg: the most important gift from the Sky God; climbing the rope to the sky village: stomping and pumping in the dance).

The dominant metaphors are used to make explanations of their body experiences. For example, the main explanatory story goes something like this: a person becomes a *n/om-kxao* by first receiving needles or arrows, either from other owners of *n/om* or directly from the Sky God, or both. When your body learns to receive and hold them, they will make you shake when they are heated by the *n/om* that is carried in the songs and dances. As you learn how to master heating up your needles, one day, perhaps many years later, the Sky God may give you a sacred ostrich egg. For some, it is believed that one cannot be regarded as the strongest *n/om-kxao* without receiving this egg or having a direct encounter with the Sky God. Furthermore, when you see this egg, it must crack open, giving you its contents: needles, song(s), dancing, and ropes. Then, in that moment, you become a “Heart of the Spears.” Everything will come to you when you now go to the dance. You will automatically know how to give a needle, take out a dirty one, clean it, and place it back into another person’s body. You will continue to receive visitations and needles from your ancestors and the Sky God. And you will learn how to make the threads and ropes stronger and keep the community revitalized. [Prior to receiving the visionary ostrich egg, a *n/om-kxao* can still receive *n/om* and needles and have many spiritual experiences. However, the ostrich egg that cracks open in a *kabi* is taken as an

opening to the highest realms of Bushman shamanism, marked by the reception of a rope that takes the *n/om-kxao* to the Big God.]

The sacred metaphors and kinesthetic alphabet of a shaking *n/om-kxao* constitute the common ground for shamanic interaction. Over the years, I have learned this kinesthetic alphabet, experienced receiving the ostrich egg (which is how I first learned about it), become familiar with their dominant metaphors, and have shaken with other *n/om-kxaosi* in many dances throughout the Kalahari. I am regarded as a *G||aqba-n!a'an*, a "Heart of the Spears." My conversations with *n/om-kxaosi* use their metaphors and my body interaction with them uses their kinesthetic alphabet. In these ways I have learned how their dominant metaphors are linked to their kinesthetic alphabet. As a result, I have been able to have meaningful interactions with other *n/om-kxaosi* that help evoke kinesthetic knowing, shamanic understanding, and mystical communion.

Bateson (1975a, p. 267) proposed that "the richest use of the word 'sacred' is that use which will say that what matters is the combination of the two [left and right brain], getting the two together. And that any fracturing of the two is, shall we say, anti-sacred." In this regard, he argued that both the Catholics and Protestants of the fifteenth century were equally anti-sacred. "The bread *is* and *stands for* the body – not one way versus the other."

When we theorize that rock art *stands for* the sacred or that body shaking *stands for* sacred arousal, we risk losing sight of its right brain communication: that it is the sacred, but not independent of its standing for the sacred. Reductionistic explanations of shamanistic experience risk the same error of logical typing – re-creating the old Catholic versus Protestant debate. The *n/om-kxaosi*'s whole biology, from optic nerves to neuronal and hormonal firings, and muscle clonus are standing for as well as constituting the sacred.

Yes, some of the *n/om-kxaosi* of old and present dance as a means to control the weather, or influence other people in a good or bad way. Today some of these *n/om-kxaosi* dance the "elephant dance" and throw arrows of harm at their opponents as a means of causing sickness. The other *n/om-kxaosi* dance the giraffe and *G!oah* dances, believing them to be solely devoted to communal love, healing, renewal of relationships, and reunion with the ancestral spirits.

Anthropologists, over the years, have often proposed that the Ju/'hoan Bushman *n/om-kxaosi* are solely engaged in power battles with adversarial ancestral spirits who wish them harm. My research found something different: many *n/om-kxaosi* long for the ancestors and dance as a means of opening their hearts and releasing the threads and ropes of relationship that bring the ancestors back to the present. Of course, the same ancestors who love them may make them a little sick every once in a while so they will not forget to dance and take care of themselves. The *n/om-kxaosi* also differ over whether they emphasize intergenerational power battles or ancestral longing for reunion. Dare we ask the role of the observer in bringing forth these views and understandings? Anthropologists embarrassed by sacred discourse, but more fascinated with power and magic may contribute to the bringing forth of their particular form of data. And vice versa. However, beyond these influences there is another explanation.

I once asked several Bushmen to tell me the most important word in their language. They mentioned the word *N!o'an-Ka'ae* which means ever-shifting change (whether for good or bad). They see the world imbued with a trickster presence and god that

assures that everything will always change. This worldview helps keep them less attached to any description, explanation, dream, or image, because they know they will all change – each will give way to something else or, with time, slide into a different meaning. Everyday discourse and storytelling keeps the weave of their knowing as slippery and open to change as possible without ripping the fabric of their web of knowing.

In a shape-shifting trickster universe, it should be no surprise that there are diverse accounts of their interaction with the *g||auansi*, the ancestral spirits and gods: the ancestors love us and only want to help us; they sometimes make us sick because it reminds us to dance and keep ourselves healthy; they miss us so much that they want to kill us and bring us back to them; sometimes they are jealous or angry and want to hurt us; whatever they do, they love us and that love cannot ever stop. The Bushmen see their ancestral relations as well as their own emotional climate as constantly shifting. This is their circular universe and it must be allowed to constantly change in order to preserve the existence, health, and integrity of its whole circular (and cybernetic) organization. Their epistemology is rooted to multiple descriptions and a recursive polyphony of accounts.

It is no surprise that so many anthropologists saw an absence of order in their worldview, describing it as “multifarious, inchoate, and amorphous,” “a confusing tangle of ideas and beliefs, marked by contradictions, inconsistencies, vagueness, and lack of culture-wide standardization” (Guenther, 1999, p. 126). Other anthropologists, not able to find coherence in the multiple descriptions they encountered, arguably imposed (perhaps unconsciously) their own order on the descriptions, selecting a scenario that fit their fantasy of shamanic reality: shamans with supernatural power fighting adversaries not unlike a George Lucas production of *Star Wars*.

A circular and systemic view of the world discourages any chopping of the whole netlike fabric into a segmented hierarchy. Bushmen culture is known for the ways it keeps the community from becoming a static hierarchical assortment of relations. One way this is achieved is by bringing down to size every person, achievement, and idea in the Bushman community. Here, there is no rigid place for hierarchy, whether in the rank of people or ideas or interpretations. At the same time, some things remain constant: trickster never stops morphing and *n/om-kxaosi* never stop shaking.

In the epistemology of a shaking body and morphing world, transforms of difference are acknowledged and seen as traversing circles of return. Here, we find recursion: the trickster swallows its own tale as a means of disappearing, but then reappears through mythological regurgitation or death and birth. The Bushmen *n/om-kxaosi* embody recursive epistemology. Their dance and story-telling are a healing of the lines that are turned into circles – by mending the ropes the whole fabric is more woven together.

I mentioned that most ethnographic analyses of Bushman healing (which are often the same assumptions used in the interpretation of Bushman shamanistic rock art) propose that the *n/om-kxaosi* are battling with their ancestral spirits and depict the *g||auansi* as malevolent presences. The error of the “malevolent *g||auansi* hypothesis” is that it depicts a singular, logically consistent role of the *g||auansi*. It overlooks (and thereby negates) the ever-shifting roles of all entities, including the *g||auansi*, in the Bushman universe.

The ancestors, as well as the *n/om-kxaosi* and every other presence in nature, are changing and shape-shifting, mood-shifting, identity-shifting, and relationship-shifting. *N/om-kxaosi* are the occasional master carriers, conduits, or transfer agents of transformation and do so through shaking (a clear body communication of shifting and transformation), intense staring, whistling, singing, dancing, finger-pointing, finger-snapping, blowing, vibrational touching, sweating, urinating, bleeding, smelling, dreaming, and feel-seeing the presence of the dead, among other ways. What the *nom-kxaosi* talk about and what the early rock art painters drew addresses *N/o'an-Ka'ae* transformation, whether inspired by shaking, myth, synesthesia, or intense feelings about the departed (and present) loved ones. The talk and the drawings are themselves examples of what they represent – they, too, are capable of evoking transformation and the in-and-out presence of the primal spiritual world called First Creation.

The original Latin word for sacred is “sacer” which Bateson (1975a) argued meant both “‘so holy and pure’ as to be sacred, and so ‘unholy and impure’ as to be sacred.” Some ropes seem to have an end with pure sacredness while at the other end there is the impure and horrible. Somewhere in the middle we may presume is the secular and everyday. The Bushmen and Balinese, along with other cultures, know that each end of this rope is attached to the other. As the Balinese say, every blessing carries a curse on its tail. Shamans are more likely to be careful about sitting too long on either end of a rope because they know that trickster can flip them to the opposite side. They probably would not be surprised to hear that religious fundamentalists of any orientation (those clinging to one end of a rope) worshipping a textual tradition that espouses love and peace are so easily tempted to exploitation and war. There is danger in harnessing the “power” of either end of the rope as a means of manipulating the middle. When shamans do so, they create a monster. Wisdom calls for a dance of many differences, contraries, dialogical tensions, dialectics, and cybernetic recursions – allowing minds and bodies to be shaken free of all shackles. With the freedom of *N/o'an-Ka'ae*'s movement, the *n/om-kxaosi* may be carried into T. S. Eliot's still point of the turning world.

The Dance of Shiva manages to keep all threads and ropes whirling from end-to-end, jumping from rope to rope, moving all presences and absences to co-exist so as to keep alive the integrity of the whole. The Bushman *n/om-kxaosi* enact this same dance when every part of their body and mind and soul shakes and trembles. If our bodies hold all memories and transforms of the ideas, feelings, distinctions, dualities, and gestalts of every interaction of our lives, then we shake our whole universe when our bodies are freed to tremble and quake. In the shaking dance, we find the body-mind-soul truths of ever-changing transforms of the whole, the un-specifiable sacred.

In my research with the shamans of Bali (Keeney, 2005), I was told that most outsiders failed to understand the meaning of sakti. They think it refers to “spiritual power” so that when a person is said to have sakti, it is meant that they possess power. Instead, sakti refers to the aliveness, the energized vibrations, the trembling intensity of life brought about when one is in battle with an enemy. In the midst of a life and death encounter, if you are winning (that is, you are alive), then you are said to have sakti or more accurately, you are fighting for sakti. If you win the battle, there is no longer any sakti.

The Bushmen shake one another to keep their ropes strong. The ropes are what we call relationship and they must be held onto and shaken in order to survive and thrive.

One cannot maximize either side of a rope without losing the life and vitality necessary for both sides of the relationship to survive. The same is true for all the strands (ropes) that comprise the weaving of an ecosystem. Bushman *n/om-kxaosi* see the rest of the world as continuously breaking the threads, strings, and ropes of relationship. The following lament was sung by Xaa-tting after the death of his friend, the shaman and rain-maker, !Nuing/kui-ten (Bleek and Lloyd, 1911):

People were those who
Broke for me the string.
Therefore,
The place became like this to me,
On account of it,
Because the string was that which broke for me.
Therefore,
The place does not feel to me,
As the place used to feel to me,
On account of it.
For,
The place feels as if it stood open before me,
Because the string has broken for me.
Therefore,
The place does not feel pleasant to me,
On account of it.

For the Bushmen *n/om-kxaosi*, the fabric of the world is becoming untangled and cut apart. Misplaced concreteness has again and again led to great suffering and loss of life. Schizophrenic cultures and ecologies have bred a madness that threatens to cut the threads and ropes of relationship, including our relationship with the divine.

We must shake our ideas and our bodies, not to perform a pleasing and self-promoting choreography. Rather, we must have the courage to let go of everything, including the dance, and be moved by the wind, sometimes gently trembling, while at other times wildly shaking. The Kalahari calls everyone to feel the pulling of the ropes. Stand your ground and risk breaking the ropes of connection. Or move with the rope and allow it to carry you somewhere, to a place that cannot be conveyed with singular words and concretized knowing. In the shaking dance waits a mystical moment of eternity, whose presence in our hands is a strengthening of the ropes.

Notes

1. The name "Bushman" is used to refer to the people discussed in this paper because it seems to be the preferred term by most of the people interviewed over the years. "San" has a pejorative connotation in Nama, the language from which it comes, though "Bushman" also has limitations and historical disqualifications. I use the latter term with the hope that it be "gradually 'ennobled'" (Biesele, 1993). The Bushman *n/om kxaosi* referred to in this paper are members of the Ju/'hoansi Bushmen of the Nyae Nyae Conservancy, Namibia. All Ju/'hoan words have been spelled and checked for accuracy by Beesa Boo of Tsumkwe, Namibia.
2. Bateson's ideas and the entire conceptual apparatus of cybernetics are sometimes dismissed because of their association with machine analogies, using the fallacious argument that a "mechanistic" orientation is irrelevant to human inquiry, the hurlyburly world of politics, emotions, and creativity. These critics fail to recognize the logical mistyping within their argument (cybernetics attends to patterns of organization rather than the material

embodying the patterns) and overlook that most non-cybernetic social science explanation is inappropriately rooted to how machines and mechanisms are energetically described, more often than not, subscribing to metaphors of power, whether hydraulic or voltaic. This ignorance about cybernetics (and mechanistic – read “pattern” – explanation) did not deter Bateson’s pursuit of voicing a circular, and later, recursive, view of mental process.

3. The Ju’hoan Bushmen have referred to themselves as “the circle people” (≠ *ahmia-khoe juasi*) and to outsiders as “the straight line people” (*!huijuasi*).
4. When a Ju’hoan Bushman is first able to enter *!aia* (enhanced feelings) and *thara* (shaking), he or she is called an “owner of *n/om*,” a *n/om-kxao*. When the feeling of raw shaking power moves to love (rises to the heart), the *n/om-kxao* is able to pull out sickness and heal others. The *n/om-kxao* is then regarded as a healer and called a *!aiha*. The next level of *n/om-kxao* is one who can give needles and arrows to others (teach others to be a *n/om-kxao*). This *n/om-kxao* is called a *tco-kxao*. Finally, the highest level of *n/om-kxao* is one who is said to be a shower of *n/om* and “fully cooked by God.” This special *n/om-kxao* is called a “Heart of the Spears,” a *G* ≠ *aqba-n!a’an*.

References

- Akstein, D. (1992), *Un Voyage a Travers la Transe: La Terpsichore TranseTherapie*, Editions Sand, Paris.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY.
- Bateson, G. (1975a), “Ecology of mind: the sacred”, in Fields, R. (Ed.), *Loka: A Journal from Naropa Institute*, Anchor Books, New York, NY.
- Bateson, G. (1975b), “Some components of socialization for trance”, *Ethos*, Vol. 3, pp. 144-55.
- Bateson, G. (1976a), “The case against the case for mind/body dualism”, *CoEvolution Quarterly*, No. 12, pp. 94-5.
- Bateson, G. (1976b), “Foreword: a formal approach to explicit, implicit, and embodied ideas and to their forms of interaction”, in Sluzki, C. and Ransom, D. (Eds), *Double Bind: The Foundation of the Communicational Approach to the Family*, Grune & Stratton, New York, NY.
- Bateson, G. (1977), “Epilogue: the growth of paradigms for psychiatry”, in Ostwald, P.F. (Ed.), *Communication and Social Interaction: Clinical and Therapeutic Aspects of Human Behavior*, Grune & Stratton, New York, NY.
- Bieseles, M. (1993), *Women Like Meat: The Folklore and Foraging Ideology of the Kalahari Ju’hoan*, University of Witwatersrand Press, Johannesburg.
- Bieseles, M. (1996), “He stealthily lightened at his brother-in-law’ (and thunder echoes in Bushman oral tradition a century later)”, in Deacon, J. and Dawson, T. (Eds), *Voices from the Past: Xam Bushmen and the Bleek and Lloyd Collection*, Witwatersrand University Press, Johannesburg.
- Bleek, W.H.I. and Lloyd, L.C. (1911), *Specimens of Bushman Folklore*, Allen & Co., London.
- Fechner, G. (1860), *Elemente der Psychophysik*, Breitkopf und Harter, Leipzig.
- Guenther, M. (1999), *Tricksters and Trancers*, Indiana University Press, Bloomington.
- Held, R. and Hein, A. (1958), “Adaptation of disarranged hand-eye coordination contingent upon re-afferent stimulation”, *Perceptual-Motor Skills*, Vol. 8, pp. 87-90.
- Katz, R., Bieseles, M. and St Denis, V. (1997), *Healing Makes Our Hearts Happy*, Inner Traditions International, Vermont.
- Keeney, B. (1983), *Aesthetics of Change*, The Guilford Press, New York, NY.

- Keeney, B. (1999), *Kalahari Bushman Healers*, Ringing Rocks Press and Leete's, Island Books, Philadelphia, PA.
- Keeney, B. (2003), *Ropes to God: Experiencing the Bushman Spiritual Universe*, Ringing Rocks Press and Leete's Island Books, Philadelphia, PA.
- Keeney, B. (2005), *Bushman Shaman: Awakening the Spirit through Ecstatic Dance*. Rochester, Destiny Books, Vermont.
- Lewis-Williams, J.D. (1981), *Believing and Seeing: Symbolic Meanings in Southern San Rock Paintings*, Academic Press, New York, NY.
- Lewis-Williams, J.D. and Dowson, T. (1989), *Images of Power: Understanding Bushman Rock Art*, Southern Book Publishers, Johannesburg.
- Marshall, L. (1999), *Nyae Nyae 'Kung Beliefs and Rites*, Peabody Museum Monographs, Harvard University, Cambridge, MA.
- Maturana, H. and Varela, F. (1992), *The Tree of Knowledge*, Shambhala, New Science Library, Boston, MA.
- Piaget, J. (1962), *Biologie et Connaissance*, Gallimard, Paris.
- Siegel, R.K. (1977), "Hallucinations", *Scientific American*, Vol. 237, pp. 132-40.
- Thurston, L. (1991), "Entoptic imagery in people and their art", unpublished thesis, New York University, New York, NY.
- Varela, F.J. (1999), *Ethical Know-How: Action, Wisdom, and Cognition*, Stanford University Press, Stanford, CA.
- Von Foerster, H. (1974), *Cybernetics of Cybernetics*, University of Illinois, Urbana, IL.
- Von Foerster, H. (1981), *Observing Systems*, Intersystems Publications, Seaside, CA.

Further reading

- Bateson, G. (1979), *Mind and Nature: A Necessary Unity*, E.P. Dutton, New York, NY.
- Bateson, G. and Bateson, M.C. (1988), *Angels Fear: Towards an Epistemology of the Sacred*, Macmillan Publishing Company, New York, NY.

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Toward Batesonian sociocybernetics: from *Naven* to the mind beyond the skin

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Toward
Batesonian
sociocybernetics

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Abstract

Purpose – To construct, from Bateson’s social ideas ranging from *Naven* to the 1979 *Mind and Nature*, a Batesonian sociocybernetics.

Design/methodology/approach – The paper considers Bateson’s ideas about the delineation of systems by the observer, as they were taught to his classes in the 1970s and as they were expressed in the so-called first, 1936 Epilogue to *Naven*, and shows how these ideas led Bateson to a skeptical, anti-reificationist social cybernetics.

Findings – Bateson de-emphasized system boundaries, instead seeing systems as creations of the observer and as arbitrary cuttings of a continuous web of cybernetic processes.

Research limitations/implications – Bateson’s argument in *Naven*, a work originally published in 1936 and partially based in a sociological tradition which also forms some of the roots of Luhmann’s thought, is surprisingly relevant to contemporary issues in second-order cybernetics and sociocybernetics.

Practical implications – Bateson’s skepticism about reification, and emphasis on the observer’s role in the construction of system boundaries, can point a way for sociocybernetics to address those cybernetic systems which do not fit Luhmann’s or Maturana’s strict criteria for autopoiesis.

Originality/value – This paper attempts to show the sophistication and relevance of Bateson’s social thinking to the field of sociocybernetics.

Keywords Sociocybernetics, Social anthropology

Paper type Conceptual paper

In this paper, I propose to demonstrate what Gregory Bateson’s thought might mean to sociocybernetics. Today, in 2007, Gregory Bateson is not well known as a social theorist. He is considered a pioneering cybernetician, well known for his definition of information as “a difference that makes a difference” and for his attention to “the pattern that connects.” But few people are using Bateson in the field of sociocybernetics, the application of cybernetic ideas to the study of social life. And this is ironic because the study of human social life was Bateson’s forte, as a pioneering anthropologist in the 1930s and onward. In this paper, I outline the sociocybernetics implicit, and explicit, in Bateson’s work. I will discuss Bateson’s teaching, which I have personally experienced, as well as writings from throughout his life, especially one work from his supposedly pre-cybernetic anthropology, *Naven* – his study of a ritual among the Iatmul people of Papua New Guinea.

Where best to draw delineating lines

I will begin with an issue that Bateson himself used to use as a beginning. Bateson taught a course at UC Santa Cruz, in the middle 1970s, entitled “The Ecology of Mind.” I did in fact take that course, and I also possess a set of tapes from it. The first tape is



entitled “Where best to draw delineating lines.” Bateson tried to make this the first topic of the course, the foundation of everything that was to follow. This first lesson is actually among the subtlest and most difficult of his ideas.

As he did every year, Bateson provided his class with a geometrical figure (Bateson, 1979, pp. 42-4) and different students would come up with different descriptions. And this was one moral which he drew – that the same phenomenon can be subject to different descriptions. In *Mind and Nature* Bateson drew a higher-level moral: “The division of the perceived universe into parts and wholes is convenient and may be necessary, but no necessity determines how it shall be done” (Bateson, 1979, p. 42). This moral was number five in a list of “basic presuppositions” (Bateson, 1979, p. 29) of any science of mind, the basic presuppositions that “every schoolboy should know.” By making this statement about parts and wholes a basic presupposition, or axiom, of such a kind, Bateson was able to use it in the construction of his cybernetic theory in *Mind and Nature*. But Bateson’s point is not really about parts and wholes “out there.” In fact his point was the role of the observer in constructing the systems which the observer observes.

The central dilemma of second-order cybernetics

Cybernetics, in the form of what is today called “first-order” cybernetics, was developed in the 1940s as a way of understanding systems which exhibited “circular” process, or “feedback.” It was determined that such feedback could stabilize the system around reference values, yielding “negative feedback,” or could self-amplify the system to the point of possible breakdown if unchecked, the case of “positive feedback.” In either case the system would appear to operate with reference to “goals” implicit in its operation.

The recursive or circular nature of feedback-type process brings about “self-reference.” Living cells are one example, for which Maturana and Varela invented the idea of “autopoiesis.” Though Bateson, too, used to ask his students, in the “Ecology of Mind” course, to look at something alive, or something which had been produced by something alive, and then try to speculate about how they knew that this had come from something living. Usually in the course the students were then led to the idea that living things had come from recursive, self-correcting feedback processes.

In autopoiesis the components which interact in the processes of life recursively produce themselves and in so doing create a difference between the system they create and an environment. There is thus an autonomy and boundedness which emerges from the autopoiesis which creates and characterizes, for instance, a living cell. Yet the observation of the autonomy of this living cell is done by an observer. Even as cybernetics demonstrates how recursive circular systems, including observers themselves, emerge from recursive processes, cybernetics, especially second-order cybernetics, also makes us aware of the processes by which we distinguish these systems as objects as part of our own ongoing autopoiesis as observers. Here, is the central dilemma of second-order cybernetics. When we observe, do we pay more attention to the circular causal and relational processes which we believe that we notice “out there,” or do we pay more attention to how our own processes of observation create, for us, the world which we perceive?

As with most cybernetic theorists, Bateson was given to emphasize both sides of this dilemma. As a student I used to wonder why he was so relentless in emphasizing that,

as human beings, we do not have direct experience of the world. Bateson used to playfully ask, “How many of you think that *you see me?*” (Bateson, 1972, p. 478). It was very important to teach that the processes of perception are not direct, and not “objective.”

And yet Bateson clearly believed that there were better and worse epistemologies, better and worse ways of carving nature at its joints, or not. He was very supportive of rigor in the description of living systems and their products, and one could even say that he argued as if the fate of the world depended on teaching such rigor. The structure, or texture, of the world as composed of recursive, circular processes produced by living systems, was very important to emphasize particularly because human lineal purposiveness so often distorts not only our perception of this world but also our actions and interactions within it (Bateson, 1972, pp. 426-47).

The social theories influencing Bateson’s early anthropology

I shall now digress from Bateson’s later teachings about systems and observers to examine some of the deep roots of his thought. Bateson began his studies of anthropology at Cambridge University in England, in the 1930s, at a time when the most important theorists of British social anthropology were Radcliffe-Brown and Malinowski. British social anthropology, particularly that of Radcliffe-Brown, took as its inspiration the French theorist Emile Durkheim, who argued, around the turn of the twentieth century, for the autonomy of social facts, which could not be reduced to the psychology or action of individuals, whether taken alone or even collectively. This position can be traced forward from Radcliffe-Brown to Talcott Parsons, in the USA, and subsequently, transmuted by autopoietic theory, to the influential sociocybernetic thinker Niklas Luhmann.

Radcliffe-Brown directly analogized society to an organism, modeling his version of social structure on organismic physiology. He was aware that the analogy could never be exact. For him, social structure referred to an integrated set of relations between entities, and these entities were persons – not individuals, but social persons as defined, and only as defined, by the social systems which they help compose. Radcliffe-Brown is usually considered a “functionalist” thinker, in that he related different social institutions to the functioning (so to speak the homeostasis) of the whole. This insistence upon the autonomy of the social, not only as a domain of study but also as a domain of relational integration in the world to be studied, prefigures Luhmann’s later separation of “autopoietic” social systems from the organismic and psychological systems which comprise individuals, or human beings as such. Both Luhmann and his intellectual ancestor Radcliffe-Brown consider human beings as such to be outside the social domain which they study. Luhmann departs from this sociological tradition by making “communications” rather than social persons (or roles) the units of social systems, but nevertheless he adheres to sociological tradition by seeing human beings as external, or as he puts it “environmental,” to social systems as such.

Malinowski’s approach was also considered functionalism, but for him social institutions functioned to provide for, or serve, human needs. His functionalism was probably less important to the anthropology of his time than was his methodological emphasis on the long-term field study of a particular people.

It was the Durkheim/Radcliffe-Brown version which was the more influential type of functionalism to Bateson and, ultimately, Luhmann as well, and which can be seen as a precursor to systems theory. Functional subsystems interact to maintain the whole. The idea of homeostasis presumed by functionalism is often seen as static by critics, though this may have been unfair even at this early date. Some functionalists did seem to write, though, as if systems tended to be stable unless some external factor brought about change – a fallacy which cybernetics should have eventually cured. In his famous anthropological study, *Naven*, Gregory Bateson transcended this form of functionalism.

The zigzag dialectics of *Naven*

The development of the analysis in *Naven* takes a uniquely dialectical form which Bateson (1979, p. 215) has himself described as a “zigzag ladder”. Unlike many anthropological studies of his day, *Naven* takes the form of a problem piece. Bateson begins by describing a ritual of daily life, the *Naven* ceremonial, which poses intriguing questions of gender, age, and kinship relations, by seeming to parody or playfully reverse some or all of them. He then proceeds to place this ceremonial in context. In the first seven chapters of the book, this context is one of sociological relations as they are defined by the culture in question (the Iatmul culture of what is now Papua New Guinea). In terms of conventional sociological theory this turns upon the definition of social roles which define persons and their relations as the Iatmul understand them.

The dialectical antithesis of this in *Naven* comes from the US anthropological school of Ruth Benedict as interpreted by Margaret Mead. Gregory Bateson first met Margaret Mead, whom he later married, when both of them were doing anthropological fieldwork in the same region of New Guinea. (Mead of course became a pioneering figure in cybernetics in her own right.) Theoretically, speaking, Bateson’s fieldwork encounter with Mead exposed him to a psychologically inflected variant of US anthropology’s concept of culture. Mead and Benedict, Mead more so even than Benedict, engaged with the question of “culture and personality,” how culture adapted individuals to their social environment by shaping them psychologically. This provided a complementary or even inverse view of the social phenomenon of the *Naven* ritual. Instead of this ritual being viewed from the “British social anthropology” perspective of the social system, to which individual psychology is analytically external, the “American” point of view foregrounded the individual, psychological system, albeit conceiving it as a means of adaptation to the social environment. Bateson, unlike Mead or Benedict, subdivided this individual or psychological system in two, for the purposes of cultural analysis: “ethos” connected with the affective relation to social life, and “eidos” connected with the logic immanent in cultural ideas. However, in both cases we are dealing with the question of how a particular social system standardizes personality – a question well out of range of the interests of either Radcliffe-Brown or, ultimately, Luhmann.

If the social and the psychological are taken as thesis and antithesis, the next Hegelian step is of course synthesis[1]. In the case of *Naven* this synthesis is represented by the concept of schismogenesis. (Bateson actually does cite Hegel at one point in *Naven* (Bateson, 1958, p. 266) in regard to how he created this concept – though he characterizes his use of Hegel as a “leavening” to his developing ideas, rather than claiming to be a consistent Hegelian in his view of the dialectic or anything else.) Schismogenesis refers to a “progressive change in behaviour patterns

in relationships” (Bateson, 1958, p. xvii), based on a view of human interactions as cumulative and iterative in either symmetrical or complementary ways. This concept was Bateson’s own, and since he described this kind of interaction in a similar manner to what would later be considered feedback (particularly positive feedback), it was this concept of schismogenesis which he felt most predisposed him to the ideas which became cybernetics. (There was also a possibility of self-correction in schismogenic systems by introducing an element of complementarity into a symmetrical interaction or the inverse.) The schismogenesis concept gave the lie to the idea of a static functionalism, by showing that the microdynamics of social institutions are not static but consist in progressive interactive change. Schismogenesis showed that the conservation of social and cultural orders could not simply be assumed. Order, not its preservation, became what needed to be explained. In 1958, Bateson explicitly showed how schismogenesis linked up with the later ideas of cybernetics, in an “Epilogue 1958” appended to *Naven’s* second edition (Bateson, 1958, pp. 280-302).

But readers of *Naven* will find that this is the book’s second so-called epilogue. Already in the first edition of the book, Chapter 16 is entitled “Epilogue 1936.” As with the later “true” epilogue of 1958, this first “epilogue” (which was always actually integral to the book) was the result of Bateson having rethought his entire theoretical perspective, such that he felt that he was seeing everything in a new light. What was the new perspective Bateson had in 1936, which made him question his applications both of functionalist social anthropology (via Radcliffe-Brown) and of culture-and-personality theory (via Benedict and Mead)?

The key insight which informs the first, 1936, epilogue to *Naven* is the centrality of the observer, the second-order cybernetic insight that was so important in Bateson’s later teaching and thinking. We thus see that Bateson espoused this key second-order idea before cybernetics was ever developed. He attributed this idea to a specific moment of insight which he described as a revolution in his way of thinking – though indeed, in this period Bateson often revolutionized his way of thinking, and he saw *Naven* as not only a description of a New Guinea society, but also as a record of his own dialectically evolving ways of seeing that society.

Functionalist systems theory in Bateson and his contemporaries

In the 1980s, anthropologists began to revisit *Naven* as an “experimental ethnography,” one which did not pretend to survey a complete culture from some Olympian or godlike height, but which engaged with the limitations of its own methods. In fact Bateson, throughout the work, engages in a critical discourse with his own theoretical perspective, showing its evolution and development and criticizing what he felt to have been mistakes along the way. This does not begin with the epilogues but is a feature of his discourse throughout the book. However, the epilogues are entirely given to this kind of self-critical discussion. The 1936 epilogue begins with Bateson’s self-criticism of his fieldwork methods, and segues into an account of how he began to write up his field observations related to the question of contextualizing the *Naven* ritual.

He discusses how he had begun to classify his data, into the categories, for example, of ethos, structure, or “pragmatic function” (the last in terms of either individual need fulfillment or societal integration). But he uses a self-effacing and almost self-parodying manner to mock his successive positions, perhaps even unfairly,

because it is clear from the discussion that he is not merely classifying behavioral items, but postulating systems. He notes for example that he “even went so far as to think of the structure as a network of channels which guided the ethos, and were shaped by it” (Bateson, 1958, p. 261). For reasons soon to be discussed he eventually considered this a fallacy. But before we explore why he came to that conclusion, I think it should be noted that it is simply incoherent to claim (as Bateson later does) that this metaphor illustrates a mere classification of data into categories. Rather, I think that it is an incipient hypothesis, even, in a sense, a theory of systems.

Let us return to anthropological functionalism as it was commonly practiced in the first half of the twentieth century, following the theoretical lead of Radcliffe-Brown. The concept of systems used in practice by this school of functionalism can be exemplified by a famous set of works which were taught in anthropological theory courses well into the 1970s. E.E. Evans-Pritchard wrote three volumes on the Nuer of East Africa, the first in 1940, which presented that people’s social life as composed of social institutions arranged into systems. For example, in the first volume was treated the ecology and geography of the people, then as chapters four through six, respectively, “The Political System,” “The Lineage System,” and “The Age-set System” (Evans-Pritchard, 1940).

While this type of classic presentation of the institutions of non-literate peoples did not postulate that such systems were “autopoietic,” the classic functionalist account of social institutions may gain a greater amount of respect and understanding if one performs the thought experiment of translating it into a more contemporary, but related, “Luhmann-autopoietic” way of thinking[2]. Each of the systems which, in the functionalist analysis, organize social institutions could thus be thought of as coalescing around a particular type of communication, circulating around a “currency” such as power, land, differences in group membership, or even (to anticipate Lévi-Strauss) the exchange of women between groups. Each system could be seen as being produced and reproduced reiteratively in terms of the distinctions which it maintains.

Bateson’s initial analysis of the systems involved in Iatmul society and culture can be seen in a similar light, with the addition, in his case, of the systems of ethos and eidos providing both individual and psychological instantiation of the socially shared culture, and a social projection (in the form of dynamic interaction) of the individual psychological system standardized by the culture. In spite of Bateson’s own self-deprecating self-caricature, his system of social analysis as he first wrote it in fifteen chapters of *Naven* – his pre-epilogue system of thought, as it were – can be seen as, for its time, solid and sophisticated (and certain key concepts within it, such as ethos, have had continued resonance within anthropology).

Bateson’s puerile experiment (the observer in 1936)

Nevertheless, Bateson did not continue with seeing society and culture as being separable into systems in this classic functionalist way. His change of thought is described in the 1936 Epilogue to *Naven*, and he considered this revolution in his thinking to be so important that he repeated it in a 1940 essay, “Experiments in thinking about observed ethnological material,” reprinted in *Steps to an Ecology of Mind* (Bateson, 1972, pp. 73-87). I cannot do otherwise than repeat it again here:

I began to doubt the validity of my own categories, and performed an experiment. I chose three bits of culture: (a) a *wau* (mother's brother) giving food to a *laua* (sister's son); a pragmatic bit, (b) a man scolding his wife; an ethological bit, and (c) a man marrying his father's sister's daughter; a structural bit. Then I drew a lattice of nine squares on a large piece of paper, three rows of squares with three squares in each row. I labeled the horizontal rows with my bits of culture and the vertical columns with my categories. Then I forced myself to see each bit as conceivably belonging to each category. I found that it could be done.

I found that I could think of each bit of culture structurally; I could see it as in accordance with a consistent set of rules or formulations. Equally, I could see each bit as "pragmatic," either as satisfying the needs of individuals or as contributing to the integration of society. Again, I could see each bit ethologically, as an expression of emotion.

This experiment may seem puerile, but to me it was very important, and I have recounted it at length because there may be some among my readers who tend to regard such concepts as "structure" as concrete parts which "interact" in culture, and who find, as I did, a difficulty in *thinking of these concepts as labels merely for points of view adopted either by the scientist or by the natives* [emphasis added]. It is instructive to perform the same experiment with such concepts as economics, kinship, and land tenure, and even religion, language, and "sexual life" do not stand too surely as categories of behaviour, but tend to resolve themselves into labels for points of view from which all behaviour may be seen (Bateson, 1958, p. 262, also except for part of the last sentence, Bateson, 1972, p. 85).

After this "experiment" Bateson viewed his previous point of view as suffering from the philosopher A.N. Whitehead's "fallacy of misplaced concreteness" (Bateson, 1958, pp. 262-3, fn2). I consider this "puerile experiment," however, also to be a kind of prefiguring of second-order cybernetics, in which all systems are delimited and described by the observer. And Bateson adds an important touch to this. In human affairs, one must not merely consider the Godlike scientific observer above the system. We must also consider the observers who are the individuals living within (or in Luhmann, as the immediate environment of) the system – the observers who are simultaneously, as Bateson put it, "the natives."

"According to taste": delimitation of cybernetic systems comes from the observer

Bateson's "puerile experiment" of 1936 had lifelong effects on the way he built theories. He expounded upon this in the aforementioned article, reprinted in *Steps to an Ecology of Mind*: "Experiments in Thinking about Observed Ethnological Material" (Bateson, 1972, pp. 73-87, first published 1940). His feeling that he had indulged in the fallacy of misplaced concreteness led him to a self-conscious awareness of when he was theorizing loosely and when he was theorizing with rigor. It also led him to a skepticism of most of the explanatory methods of the social sciences (Bateson, 1972, pp. xix-xxi).

In fact one notes a tendency in Bateson to view our own descriptions of societies, our own and those of others, as riddled with suspect reifications. His skepticism of the "borders" of descriptive words, one might say, extended into a skepticism of the borders of analytically described systems as well. One of the reasons why Bateson never developed a theory of autopoiesis is that he had a special interest in cybernetic circuits – "units of mind" – which did not correspond to the conventional boundaries of entities defined by vernacular language. Language, perhaps, to him corresponded

to “conscious purpose.” And human consciousness was for Bateson something to be skeptical about more than celebrated. Consciousness, the servant of limited short-term purpose, is so structured so as to make itself an obstacle and hindrance to what he sometimes termed a “true” understanding of the world. Such invocations of “truth” were “loose thinking” in a way, as Bateson was no foundationalist, but for him an understanding of the world could be “truer” than others insofar as it took into account circular cybernetic connections which are not obvious or immediately apparent. Bateson’s reflex was to look beyond the boundaries of systems and to find interconnections which cross-cut the system/environment distinctions one would normally make. He wrote, “I suggest that the delimitation of an individual mind must always depend upon what phenomena we wish to understand or explain. Obviously there are lots of message pathways outside the skin, and these and the messages they carry must be included as part of the mental system whenever they are relevant” (Bateson, 1972, p. 458).

From these considerations Bateson develops a systems approach which is more observer-dependent, although he does not use this term, even than those of Luhmann and Maturana. The theories of autopoiesis developed by these two latter theorists strongly emphasize system boundary formation, i.e. autopoietic systems are self-perpetuating systems which differentiate themselves, by their own operations, from their environment. Luhmann, for example, in describing the autopoiesis of social systems, is careful to define as social systems only those which create self-reference by distinguishing themselves from their environment through their recursive operations. But this is far less important to Bateson, who is just as interested in tracing recursive pathways which do not as easily resolve themselves as being bounded in this way[3]. In practice Bateson is always questioning and problematizing boundaries, arguing that the “skin” (which is the self-evident boundary of the organism that distinguishes it from its environment) is actually an informational conduit, a part of circuits of mind which transcend the individual organism or self.

For example, Bateson famously described the act of a man cutting down a tree as a “mental” or cybernetic circuit. For him it comprised a system of feedback messages operating upon differences.

If now we want to explain this set of phenomena, we shall be concerned with differences in the cut face of the tree, differences in the retina of the man, differences in his central nervous system, differences in his efferent neural messages, differences in the behavior of his muscles, differences in how the axe flies, to the differences which the axe then makes in the face of the tree. Our explanation (for certain purposes) will go round and round that circuit . . . This is the elementary cybernetic thought (Bateson, 1972, pp. 458-9).

But this system connecting a man, a tree, and an axe, is not autopoietic; it does not create through its operation a boundary between itself and other “circuits,” and its delineation is clearly made by the observer rather than by its own autopoietic operation.

In the same passage, Bateson continued the theme of systems beyond the skin, by discussing how the stick a blind man carries is part of the blind man’s sensory system. Then he discussed evolution, and ecology, and the unit of selection, such that for him it was not the individual organism (much less a gene), but rather the interactive cybernetic circular system in which organisms interact, which is what survives in evolution (Bateson, 1972, pp. 458-65).

Family systems are another example of systems which can include pathways outside the “skin” (or in this case, the social boundaries comprising the family). They may not always incorporate the same people over time, and when a therapist is involved, the therapist becomes part of the system.

Late in life, for Heinz von Foerster, Bateson contributed, to the encyclopedia of second-order cybernetics entitled *Cybernetics of Cybernetics*, the following definition of “adaptation”:

Imagine a description of an organism-and-its-environment. This description will consist of an internally interlocking tangle of descriptive propositions. Divide this tangle **according to taste** into two parts, “organism” and “environment.” Now “adapted” and “adaptation” (the latter being the process of becoming the former) are words which refer to *certain sorts of redundancy* across the **arbitrary** dividing line (Bateson, 1974, bolding added).

This language is an almost blatant challenge to the autonomy of the system asserted by theories of autopoiesis. Bateson seems to be saying here that it is the observer who chooses the organism-environment boundary. This is a self-consciously second-order phrasing from the most sophisticated cybernetic thinking near the end of Bateson’s life. And yet it marks an unbroken continuity from Bateson’s position in 1936, enunciated in the first epilogue to *Naven*, that it is the observer who chooses the category or system in which to place an ethnographically observed datum of social life. Cybernetic systems are delineated by an observer.

For the later Bateson, this observer centrality was integrated into a larger holism. In this holism, it is not only organisms themselves, but also the systems formed by their interaction, as well, which comprise the world of “creatura” characterized by circuits of behavior operating from differences. These circuits exist both within and partly outside the boundaries created by self-referential systems, transcending autopoiesis in this way; and thus the world of *creatura* as a whole can be seen as forming an interconnected web of cybernetic relationship. Any cutting of this web is done by an observer – and the very act of cutting is in some sense a “falsehood,” a denial of whatever integration exists across the distinction which is made.

This Batesonian observer, who creates the systems she observes and yet in so doing is subject to the fallibilities of reification and conscious purpose, was first glimpsed by Bateson in his 1936 “puerile experiment” that was of course far from puerile, but which instead prefigured second-order cybernetics. Bateson also gives us an example of a thinker who repeatedly subjected his own thoughts as well as the received thoughts of others to an acid bath of skepticism. For him, in something of a Taoist manner, any system that could be named was not the “real” system – yet he appealed, almost as a matter of faith, to the larger interconnected system, as an image of what could not really be known (because of the limitations of consciousness), but only apprehended through various “points of view,” of the scientist, or (of course), of the natives (who are all of us).

Notes

1. For Bateson’s mature, cybernetic (and perhaps less Hegelian) account of the “zigzag dialectic” among these ideas see *Mind and Nature* (Bateson, 1979, pp. 211-15), where he describes his theoretical development in terms of a cybernetic model of the alternation between “form” and “process.” It is this “dialectic,” not strictly speaking Hegel’s, which Bateson delimits by the term, “zigzag.”

2. Such a claim that Luhmann's ideas can provide us with a generous reading of the functionalism which was antecedent to them, is not meant as a reduction of Luhmann's ideas to that functionalism. I do believe that Luhmann's autopoietic theory clarified and brought to fruition certain perspectives which were implicit in functionalism. By contrast, Bateson's developing thought moved further away from functionalist sociology.
3. Recursive systems which do not bound themselves from their environments in the manner of autopoietic systems have been termed "sympoietic" (Dempster, 1998; Guddemi, 1997).

References

- Bateson, G. (1958), *Naven: A Survey of the Problems Suggested by a Composite Picture of the Culture of a New Guinea Tribe Drawn from Three Points of View*, 2nd ed., Stanford University Press, Palo Alto, CA, (first published 1936).
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Bateson, G. (1974), "Adaptation", in von Foerster, H. (Ed.), *Cybernetics of Cybernetics*, Biological Computer Laboratory Report No. 73.38, The Biological Computer Laboratory, University of Illinois, Urbana, IL, pp. 97-8.
- Bateson, G. (1979), *Mind and Nature*, Bantam, New York, NY.
- Dempster, B. (1998), "A self-organizing systems perspective on planning for sustainability", master's thesis, University of Waterloo, Waterloo, available at: www.nesh.ca/jameskay/ersserver.uwaterloo.ca/jjkay/grad/bdempster/ (accessed 22 February 2007).
- Evans-Pritchard, E.E. (1940), *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*, Oxford University Press, Oxford.
- Guddemi, P. (1997), "Notes toward a description in autopoietic terms of two types of human sociality: sympoietic and institutional", paper presented at Workbook: Biology, Cognition, Language and Society, of the International Symposium on Autopoiesis, Belo Horizonte.

Further reading

- Benedict, R. (1934), *Patterns of Culture*, Houghton Mifflin, Boston, MA.
- Durkheim, E. (1961), *The Elementary Forms of the Religious Life*, 1st English ed., Collier Books, New York, NY, translated by J. Swain. Reprint ed., 1961.
- Luhmann, N. (1995), *Social Systems*, Stanford University Press, Palo Alto, CA, translated by John Bednarz Jr with Dirk Baecker, Originally published in German in 1984 as *Soziale Systeme: Grundrisse einer allgemeinen Theorie*.
- Malinowski, B. (1922), *Argonauts of the Western Pacific*, Dutton, New York, NY.
- Mead, M. (1935), *Sex and Temperament in Three Primitive Societies*, William Morrow, New York, NY.
- Radcliffe-Brown, A.B. (1952), *Structure and Function in Primitive Society*, Oxford University Press, London.

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Gregory Bateson in contemporary cross-cultural systemic psychotherapy

Cross-cultural systemic psychotherapy

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Abstract

Purpose – This paper seeks to examine the relevance of Bateson’s ethnographic work to systemic psychotherapy.

Design/methodology/approach – The paper addresses this by examining Bateson’s work with the naven ritual practiced by the Iatmul people of New Guinea. Bateson published this work in an ethnography entitled *Naven*, which has largely been ignored by systemic psychotherapists.

Findings – It is argued that Bateson’s early work has been neglected in the field of psychotherapy despite being highly relevant to the development of cross-cultural approaches in this field. The paper summarises Bateson’s arguments in the main body of the book and in the two epilogues which provide Bateson’s own commentary on this work. Key concepts such as “context” “pattern” and “ethos” are discussed. The paper also addresses the issues of how psychotherapists and ethnographers have access to the meaning of their interlocutors and outlines some pointers given by Bateson upon which psychotherapists may build in their cross-cultural work with clients. Bateson’s thinking about emotional, sociological and behavioural patterns and the way he involved himself in interpreting these is briefly considered in relation to the work of the anthropologist/sociologist Pierre Bourdieu on the one hand, and the psychoanalyst Wilfred Bion, on the other.

Practical implications – The theoretical discussion aims to contribute to the development of a rigorous approach to cross-cultural psychotherapy and to the integration of social science and psychotherapy.

Originality/value – The paper will be of value to systemic psychotherapists, psychotherapists generally, anthropologists, social scientists and clinicians interested in cross-cultural clinical work and in ethnographic enquiry.

Keywords Cybernetics, Cross-cultural studies, Systems theory, Social anthropology

Paper type Conceptual paper

Introduction

Gregory Bateson has iconic status in systemic psychotherapy. This is because he is one of the founding fathers of family therapy[1] and because his ideas and his writing about cybernetics, relationships, social science and the relevance of these to psychiatry and communication provided an innovative, inspired and brilliant theoretical foundation for the new rebellious discipline, which family therapy was in the beginning. Psychiatrists had already begun to see patients with their families in consultations and Bateson provided the theoretical foundation for a radically new way to think about psychiatric symptoms as well as social relationships and life in general. This included the questioning of mind/body dualism and notions of western transcendent individualism as points of departure. It also replaced thinking about causality in social systems as sequential and linear involving the self or a person as initial motivator, with an approach in which the self is only a small part of a much larger system[2]. In the setting of the consulting room this new orientation was



radically different both from treatment methods in traditional psychiatry and in psychoanalysis. In this way, Bateson's work is as fundamental to family therapy as the work of Freud is to psychoanalysis.

But icons may become imbued with idealism and projections in which case there can be no real engagement with and development of their ideas. This has to some extent been the fate of Bateson in contemporary systemic psychotherapy. Of course, his work is still referred to by all self-respecting systemic psychotherapists, but following the general trend of constructionism and narrative approaches in social sciences, systemic psychotherapists have also moved further away from examining the assumptions which underpin the systemic label. Patterns, continuity and reference to material, which is not conscious have become out of bounds, mainly as a result of the difficulty of reconciling these ideas with agency, choice and polyvocality. Systemic psychotherapists now may emerge from training without knowing what schismogenesis is and without being familiar with the development of cybernetics in Bateson's thought (Daniel, 2005). While this fits well with contemporary epistemological approaches, this is also in part the fault of a tradition in family therapy which has been selective of Bateson's ideas. For example, papers which directly address psychiatry such as those on "The Double Bind" and "The Cybernetics of Self" (Bateson, 1972) have been considered seminal, whereas others with a more anthropological subject matter, such as, for example, "Style, Grace and Information in Primitive Art" (Bateson, 1972) have not, and Bateson's ethnography "Naven" (Bateson, 1958)[3] has been completely ignored. This is despite the fact that this is where Bateson first developed a generic formulation for an understanding of relationships.

In this paper, I shall argue, as have other social anthropologists, sometimes critically (Marcus, 1985; Nuckolls, 1996; Ingold, 2000), that Bateson was ahead of his time. His work contains strands, which can be seen to point to an integration of how to make sense of experience within a realist approach, while still acknowledging relativism and social constructionism[4]. This has particular relevance for systemic psychotherapy thinking and practice in the UK today, because of the contemporary need to develop theories and practices which are cross-culturally valid. Bateson was, of course, a social anthropologist first, but the origin of his thinking in social anthropology has escaped systemic psychotherapists. I shall suggest that Bateson's early ethnographic work anticipates contemporary thinking about how to access meaning in ethnography exemplified in the work of Pierre Bourdieu, and in psychotherapy exemplified by the work of Wilfred Bion. I shall argue that in order to develop a sound basis for cross-cultural therapeutic practice, systemic therapists need to take account of Naven and the issues which Bateson discussed there. Naven contains suggestions, not just for how to develop a responsible non-discriminating systemic psychotherapy approach to cross-cultural work, but also for the kind of conciliation of modernist and postmodernist approaches, which a cross-cultural psychotherapy approach requires. Bateson's thinking can therefore be suggestive of how social science may assist psychotherapists and psychoanalysts generally. Bateson's engagement with cybernetics and systems theory is well-known and documented, here I shall focus on Bateson's earlier work as an ethnographer.

Bateson and culture

The question of culture is complex. Anthropologists have moved from definitions which list different phenomena (Tylor, 1958), to recognizing culture as an aspect of all human activity (Carrithers, 1992; Eriksen, 2004; Krause, 1998). Even so, there are many difficulties and contradictions and “culture” seems at times to be conflated with “society” or with a particular pattern or an idea, and at other times to be more akin to an illusion. Nevertheless, as a phenomenon “culture” cannot be dismissed. It includes shared meanings expressed publically (Geertz, 1973) as well as personal and private orientations and sensations (Holland, 1992). In his work with the Iatmul of New Guinea, Bateson was deeply absorbed by these complexities and by trying to find a scientific way of explaining culture as an orientation in the dynamic of relationships. In this, he was influenced by his contemporaries in two different schools of anthropology. The Culture and Personality Group interested in questions of cultural standardization or configuration of individuals and their personalities (Benedict, 1934; Mead, 1943), and the school of structural-functionalist social anthropology in the UK, where Radcliffe-Brown (1940) was his supervisor and in which society was seen as an organism or a system with interrelated parts. This combination of approaches can be discerned right through *Naven* and is revealed in the very opening sentences of the book:

If it were possible adequately to present the whole of a culture, stressing every aspect exactly as it is stressed in the culture itself, no single detail would appear bizarre or strange or arbitrary to the reader, but rather the details would all appear natural and reasonable as they do to the natives who have lived all their lives within the culture (Bateson, 1958, p. 1).

Here is the idea that culture and not just society, as Radcliffe Brown[5] would have it, is a system with interrelated elements. To contemporary systemic psychotherapists this notion that patterns hang together, that they are connected to other patterns, and because they are constrained in this way, they are not arbitrary, is not foreign. What is not generally acknowledged in the discipline, however, is that Bateson refers to “culture” that is to say “meaning” as a system (Krause, 2002). This was pointed out by Radcliffe Brown as Bateson, himself, explained in his first epilogue to *Naven* in 1936[6].

I gave a paper in Chicago outlining my system of abstractions and Professor Radcliffe-Brown observed that I used the term “structure” in a sense different from his; that he used it to refer to the structure of *society*, while I was using it for what he then proposed to call “cultural structure” (Bateson, 1958, p. 264, emphasis in original).

In actual fact Bateson adopted the term “ethos” for “cultural structure” a term also suggested by Radcliffe-Brown, and in this way motivation or emotion became central to his study of what he referred to as the logic of Iatmul cultural patterns.

Bateson approached these patterns through the study of the *naven* ritual[7]. This ritual involved adolescent boys (*laua*) and their real or classificatory mother’s brothers (*wau*) or uncles on their mother’s side. When a young man had performed a task that showed he had come of age, such as having made a canoe for the first time or more recently having purchased a motor boat (Silverman, 2001), men who were his *wau*, dressed in filthy women’s clothes, smeared themselves with ashes, bound themselves with the string pregnant women used and adorned themselves with large lumps of sago. The general effect was one of “utter decrepitude” (Bateson, p. 12). They then ran through the village asking for their *laua*. If and when the *wau* found the *laua*, he ran up

to him and rubbed the cleft of his buttocks down the length of his *laua's* leg. The *laua* had to then quickly get something valuable and give it to his *wau*. The gesture of the uncle sliding his buttocks down his nephew's thigh was called *nggariik* and Bateson referred to this as "sexual salute" (p. 13). The whole thing was embarrassing for the *laua*, but it also took place with much hilarity and mockery, an occasion for generally having a good time. A *naven* may have marked the celebration of other minor or major occasions too and when women took part, they were dressed like men with feathers, headdresses and homicidal ornaments with which they swaggered around the village.

Bateson assumed that this could not be the Iatmul "blindly" following a cultural tradition, because in order for a ritual like this to persist, it must have a function for the persons involved in the ritual either consciously or unconsciously and perhaps at a level of which persons may be unaware, contribute something to the social interaction or to society. He argued that *naven* performs an integrative function both psychologically at the level of individual persons and sociologically at the level of Iatmul society in the following way.

The Iatmul were and are mainly a patrilineal society. This means that from the point of view of descent, inheritance and rights and obligations in law, the important relationships which connect a person to others are those which can be traced through men and fathers (agnates). However, as elsewhere in New Guinea, some relationships traced through women are recognized as especially important for certain purposes. So, for example, in disputes a person's love and care for relatives on his/her mother's side may carry more weight than agnatic connections. One such relationship is of course, the relationship between a *wau* and his *laua*. This kinship orientation fitted well with Bateson's choice of *naven* as an arena for the study of feelings and sentiments.

The tension between maternal and paternal kin was echoed in the different expectations and behaviour of men and women in Iatmul society generally. However, the way men and women behaved and conducted themselves and were expected to behave and conduct themselves normally, was the opposite from the way they conducted themselves in the *naven* ritual. In everyday life, women were cooperative and self-effacing, whereas men were fiercely competitive and flamboyant (pp. 122-51). Normally, women were thus deprived of experiencing lively public and hilarious celebrations and men, who would boast and brag about their own achievements, were deprived of joy in the achievements of others. By providing opportunities for both men and women to experience emotions which were not normally an aspect of their own gendered social personhood, *naven* contributed to psychological integration. This is schismogenesis, which Bateson defined as "a process of differentiation in the norms of individual behaviour resulting from cumulative interaction between individuals" (Bateson, 1958, p. 175).

But here there was also an element of doubt in Bateson's thinking. In the Epilogues to Naven, Bateson struggled with the tension between local details and general descriptions. In the 1936 Epilogue, Bateson was preoccupied with whether or not the labels he was using to categorise behaviour were his or whether they also belonged to the Iatmul people themselves. In the 1958 Epilogue, after the discovery of the relevance of cybernetics to his material, he was quite clear that the categories he was using were descriptions of processes of knowing adopted by scientists:

I have described the ethos of the men as histrionic, dramatizing, overcompensating, etc. but these are only a description of the men's behaviour as seen by me, with my personality

moulded to a European pattern . . . The men themselves would no doubt describe their own behaviour as “natural” while they would probably describe that of the women as “sentimental” (Bateson, 1958, p. 157)

This goes to the heart of the matter of how the observer observes and how the systemic psychotherapist and the ethnographer can access meaning. However, before I can address this I need to consider the role of context in explanations and understanding and what Bateson had to say about this.

Context

Bateson’s choice of study was radical. By focusing on an event, namely the *naven* ritual and all the layers and complexity captured within it (the emotions, the knowledge and the pattern) he hoped to avoid proceeding as if the information he acquired from his informants was “hard data” rather than “points of view” (Harries-Jones, 1995). Bateson argued that this method does not work for ethos, because ethos cannot be captured only from the emotional tone of an observed behaviour. The relationship between the emotional content of a particular behaviour and the emotional orientation of a culture or a system also has to be considered. This means that ethos has to be understood intuitively and impressionistically and by deduction. The general emotional tone displayed by Iatmul men and women helped understand and put in context the specific behaviours and interactions of the mother’s brothers and the sister’s sons in the *naven* ritual. At both levels this required attention to ethnographic detail and did not in the first instance further an assumption of similarity between the expectations of the observer and that of the observed.

This approach was quite different from the inductive method used in social science generally in which “points of view” are hidden and the background to the data is removed with the risk that the ethnographer’s own categories come to order the material. Following Whitehead (1967) Bateson called this the “fallacy of misplaced concreteness” (Bateson, 1958, p. 263) and he later used the term “context” to refer to this. “Context” then articulates the relationship between the individual and the relationships in which he or she participates or participated. This refers to behaviour and action as well as to meaning because meaning is generated in the relationship between knowledge and representations of persons communicating with each other (Milton, 2002, p. 32). In this way, a description of a system could not be derived at inductively by studying a set of details and describing or explaining these as if they would apply universally, it would also be necessary to deductively arrive at a preliminary sketch of an ethos or an emotional outlook early on in the investigation of an event or a pattern, in order to avoid being “guided by general and probably fallacious assumptions about human nature” (Bateson, 1958, p. 268).

To anthropologists context refers to the physical, epistemological and social environment which an individual inhabits before, during and after events and processes of interaction and communication with others and the influence which these have on the way individuals act, feel, know and see the world. How much context is included affects the explanation of an event. Choice of “context” therefore implicates assumptions which may be unvoiced. In anthropology, there has been a shift in the way the context of and for ethnography has been conceptualized. In the early days of ethnographic fieldwork it was quite common for anthropologists to ignore the presence of the colonial institutions which facilitated their access to material in a particular

geographic location in the first place (Stocking, 1991). Nowadays, the field has become less of a physical space and more of a site of relationships still with an emphasis on the specificity of location (Gupta and Fergusson, 1997), but also with attention to the intersection and tension between different forms of knowledge of ethnographers and informants.

In systemic psychotherapy, “context” is somewhat of an emblem. In traditional family therapy context tended to mean family relationships and generally, as a result of a neglect of kinship in the discipline, it meant a two generational family living in one household (Jones, 1993). This referred to the daily lives of the clients, but it referred especially to the interaction and the communication observed in the consulting room. In these observations in detailed interactions were central and early systemic descriptions of family patterns are reminiscent of Bateson’s description of the *naven* ritual. The wider social and political context and the way social and cultural ideologies are reflected in intimate familial communication and interactions were not theorised until the development of feminist family therapy and until second order approaches, in which the system or context was widened to include the therapist as well as all the agencies involved with a family in connection with a “problem” (Anderson *et al.*, 1986). In time, this shift has been articulated as a rejection of systemic theory rather than an explicit acknowledgement of societies as social systems and an emphasis on intersubjective phenomena to the exclusion of *cultural* constructionism (Krause, 2002). Andersen and Goolishian (1992) argued that the therapist’s position towards phenomena should be a philosophical stance of “not-knowing” which Anderson (1999, p. 5) summarised:

Not knowing refers to how therapists position themselves, how they are in relationship with another person and how they respond to and interact with the other. It refers to how therapists use knowledge (what they think they might know) and participate in the creation of new knowledge. What we think we know is always held in doubt, always offered as food for thought and dialogue.

With this idea of “not-knowing” systemic psychotherapy reverted back towards the very style of knowledge seeking which Bateson criticised with the notion of “a fallacy of misplaced concreteness”. While it is true that some of the material, notably that which is conscious and within awareness with which the modern systemic psychotherapist works, is not considered “hard data” that is to say it is open to reinterpretation, restorying and polyvalence, the “not-knowing” stance also indicates a rather naïve view of the therapist and her context. In particular, it does not address her unconscious assumptions or the extent of “hidden views” in her personal and professional approach. As far as this material is concerned there is thus in contemporary systemic psychotherapy a tendency to assume that the meaning of what is being observed and communicated is fairly straightforwardly accessible both to therapist and clients.

Access to meaning

This raises the questions of how easy and straightforward this access may be and how the ethnographer or the therapist may position herself? As mentioned, this issue was of much greater concern to Bateson in 1936 than in 1958, although the academic and theoretical context in anthropology did not offer opportunity to engage with this in a way which we may engage with it now[8], Bateson suggested a solution which

became central in how to understand the schismogenesis in *naven* and therefore schismogenesis generally. The clue occurred to him when he examined his photographs of Iatmul public ceremonies and realized that on such occasions Iatmul women wear ornaments which are usually worn by men. This meant that transvesticism was a normal phenomenon in Iatmul society and not just associated with *naven* or with the orientation of individual Iatmul. With some insight Bateson turned to his own parallel experience of transvesticism and his example was that of a fashionable British horsewoman in his own experience. Because of its violent activity and the sense of physical mastery, horse riding in English culture contrasted sharply with other activities deemed suitable for women at the time. Bateson (1958, p. 200) thought that this explained the masculine emphasis in the clothes women wore when they rode horses. With our current theoretical emphasis on individual agency and choice we may query this line of thought, but the important point is that it was in the situation or context of transvesticism, that Bateson suggested we may find an explanation for it and this methodological shift implicated not just the context of the Iatmul, but also the context of Bateson himself. To begin to promote access to the context of a sequence of Iatmul interaction and communication (*naven*), Bateson needed to listen to a kind of transference, which triggered his own experiences, thoughts and categories and this led him to reflect about himself, his own experiences of gender and his own particular historical, class and social context. It was thus as a participating observer that Bateson became aware of the resonance and this resonance became the anchoring points in connecting, attuning and even guessing[9] about the Iatmul material. This notion of “participation” went further than what in post modern anthropology, systemic psychotherapy and social work is generally understood by reflexivity. To my mind it also anticipated the idea of “participant objectivation” put forward by Bourdieu many years later. Bourdieu (2003, p. 285) notes that participant objectivation includes the historical unconscious which the objectivizer inevitably engages in his work. In other words, this kind of participation implies that the researcher/therapist develops a consciousness about her place in her own society and/or professional discipline, and about the categories and cognitive classifications with which she explains the world and the phenomena at hand to herself and her colleagues.

Although Bourdieu and Bateson both came from an objectivist social science tradition, neither believed that it is possible for the ethnographer to avoid putting something of himself into the field research and the analysis. Indeed, Bourdieu's idea of participant objectivation is an attempt to provide a more disciplined framework for the researcher's involvement than is available in the general idea of reflection. As the relationship between therapists and clients is a crucial conduit and tool in psychotherapy, these issues are of as much, if not more concern to psychotherapists. Here, however, Bateson goes further than Bourdieu for while Bourdieu talks about cognition, thought and practice, Bateson knew right from the beginning of studying *naven* that these cannot, except for certain analytic purposes, be separated from emotional outlook or ethos. Bateson's recognized that the observations about the *naven* ritual and what he made of these observations were closely connected to the emotional stance of the two parties and of Iatmul men and women. In fact, he considered that it was the emotional aspects in *naven* which gave him a clue to what was going on:

I had previously seen transvestite women, proud of their male ornaments . . . but I had not before seen the transvestite *wau*. I had never realized that he was a figure of fun. My whole

mental picture of *naven* had been wrong, and wrong because, though I had been told what was done, I had no idea of the emotional aspects of the behaviour (Bateson, 1958, p. 259).

It was thus the emotions and the feeling which Bateson himself experienced, which pointed him towards the difference between men and women and towards what he also described in the 1936 epilogue as the “logic” of a culture (p. 265). At first he referred to this logic as “ethos” but later he reserved this term for affective aspects of behaviour and interaction as distinct from cognitive aspects (*eidos*), all the while recognizing that the two aspects are difficult to separate. Subsequent family therapists did not follow this insight and the discipline moved away from paying attention to emotions and feelings (Haley, 1978) and placed more emphasis on behavioural and cognitive aspects of interaction. In fact, Bateson complained bitterly about Watzlawick in a letter (Harries-Jones, 1995, p. 28) because with emotions left out, out went culture too.

Emotions have been pretty much absent from systemic psychotherapy until a recent interest in the therapeutic relationship and in psychoanalysis (Flaskas, 1996; Pocock, 2006). Indeed, this development may provide the background for a rehabilitation of the systemic approach and for cross-cultural psychotherapy. In this respect the work of Bion may be seen as complementary to and compatible with the gist of the suggestions made by Bateson. Emotions are, of course, at the center of the theoretical paradigm in psychoanalysis. These are considered rudimentary feelings, motivations and experiences which provide the driving force of the infant’s emotional and cognitive development. Bion’s (1962) main concern was how thought is applied to emotional experience at an unconscious level and how this cannot be conceived of in isolation from a relationship, either between infant and carer or therapist and patient. It is how the carer responds to the infant’s anxiety which gives rise to the emotional tone of that relationship. He identified love (L) and hate (H) as well as their negatives as the rudimentary emotions of the paradigm and these become transformed into elementary and abstract modes of thought through the stages of the grid (Bion, 1962). The analyst is able to access these in the therapeutic sessions, much like a key signature in the beginning of a piece of music (Symington and Symington, 1996). Bion suggested that the therapist should approach this “without memory and desire” not by inference but through intuition, by becoming one with the intuition resulting from the experiencing of different emotions. May we see this intuition as similar to Bateson’s idea that ethos will convey something of the logic or meaning of a culture or a pattern of interaction?

Summary

It has often been commented that Bateson’s work was ahead of its time[10]. This is certainly the case insofar as he was preoccupied with issues which still are very much at the center of methodological debates in anthropology and systemic psychotherapy. He did not of course provide solutions, but he did suggest possible paths towards them. Thus, while Bateson’s work points towards the much more contemporary work of Bourdieu on the one hand, it also points towards the seminal work of Bion on the other. This is the cross-road for cross-cultural psychotherapy of any persuasion, because cross-cultural psychotherapy highlights the challenge of how to reconcile individual motivation and feeling with general cultural and social outlooks without reducing one to the other. Bateson had more to say about cultural and social systems than about individual motivation and agency, but he was, like any other ethnographer, exposed to the intersubjectivity of the relationships between himself and his interlocutors and

importantly he was also led to place theoretical significance on the role of emotions in social life. Psychotherapists have recognized the significance of this not just for ritual but for all social relationships, and for Bion emotions and how they are processed is a fundamental aspect of human ontology. This then is an area in which cross-culturally practicing psychotherapists may have some confidence. Emotions and the way they are expressed and articulated is not of course, the same in all societies and cultures, but there is nevertheless similarity enough to evoke a kind of resonance for the therapist, like a key signature, which then can be explored. It is here that the “fallacy of misplaced concreteness” may be of help, because in the exploration which follows, such a resonance and realisation must be within the context of the overall emotional outlook of a relationship or a culture. Without this the therapist or ethnographer may not have access to either the dynamic of a relationship or the meaning of this dynamic. While therapists, whatever the backgrounds of their clients, may never assume that they know or recognize emotions and what lies behind them, cross-cultural work in particular highlights the need for discipline and reflection in these areas.

Notes

1. Family therapy and systemic psychotherapy can be used as synonyms in the UK. The latter is the contemporary label.
2. Bateson explained this in many different ways. One example was the felling of a tree: “consider a man felling a tree with an axe. Each stroke of the axe is modified or corrected, according to the shape of the cut face of the tree left by the previous stroke. This self-corrective (i.e. mental) process is brought about by a total system, tree-eyes-brain-muscles-axe-stroke-tree; and it is this total system that has the characteristics of immanent mind” (Bateson, 1972, p. 317).
3. Naven is the name of Bateson’s ethnography and refers to a book. This book examines the ritual naven.
4. This tension lies at the heart of ethnography as a research method and is captured in the label of “critical realism”. Critical realism provides a philosophical basis for ethnography as a method which seeks explanatory abstractions while still being rooted in what goes on in daily life. For a good description of this methodology see Davies (1999).
5. Radcliffe- Brown was not particularly interested in “culture” in this sense.
6. There were two epilogues. In the first Bateson was preoccupied with the categories used to explain a phenomenon, in the second with the help of cybernetics he realized that explanations of behaviour or a pattern of behaviour cannot be arrived at without considering a time factor or change.
7. This was in itself a novel experiment. Until then anthropologists had presented their material in a compartmentalized form, i.e. kinship, politics, religion etc reflecting the structural functionalist theory. See Harries-Jones (1995) for a detailed discussion of Bateson’s life and work.
8. Marcus argued that Bateson only made half a turn towards what we now may call a hermeneutic position. But Marcus (1985) did not recognize Bateson’s doubt about his own epistemology.
9. I have examined the way Bateson (1972, p. 128) used “guessing” in his paper entitled “Style, Grace and Information in Primitive Art” elsewhere (Krause, 2002).
10. Toulmin (1981) has described Bateson as a scout.

References

- Anderson, H. (1999), "Reimagining family therapy: reflections on minuchin's invisible family", *Journal of Marital and Family Therapy*, Vol. 25 No. 1, pp. 1-8.
- Andersen, H. and Goolishian, H.A. (1992), "The client is the expert: a not-knowing approach to therapy", in McNamee, S. and Gergen, K. (Eds), *Therapy as Social Construction*, Sage, London, pp. 25-39.
- Anderson, H., Goolishian, H.A. and Winderman, L. (1986), "Problem determined systems: toward transformation in family therapy", *Journal of Strategic and Systemic Therapies*, Vol. 5 No. 4, pp. 1-13.
- Bateson, G. (1958), *Naven*, Wildwood House, London.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Jason Aronson Inc., London.
- Benedict, R. (1934), *Patterns of Culture*, Houghton Mifflin Company, Boston, MA.
- Bion, W. (1962), *Learning from Experience*, Karnac Books, London.
- Bourdieu, P. (2003), "Participant objectivation", *Journal of the Royal Anthropological Institute (Incorporating Man)*, Vol. 9, pp. 281-94.
- Carrithers, M. (1992), *Why Humans have Cultures: Explaining Anthropology and Human Diversity*, Oxford University Press, Oxford.
- Daniel, G. (2005), "Celebrating complexity: Gregory Bateson's legacy", *Context*, Vol. 80, pp. 22-4.
- Davies, C.A. (1999), *Reflexive Ethnography. A Guide to Researching Selves and Others*, Routledge, London.
- Eriksen, T.H. (2004), *What is Anthropology*, Pluto Press, London.
- Flaskas, C. (1996), "Understanding the therapeutic relationship: using psychoanalytic ideas in the systemic context", in Flaskas, C. and Perlesz, A. (Eds), *The Therapeutic Relationship in Systemic Therapy*, Karnac Books, London.
- Geertz, C. (1973), *The Interpretation of Cultures*, Fotana Press, London.
- Gupta, A. and Fergusson, J. (1997), "Discipline and practice: 'the field' as site, method and location in anthropology", in Gupta, A. and Fergusson, J. (Eds), *Anthropological Locations: Boundaries and Ground of a Field Science*, University of California Press, Berkeley, CA.
- Haley, J. (1978), "Ideas which handicap therapists", in Berger, M.M. (Ed.), *Beyond the Double Bind*, Bruner/Mazel, New York, NY.
- Harries-Jones, P. (1995), *A Recursive Vision. Ecological Understanding and Gregory Bateson*, University of Toronto Press, Toronto.
- Holland, D. (1992), "How cultural systems become desire: a case study of American romance", in D'Andrade, R. and Strauss, C. (Eds), *Human Motives and Cultural Models*, Cambridge University Press, New York, NY.
- Ingold, T. (2000), *The Perception of the Environment. Essays in Livelihood, Dwelling and Skill*, Routledge, London.
- Jones, E. (1993), *Family Systems Theory: Developments in the Milan Systemic Therapies*, Wiley, Chichester.
- Krause, I-B. (1998), *Therapy Across Culture*, Sage, London.
- Krause, I-B. (2002), *Culture & System in Family Therapy*, Karnac Books, London.
- Marcus, G.E. (1985), "A timely reading of Naven: Gregory Bateson as oracular essayist", *Representations*, Vol. 12, pp. 66-82.
- Mead, M. (1943), *Coming of Age in Samoa*, Penguin, Harmondsworth.

-
- Milton, K. (2002), *Loving Nature: Towards and Ecology of Emotion*, Routledge, London.
- Nuckolls, C.W. (1996), *The Cultural Dialectics of Knowledge and Desire*, University of Wisconsin Press, Madison, WI.
- Pocock, D. (2006), "Six things worth understanding about psychoanalytic psychotherapy", *Journal of Family Therapy*, Vol. 28 No. 4, pp. 352-69.
- Radcliffe-Brown, A.R. (1940), *Structure and Function in Primitive Societies*, Cohen & West, London.
- Silverman, E.K. (2001), *Masculinity, Motherhood and Mockery: Psychoanalysing Culture and the Iatmul Rite in New Guinea*, University of Michigan Press, Ann Arbor, MI.
- Stocking, G.W. (1991), *Colonial Situations: Essays on the Contextualisation of Ethnographic Knowledge*, University of Wisconsin Press, Madison, WI.
- Symington, J. and Symington, N. (1996), *The Clinical Thinking of Wilfred Bion*, Brunner-Routledge, London.
- Toulmin, S. (1981), "The charm of the scout", in Wilder, C. and Weakland, J.J. (Eds), *Rigour and Imagination: Essay from the Legacy of Gregory Bateson*, Praeger Scientific, New York, NY.
- Tylor, E.B. (1958), *Primitive Culture. Abridged Edition*, Harper, New York, NY.
- Whitehead, A.N. (1967), *Science and the Modern World*, Free Press, New York, NY.

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Caught in the middle of a double-bind: the application of non-ordinary logic to therapy

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Abstract

Purpose – The aim of this paper is to demonstrate the importance of Bateson and colleagues' double bind theory, which has been a breakthrough in the history of psychiatry and human behavior because it freed us from the prison of ordinary logic.

Design/methodology/approach – The use of non-ordinary logic, in understanding and in solving seemingly bizarre, over-the-lines human behavior, with its three different components: logic of paradox, logic of contradiction and logic of belief.

Findings – This paper presents the work carried out by the Centro di Terapia Strategica of Arezzo, which following the MRI approach, has put together seemingly simple solution to intimidating complex problems.

Practical implications – With the help of literature and practical-clinical examples, this paper puts forward the use of non-ordinary logic in brief strategic therapy in designing simple solutions to complex human problems such as phobias, obsessive compulsive disorders, presumed psychosis and other pathologies.

Originality/value – This work helps therapists and other care-gives liberate themselves from the constraining chains of ordinary logic, in order to be able to solve human problems that seem unsolvable.

Keywords Cybernetics, Logic, Problem solving

Paper type General review

Things are actually much simpler than might appear but much more complicated than one might realize (Goethe).

Logic has guided human strategies and behavior since ancient times. It was always held to be a useful instrument for those who wanted to systematically project and construct solutions for specific problems. Yet in psychotherapy, effective and efficient therapeutic maneuvers are often mistakenly regarded as the result of some strike of genius, when in actuality, behind these seemingly simple strategies, there lies a complex logic and theory.

Gregory Bateson affirmed that there is nothing as practical as a good theory, yet on studying human behavior and the various types of therapies in existence, one comes across many complex theories, none of them very practical. Unfortunately, this is the greatest concern faced by psychology and psychotherapy (Abrahamson, 2001). It is not enough to speak about theory and practice: there is a need to bridge the two by filling in the gap. To be able to do so, we need to revert to the underlying logical-epistemological criteria, which often follow a non-ordinary logic. Yet in our culture it is often considered as some sort of heresy to speak about therapy and non-ordinary logic.



Western cultures are still very much influenced by ordinary logic, or what is traditionally known as the Aristotelian logic, which relies on the premises of “true and false” “no third value” and the logic of non-contradiction. Ordinary logic seeks internal coherence and congruency. This logic seems to work well when observing linear phenomena. But the cause-effect theory seems no longer fitting when applied to complex phenomena, as, for example, Bateson (1980) suggests, when studying the dynamic between the individual mind and the collective mind. This is because contradiction is a rule, not an exception, in human beings. All of us have at some point in our lives, stated something like “I will not do that” but then ended up doing it. It is practically impossible to be always coherent with oneself. This is actually very healthy, because coherence dictates rigidity, making it impossible to oscillate and change, and thus brings about stagnation. Often our sensations and emotions get us to do things, which are not coherent with our ideas, i.e. bring us to have a change of heart. This applies also to congruency. More often than not, we have reactions that are not congruent with our declarations, while ordinary logic often limits our going beyond common obstacles that might seem insurmountable.

Bateson *et al.*'s (1956) double bind theory was such a revolution in the study and understanding of human behavior, because it distance itself from the limitations created by common sense, rationality and thus ordinary logic. Published exactly 50 years ago, this theory remains very current, and in its very essence exemplifies applied non-ordinary logic.

Non-ordinary logic is that branch of mathematical logic that studies a common human phenomenon: self-deception. Within this phenomenon lie three different logics: the logic of contradiction, the logic of paradox and the logic of belief (Nardone and Watzlawick, 2004).

Often the double-bind phenomenon, is mistakenly considered to be equivalent to paradox or to the paradoxical complication of a problem. This is not only false but also reductive, because it reduces this phenomenon to only one of the components of non-ordinary logic (Watzlawick and Nardone, 1997). Often, when authors cite or give examples of double binds, they just confine themselves to speaking about paradox.

Paradox has a rigorous logical structure, where the same message entails two inverse-contradictory meanings (Watzlawick and Nardone, 1997). A discordant effect takes place simultaneously, not consecutively, as in contradictions. If I say something, and then soon thereafter I say something else that contradicts it, my communication is contradictory, not paradoxical. The logic of contradiction has a temporal sequence that separates the two different messages, while the logic of paradox entails both messages reaching the listener at the same time. Perhaps, the most famous example of a paradox was given to us by Epimenides (quoted by Watzlawick *et al.*, 1967), that of the man who says “I am lying”. On following this statement to its logical conclusion, we can deduce that it is true only if it is not true or better, the man is lying only if he is telling the truth and vice versa, he is truthful when he is lying. But if I had to say to somebody “You are right but I hold a different opinion” this follows the logic of contradiction. Often in therapy we make use of the logic of contradiction, rather than the logic of paradox, because we are more so inclined, and it is easier to transmit a concept by putting the patient in a double bind that holds a sequential form. Very few therapists can master paradoxical statements during the session, because to do so one must have superb theatrical and rhetorical skills. It is not enough to know and understand paradox, one needs to know how to perform it.

Another example to help us underline the difference between the logic of contradiction and the logic of paradox is that of a real life event that took place in 1920 in Austria. A young man wanted to jump in the Danube with the clear intent of drowning. People gathered around and started screaming to stop the young man, who became more and more inclined to bringing his life to an end. Out of the blue a gendarme appeared, drew out a gun, and pointed it towards the man, while exclaiming “Come out or else I will shoot you”. To everyone’s astonishment, the young man obeyed and walked away. This is an actual example of a paradox.

On the other hand, when there is a sort of resonance of meaning over time, we are dealing with the logic of contradiction. An amazing example of the use of the logic of contradiction is captured in the phrase “Redundancy is an economic expense”. Redundancy is not repetition, but rather, it is a means for abridging time in reaching one’s objective (Bateson *et al.*, 1956). Those acquainted with hypnotic language recognize this to be true. A more practical example can be extracted from therapy. Following an investigative-therapeutic dialogue with a phobic patient, a strategic therapist reframes in order to redefine the situation (Nardone and Salvini, 2004) by saying:

So as we have come to discover, it seems that when faced with a threatening situation, you usually tend to avoid it. Moreover, it seems that at that very moment, avoiding makes you feel safe, makes you feel good . . . but afterwards you always feel more incapable. Thus, and please correct me if I’m wrong, it seems that every time you avoid something you fear, you end up confirming to yourself that you are incapable of facing it, thus your fear gets bigger and bigger, and your situation seems to always get worse . . . Thus, I would like you to start thinking that every time you avoid, you help maintain and worsen your situation.

This follows the logic of contradiction, because the therapist first affirms something, which he/she then proceeds to contradict, thus bringing the patient to assume the logic of contradiction, so as to create aversion towards his/her usual attempted solution, i.e. avoidance (Nardone and Portelli, 2005b). In other words, the patient is invited and induced to “avoid avoiding”.

Another component of non-ordinary logic is the logic of belief. According to the model of the logic of mathematics, this is a highly subtle communicative maneuver that brings a person to believe in the irrational by using rationality (Watzlawick and Nardone, 1997). If we had to put aside all moral judgments, we could say that all religious assumptions follow this logic. The words of Saint Augustine, who is considered to be one of the greatest persuaders in history, constitute an example. In the name of the Catholic Church, he had come to persuade people to contemplate the irrational by using the rational. If one follows the astringent logic of Marxist theories, for example, one cannot believe in a supernatural being, who controls everything around us. Yet the magic of the logic of belief can bring a person to believe in the irrational by means of a rational course. Perhaps, the most interesting expression of the logic of belief is given by “Pascal’s Wager”. Pascal suggests a rational question with an illusion of alternative to all those losing their faith. “Is it more convenient to believe or not to believe in God?” He then added:

It seems more convenient to believe in God than not to believe, because if one has believed in God throughout one’s life, and then on dying one comes to discover that there is nothing, one wouldn’t have missed out on anything. But if when one dies, one discovers that there is eternal life and one had chosen not to believe in God, one will lose everything.

This is an extraordinary example of how a rational argumentation can bring a person to believe in the irrational.

Most pathologies and their respective rigid perceptive-reactive systems are constructed following the logic of belief, i.e. the irrational perception is confirmed by the rational actions carried out by the patient (Watzlawick and Nardone, 1997). For example, an obsessive compulsive patient might start off by carrying out a propitiatory magical ritual to prevent bad things from happening (Nardone and Portelli, 2005b). When nothing bad happens to him, it confirms for him that that rite did him well, and thus the irrational belief is constructed, which is then further confirmed by the need to carry out the propitiatory ritual every time he has to do something.

Another particular example often quoted by Paul Watzlawick, relates of a psychiatric patient who continuously carried out a clapping ritual. A psychiatrist goes up to him and asks him "Why are you clapping?" and the patient answered "To keep the elephants away" and the psychiatrist, in a rational way, exclaims "But you see, there are no elephants around!" and the patient, with a satisfactory smile, replied "Of course, my clapping works".

The above are practical examples of how non-ordinary logic holds an incredible power in the construction of pathologies (Nardone and Portelli, 2005a), but also in reframing them (Nardone and Portelli, 2005b). In its clinical research experience of 20 years, the Centro di Terapia Strategica of Arezzo has put together rigorous, and yet flexible protocols for the treatment of specific pathologies. These protocols are made up of a sequence of therapeutic strategies following non-ordinary logic. These strategies are able to break down in a very efficient and effective way the vicious circles or the rigid perceptive-reactive systems holding the patient's pathology. Moreover, these protocols are replicable, transmissible, and predictable (Nardone and Portelli, 2005b).

In these years, we managed to put together specific protocols for anxiety-phobic disorders, depression, eating disorders and others, which were successfully applied to more than 1,000 cases, employed by numerous therapists at various level of expertise, who collaborated in our clinical-research work. Another aim was to render these protocols rigorous and systematic, to be able to train even inexpert therapists. Another fundamental factor was predictability. Protocols need to be able to predict all the possible effects of each single maneuver. Each maneuver should be reduced to having two, a maximum of three contemplated effects. In this way, one can make use of therapeutic maneuvers that follow a therapeutic sequence, or what we call a strategy. This strategy comprises a series of tactics, tailored to the specific problem or problematic situation, that the therapist follows rigorously but adaptively from the beginning until the end of the therapy. These can be corrected throughout the therapy, and even in the course of the sessions, not just at the end. Thus, the brief strategic therapist comes to have a series of specific models for specific problems, where, if they result in being inefficient, he or she can proceed to correct. Self-correction takes place also during the first session, during the strategic dialogue, where the therapist does not limit his intervention to a mere diagnosis or definition of the type of pathology present, but starts introducing change from the very beginning (Nardone and Salvini, 2004; Nardone and Portelli, 2005b). Thus, brief strategic therapy involves a self-corrective process. Once more, this is another fundamental principle introduced by Gregory Bateson.

The process of therapy closes with “checkmating” the problem presented at its outset, and with the patient’s learning the “procedures” involved in autonomously playing and winning this specific game. “For the rest” says Bateson (1972, pp. 19-20) “to live is to play a game whose purpose is to discover the rules, which are always changing and always undiscoverable”.

In conclusion, the introduction of maneuvers following a non-ordinary logic, made brief therapy always less directive, dethroning the therapist from the exasperating one-up position, which often hindered change (Nardone and Salvini, 2004). The use of non-ordinary logic has come to get the patient to substitute, by his own accord, the old dysfunctional self-deceptions with more functional ones. Brief strategic therapy has come to make use of subtle stratagems and persuasive-evocative language to bring about change, yet making it appear to be the patient’s personal discovery, not an idea imposed upon him or her by the therapist (Nardone and Salvini, 2004). Once again the words of Pascal (1995) come to play: “*People are generally better persuaded by the reasons which they have themselves discovered than by those which come into mind of others*”.

References

- Abrahamson, D.J. (2001), “Treatment efficacy and clinical utility: a guidelines model applied to psychotherapy research”, *Clinical Psychology: Science and Practice*, Vol. 8 No. 2.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY.
- Bateson, G. (1980), *Mind and Nature*, Bantam Books, New York, NY.
- Bateson, G., Jackson, D.D., Haley, J. and Weakland, J. (1956), “Toward a theory of schizophrenia”, *Behavioral Science*, Vol. I, pp. 251-84.
- Nardone, G. and Portelli, C. (2005a), “When the diagnosis invents the illness”, *Kybernetes: The International Journal of Systems & Cybernetics*, Vol. 34 Nos 3/4, pp. 365-72, Emerald Group Publishing Limited, Bradford.
- Nardone, G. and Portelli, C. (2005b), *Knowing through Changing: The Evolution of Brief Strategic Therapy*, Crown Publishing House, Carmarthen.
- Nardone, G. and Salvini, A. (2004), *Dialogo Strategico: Comunicare persuadendo: tecniche evolute per il cambiamento*, Ponte alle Grazie, Milan.
- Nardone, G. and Watzlawick, P. (Eds) (2004), *Brief Strategic Therapy: Philosophy, Technique and Research*, Rowman & Littlefield Publishers – Aronson Group, Lanham, MD.
- Pascal, B. (1995), *Penées*, Penguin Classics, New York, NY, A.J. Krailshheimer (translator), Italian version (1962), *Pensieri*, Einaudi, Turin.
- Watzlawick, P. and Nardone, G. (1997), *(a cura di) Terapia breve strategica*, Raffaello Cortina Editore, Milan.
- Watzlawick, P., Beavin, J.H. and Jackson, D.D. (1967), *Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies and Paradoxes*, W.W. Norton, New York, NY.

Further reading

- Bateson, G. (1967), “Cybernetic explanation”, *American Behavioral Scientist*, Vol. 10, pp. 29-32.
- Nardone, G. (1996), *Brief Strategic Solution-oriented Therapy of Phobic and Obsessive Disorders*, Jason Aronson, Inc., Northvale, NJ.
- Nardone, G. (1998), *Psicosoluzioni*, Rizzoli, Milan.

- Nardone, G. (2000), *Oltre il limiti della paura*, Rizzoli, Milan.
- Nardone, G. (2003), *Cavalcare la propria tigre: Gli stratagemmi nelle arti marziali ovvero come risolvere problemi difficili attraverso soluzioni tempe*, Ponte alle Grazie, Milan.
- Nardone, G. and Salvini, A. (1997), "Logica matematica e logiche non ordinarie come guida per il problem-solving strategico", in Watzlawick, P. and Nardone, G. (Eds), *Terapia breve strategica*, Raffaello Cortina Editore, Milan, pp. 53-61.
- Nardone, G. and Watzlawick, P. (1990), *L'Arte del Cambiamento: manuale di terapia strategica e ipnoterapia senza trance*, Ponte alle Grazie, Milan.
- Nardone, G. and Watzlawick, P. (1993), *The Art of Change: Strategic Therapy and Hypnotherapy Without Trance*, Jossey-Bass Inc., San Francisco, CA.
- Nardone, G. et al. (2000), *La terapia dell'azienda malata: problem solving strategico per organizzazioni*, Ponte alle Grazie, Milan.
- Watzlawick, P., Weakland, J.H. and Fisch, R. (1974), *Change: Principles of Problem Formation and Problem Solution*, W.W. Norton, New York, NY.

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Practising psychotherapy employing Gregory Bateson's epistemological models

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Abstract

Purpose – The task is to report what with more details was exposed in one of the author's recently published works, and consist in trying to develop a new approach to psychotherapy.

Design/methodology/approach – The method of this research is to employ Gregory Bateson's epistemological models to acquire new ideas to think and practise psychotherapy.

Findings – In the course of the work it was found that, in a Batesonian perspective, psychotherapy can be considered, at the same time, ethical and aesthetic: ethical because one type of the therapist's action is founded on a conscious purpose; aesthetic because another type of the therapist's action is "spontaneous".

Research limitations/implications – The practical implication of these reflections consist in the use of the Batesonian method of double description in psychotherapy.

Originality/value – The original value of the paper is that the ethical nature of Batesonian psychotherapy imposes two different types of responsibility on the therapist: the first concerns the actions he takes based on the extrovert purpose and the second concerns his actions with regard to the introvert purpose, which creates the conditions for the flow of "spontaneous" action.

Keywords Psychology, Cybernetics

Paper type Conceptual paper

As a psychotherapist and as a longstanding, profound admirer of Gregory Bateson, I have always wanted to have a psychotherapeutic model to refer to which can, without the shadow of a doubt, be defined as "Batesonian". Unfortunately, Bateson never produced such a model, or, to be more precise, he never intentionally formalised such a model. Notwithstanding this fact, in the world of psychotherapy those who adhere to the systemic-relational approach – both in theory and in practice – universally recognise Bateson as one of the founding fathers of this approach. Nevertheless, the enormous potential of the theoretical contribution made by Bateson has remained in large part unexploited. This contribution has either been considered as constituting only a vague reference point – because it is too "abstract" and not specific but generic – or it has been rendered banal by those practitioners who declared they were employing the Batesonian method but in actual fact were only employing a small number of Bateson's ideas, and, moreover, failed to link them to the framework of Bateson's thought. This is a situation which I have always judged to be an enormous waste, an excellent opportunity thrown away. This is the stimulus which prompted my decision a few years ago to devote my work to the difficult enterprise of elaborating a Batesonian model of psychotherapy. I have been supported in this project by the hope of contributing to the task of making Gregory Bateson's thought available to psychotherapy without sacrificing its complexity and its elegance. Naturally, I have not tried to "apply" Bateson's ideas to psychotherapy, despite the fact that Bateson did



in fact practise psychotherapy occasionally and of course, had his own ideas on the matter. The task consisted in trying to acquire new ideas from the study of Bateson's work in order to help develop a new approach. A full report of the results of this attempt at accomplishing this operation and of thereby laying the foundations for the development of a Batesonian model of psychotherapy may be found in one of my recently published works (Madonna, 2003) which is founded on Bateson's thought and which, in one sense, proposes a development of that thought.

The most significant fact about this systemic-relational approach to psychotherapy realised "through" Gregory Bateson's thought is that it is indeed fully and profoundly systemic-relational in nature. In a Batesonian perspective, psychotherapy may be considered as being concurrently ethical and aesthetic: it is ethical because one type of the therapist's action is founded on a conscious purpose; it is aesthetic because another type of the therapist's action is "spontaneous". The term "spontaneous" as used here does not refer to an "instinctive" action, one which is "a priori" with respect to any learning, treatment, exercise or discipline, as is, instead, an action such as breathing. It refers, rather, to an "educated" or "trained" action, one which is subsequent to learning, treatment, exercise and discipline, all of which may be lengthy processes. In other words, it refers to an action which derives from the therapist's work which is based on a conscious purpose which is of its very nature "introverted" namely action not aimed at bringing about a change in the external world but on the desire to bring about change in oneself.

The former type of action is subjected to the primacy of the consciousness which checks if and to what degree the goal has been achieved, or if the realisation of the goal is near and how far away one is from its realisation. As stated previously, the action involved is a goal-oriented one. As Bateson (1979, p. 207) has taught us, when human beings divide the universe of mental processes up into parts, then this latter type of action emerges: "'Purpose' appears as the universe is dissected". This enables attention to be focussed on the initial stages of a piece of the process, and, by adopting a linear standpoint aided by the internal structure of the linguistic sequences, consider these initial stages as constituting the origin, the cause of a given event which follows. Bateson (1972, p. 445) defines the separate parts of the universe of mental processes as "arcs of circuits". Imagine a circle, whose start and end points are unknown, by definition. Imagine that you divide it into sections, that you isolate an arc from the complete circuit, a relatively small part. That is what consciousness does: it isolates the parts of a whole in which – potentially – any part might be beginning and end. Consciousness intervenes on an arc of circuit to organise action and direct it to a goal; it might not, however, concurrently perform the act of subdividing, that is, with regard to our presuppositions. Consequently, we may consciously have excellent or poor goals without having the slightest inkling as to how we decided on those goals. The fact that the operation carried out by consciousness in considering the beginning of an arc of a circuit as the cause of the event following it is possible naturally also implies that our actions may be the "cause" of a subsequent event: suffice it to consider the "arc of a circuit" which has such an action as its beginning; it also implies that an action may therefore be adopted to achieve a certain goal, which is appropriately situated at the end of the arc of the circuit in question. Since, goal-oriented action is related to an arc of the circuit, to a separate piece of the world of mental processing, it too must necessarily be discontinuous, that is, discrete. An action of this type is geared to achieving a result

which does not yet exist in the present state of affairs. It is therefore orientated to the future. It can be narrated (described) because it may be made the object of a description by the agent himself or by an external observer, who therefore make of it the territory of one of their maps[1]. Goal-oriented action can, moreover, be narrated (described) employing the canons of ethics, which, on the basis of classificatory thought, include them in (or exclude them from) the categories of good and evil, right and wrong, correct and incorrect, useful and useless; and this may take place both with respect to the past (for example, by means of an evaluation), and with respect to the future (for instance, by means of a plan).

An action of the second type is not subjected to the primacy of consciousness. It can receive information concerning the state of its workings. Consciousness, however, does not preside over the processing of thought concerning action and the concrete realisation of such action. Quite the contrary. The intervention of consciousness at this stage would constitute an insurmountable obstacle to the very existence of action. This type of action abhors hesitation, for hesitancy would break it up, violating its very nature, for such action is continuous. It exists only while it is being carried out, second by second, and it disappears the instant that one tries to place it in the past or in the future. It is therefore oriented exclusively to the present. It narrates itself. We might state that like a living organism, it is "self-descriptive". Any attempt to narrate (describe) this type of action or to thereby render it the territory of a map in order to make of it, for example, an object to be evaluated or planned, instantly locates it outside the present, (that is, it places such action in the past or in the future), turning it into something else. It cannot be narrated according to the canons of ethics, for since the latter privileges an account of what is right, this would include it in (or exclude it from) positive and negative categories. This type of action is not one that is done but one that is. It can be perceived by those involved, at the moment of their involvement; that is, the relationship with others and with the environment makes the action emerge. It may therefore be perceived according to aesthetic modalities, in the sense that such modalities are founded on sensibility: "By *aesthetic*, I mean responsive to the *pattern which connects*" (Bateson, 1979, p. 8).

The training of a psychotherapist should attribute great importance to both types of actions and to the knowledge associated with each type: knowledge achieved through consciousness and knowledge achieved through sensibility. This latter form of knowledge is usually given scant attention and often even considered a hindrance. Notwithstanding this fact, human beings have constant recourse to the "art" of knowing the world and acting in it on the basis of their own sensibility, that is to their internal ecology of ideas. As Bateson (1991, p. 256) himself states:

If it be true that certain people are specially gifted in the art of acting upon complex systems with homeostatic or ecological characteristics, and that these people do not operate by spelling out the interaction of all relevant variables, then these people must use some inner ecology of ideas as an analogic model. (By "ideas" I mean thoughts, premises, affects, perceptions of self, etc.) But if this skill is, in some sense, really an "art" then it is possible that the inner "ecology of ideas" is a close synonym of what might also be called *aesthetic sensibility*.

From the standpoint of complexity, adopting a Batesonian method in psychotherapy enables the therapist to exploit the different types of thought/action to the full. The method proposed by Bateson (1979, p. 86) of a double description or of a double or

multiple confrontation is a very general method which consists in combining “information of different sorts or from different sources [so as to obtain] something more than addition”. Adopting the method of a double description in psychotherapy, and in particular in psychotherapeutic diagnosis means one is combining the two modes of knowledge and thereby achieving a deeper understanding of the clinical situation one is involved in. In the clinical domain, the method of a double description is important not only with regard to making a diagnosis but also with regard to therapeutic treatment. The habit of identifying and proposing double or multiple description in relation to segmentation and to the reading of the sequence of events is, in actual fact, another and important aspect of the deployment of this method.

With regard to the two types of action – and the two modes of knowing – considered in this paper, the ethical nature of Batesonian psychotherapy imposes two different types of responsibility on the therapist: the first concerns the actions he takes based on the extrovert purpose and the second concerns his actions with regard to the introvert purpose, which creates the conditions for the flow of “spontaneous” action. Thus, with regard to the action based on the extrovert purpose, the psychotherapist has the responsibility to hesitate, while with regard to “spontaneous” action based on the introvert purpose, he has the responsibility to work in such a way as to become capable of not hesitating. In the first type of action hesitation is necessary in order to eliminate or reduce the risks of damaging the “object” the action is directed at, whereas in the second type of action not hesitating is necessary to avoid damaging the action itself, or rather, to avoid endangering the very existence of the action itself since hesitation would render that action impossible.

Note

1. The distinction between map and territory is dear to Gregory Bateson and refers to the logical difference between the description and the object described. This distinction goes back to Korzybski (1941).

References

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY, first issue.
Bateson, G. (1979), *Mind and Nature. A Necessary Unity*, E.P. Dutton, New York, NY, first issue.
Bateson, G. (1991) in Donaldson, R.E. (Ed.), *A Sacred Unity. Further Steps to an Ecology of Mind*, HarperCollins, New York, NY, first issue.
Korzybski, A. (1941), *Science and Sanity*, Science P., New York, NY.
Madonna, G. (2003), *La psicoterapia attraverso Bateson*, Bollati Boringhieri, Torino.

Further reading

- Bateson, G. and Bateson, M.C. (1988), *Angels Fear. Towards an Epistemology of the Sacred*, Bantam, New York, NY, first issue.

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Towards aesthetic seduction using emotional engagement and stories

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Abstract

Purpose – This paper aims to provide principles and to give a case study of the application of Bateson's ideas to promote epistemological change in organisations to deal with problems which many governments in English speaking countries currently attempt to address by control through detailed performance indicators and top-down monitoring. It suggests that epistemological change requires an approach that goes beyond rational argument and provides an example of the way that emotional engagement and story telling can be built into action research based on cybernetic ideas.

Design/methodology/approach – Bateson stresses the need for an epistemological change to embrace an understanding of the implications of circular causation to underpin our approach to problems and policy making. The case study shows how research using systemic principles can address epistemological change at all its stages including data collection and dissemination. In this way the research aims to become a conversation in which participants can reflect on the epistemological assumptions that underpin their actions.

Findings – Following Maturana and Bateson it is found that a reflexive conversation that engages participants through emotion and story telling as well as demonstrating reflection on the researcher's own assumptions can powerfully engage participants in changing how they see problems and what they do.

Originality/value – Whilst rational argument can be used to develop and expand a rational domain such as cybernetics, the paper suggests that the introduction of a systemic or cybernetic understanding to newcomers instead requires aesthetic seduction that can be achieved by promoting reflection on epistemological assumptions through story telling and emotional engagement.

Keywords Cybernetics, Storytelling, Change management

Paper type Research paper

Introduction

In UK there is currently a wide recognition that the perceived poor performance of social work and health care in certain areas occurs because of systems problems. Developments in social policy are intended to address these “whole system” problems which are seen to arise because of poor communication and coordination between different public services: social work, education, health (hospitals, general practitioners, health visitors), housing departments and so on. However, despite this recognition of the systemic nature of these problems attempted solutions are, at best, based on mechanistic understandings of systems (Chapman, 2004). The lack of success of one initiative after another has involved “more of the same” (Watzlawick *et al.*, 1974) responses with attempted solutions escalating until the focus is now on major



reorganisations, attempts to control from the top down by setting targets and performance indicators, increasing external control structures and other attempts to “drive through” change. The UK’s Government is not alone in attempting to control various aspects of social policy through increasingly setting targets and defining performance indicators. This is particularly common in English speaking countries. Like Bateson (1979, p. 273), this paper suggests that approaching the complex behaviour of human systems without properly understanding the theoretical basis for our actions, what might be called cybernetic wisdom, leads to frustration and in some cases harm. This paper will consider principles for working with systems based on Bateson’s writing and gives an example of their use in a UK agency wishing to deal with “whole system problems” in the care of older people. This example will show a way to move beyond rational arguments where we are attempting to engage in changes of epistemology and this should include the promotion of wider understanding of systemic ideas and theories.

Applying Bateson’s theories: not pragmatics, not aesthetics

As stated in the introduction, Bateson was concerned that the work that he had carried out in trying better to understand the nature of communication would lead to a “rush to the wards” without an attempt to understand the ideas behind the theory. A rift between him and other members of his Palo Alto research team soon developed over this issue (Keeney, 1983). It was characterised as a polarity between pragmatics and aesthetics. This issue remained important to Bateson long after the dissolution of his research team. He was concerned that all advances of science are grasped for pragmatic reasons and, in *Angels Fear* (Bateson and Bateson, 1988), the book published with his daughter Catherine Bateson some eight years after his death, he states:

Behind every scientific advance there is always a matrix, a mother lode of unknowns out of which the new partial answers have been chiselled. But the hungry, over-populated, sick, ambitious, and competitive world will not wait, we are told, till more is known, but must rush in where angels fear to tread (Bateson and Bateson, 1988, p. 14).

The position that Bateson took on this issue has been a source of very real difficulty for those interested in his ideas. Keeney (1983) responds to Bateson’s concerns by suggesting that both aesthetics and pragmatics (which he equates to techniques; Keeney, 1983, p. 8) are crucial to systemic practice. In this way he comes close to satisfying Bateson’s objection, which is that in grasping pragmatically for technique or method the more important understanding of the epistemology which proposes these understandings would not be grasped.

As Bateson (1973, p. 462) states “[t]he most important task today is, perhaps, to learn to think in the new [cybernetic] way.” Bateson was, however, aware of the difficulty of faced in attempts to change epistemology. In this paper it will be suggested that, following Maturana (Maturana and Poerksen, 2004) such changes require aesthetic seduction rather than rational argument and the case study will provide an example of the application of such a process.

Principles for a systemic approach

This paper will now propose principles to provide a systemic understanding and response to difficulties in organisations. It will then give a brief case example of their

use in a social work organisation to deal with a “whole system” problem of the type discussed above.

Circularity

A fundamental issue for Bateson’s epistemology is the idea that the world of nature does not operate on simple linear causation but on circular or more complex chains of causation. By this he means that simple formulations of the form “A causes B” do not accurately describe what happens in the natural world. In circular models of causation A has an effect on B; B has an effect on C; and so on around the circuit until eventually Z has an effect on A. In such a system there is no simple cause and effect. It is possible to punctuate[1] this sequence to suggest that A has caused B, or, if a different starting point is chosen, it can be said that B caused the chain of events that caused A. Because of this, systems which have this circularity are termed mutual-causal.

A key issue raised by the concept of circularity is the need for a reconceptualisation of power and control (for a fuller discussion see Bilson, 2004). In particular this suggests that target setting and performance indicators promoted by governments in many countries to control social work and health organisation will not achieve their desired ends. Whilst organisations will adapt to control through rigidly set targets this is unlikely to improve quality of services or promote adaptability of the organisations to the changing environments in which they operate. As Bateson (1973, p. 462) suggests this type of linear approach to control is “epistemological lunacy and leads inevitably to various sorts of disasters.” Bateson particularly warns against fixing any one particular variable in a dynamic system “because fixing the value of any variable will in the end disrupt the homeostatic process” (Bateson and Bateson, 1988, p. 119). Thus, the very method being employed to control organisations by governments, key performance indicators, is based on a linear epistemology and will restrict the ability of the organisation to adapt and respond to its local context.

Respect for ecology

This principle suggests that, with regard to organisations, there is a delicate balance between organisations and their environment developed through interactions over time. An approach that respects this ecology will aim to promote organisational adaptability. Central to this is the need to enable organisations to learn to increase their flexibility and range of responses. Respect for the ecology also requires an ability to see problems from a range of different perspectives and in social work this includes that of service users as well as other organisations and government. However, given the interconnectedness of ecologies, change in one part of an ecological system will affect other parts. Thus, responses to problems in an ecology of organisations will need to consider how even small changes within an organisation can affect the ecology in which it operates.

Information and pattern

Bateson (1979, p. 98) defines information as news of difference that makes a difference. This stresses the idea that information is relational and not absolute and also that what makes a difference is “news”. Bateson equates news of difference to meaning (Bateson, 1979, p. 110). A key idea in identifying differences is through pattern creation. The observer creates a distinction which brings forth a particular pattern which may be one

of many immanent in the observed phenomena. Pattern is qualitative not quantitative and is about relationships.

Bateson suggests that the creation of pattern is linked to context or relevance. He suggests that minds do this through stories. He thus says:

What is a story that it may connect the As and Bs, its parts? And is it true that the general fact that parts are connected in this way is at the very root of what it is to be alive? I offer you the notion of *context*, of *pattern through time* (Bateson, 1979, p. 15 original emphasis).

This principle suggests that systemic practitioners, governments, managers and organisational staff need to find ways of constructing patterns in the descriptions of the practices of organisations and particularly to identify those that have negative consequences for the ecology in which they operate. The principle also suggests the need to provide feedback which encourages new responses to these patterns and that this requires a focus on quality not quantity. Cyberneticists, governments, managers and organisational staff need to become adept at telling stories.

Epistemology

The term epistemology is used by Bateson (1979) to refer to the set of beliefs and basic premises which underlie action and cognition. Thus, Bateson (1979, p. 250) suggests that epistemology attempts to specify “how particular organisms know, think and decide”. This use of the term is broader than the traditional philosophical reference to the set of analytical and critical techniques that define boundaries for processing knowledge.

The research into teams in social work (Pithouse, 1987; Hall, 1997; White, 1998), medicine (Bloor, 1976) and nursing (Latimer, 2000) show how epistemologies or cultures in local teams support the creation of the tacit practices of occupations, organizations and teams. These local epistemologies are mostly based on assumptions that are unexamined and taken for granted. They create the work environment and shape what is possible to do or to see. Bateson (1977, p. 23) suggests two types of epistemological error: one that the assumptions are wrong; and the other the belief that the mental map is the external territory. Problems caused by errors in epistemology can lead to people becoming trapped in a net of self-validating actions based on unexamined premises. This principle thus proposes the need to find ways to reflect on our epistemologies and to avoid certainty.

Discussion

The principles above suggest a need for a change in the way governments and organisations respond to problems and they call for a more ecologically respectful approach. Bateson (1973, p. 481) argues that “the ecological ideas implicit in our plans are more important than the plans themselves”. The managerialist approaches to control seen particularly in governments of English speaking nations with their increasing usage of targets and performance indicators lack this perspective. Instead of promoting organisational learning and adaptation these approaches stifle innovation and seek to enforce rigid norms.

Watzlawick *et al.* (1974) suggest that a linear view of causation can lead to a “more of the same loop” in which the failure of successive attempted solutions lead to an escalation of control rather than a re-evaluation of the attempted solutions. In time the

solutions themselves become the problem. Such an escalation is well illustrated in responses to “whole system” problems in health and social work in England. In repeated government attempts to deal with lack of coordination between social work and health services the escalating attempts to apply top down control are evident. Within the space of a few years attempted solutions have moved from advice; permissive powers for joint planning; the power to share budgets between health and social work; new joint services; punishing local authorities through charging local authorities for delayed discharges of older people from hospitals; setting up rating schemes for social work and health organisations and taking over the management of failing organisations; establishing a multidisciplinary “single assessment process” so that staff in all agencies use the same forms and work to the same strict timescales; the co-location of staff; joint teams and finally major reorganisations combining services from multiple organisations.

In his call for the wider adoption of systemic wisdom, Chapman (2004) outlines the difficulty in helping policy makers to adopt a systemic framework. Whilst rational argument can be used to develop and expand a rational domain such as cybernetics, this paper suggests that, as in the case study below, attempts to bring about changes in epistemology need to address the above principles through emotional engagement rather than rational debate and exhortation.

The case study

The way the failing attempts to control “whole system problems” impacted on local organisations is illustrated in an audit of services for older people in social work department (Bilson and Thorpe, 2004). In this organisation, the authors felt that social work did not offer an additional perspective and range of alternative services to compliment the medical services provided by health. Instead the authors found that it had been subsumed by the culture of the medical model to the extent that social work files and plans contained little analysis of the social aspects of the service users’ lives and instead focussed on medical problems and the need for packages of physical care. Interviews with staff confirmed this view of the adoption of a medically oriented epistemology that stressed a medical approach to assessment and service provision. Despite the many strengths of the services, rather than filling gaps between health and social work services the changes had created a chasm into which would fall anyone with social rather than, or in addition to, medical problems. This is illustrated by the comments from a case file at the point of closure of a case leaving an old couple with little support. The case concerned a bedfast woman whose husband was worried about his continuing ability to care for his spouse, exacerbated by living in a third floor apartment with restricted access:

Mrs Y is a very poorly lady all of her needs are met by her husband (he will not accept help) . . . issues raised were around housing issues. Mr and Mrs Y have been waiting for ground floor accommodation for a long time. I have liased with housing re my concerns.

The extract shows what the researchers saw as the assumption of the worker, and the manager who closed the case, that their role was to provide packages of physical care and that social aspects of the problems such as inappropriate housing were not part of the team’s responsibility. Note the bold statement is made that “he will not accept help” despite the file making it clear that he would have valued emotional support and

advocacy to help secure rehousing. The help that he turned down consisted of packages of home care and he made it clear that this was not the support he needed. The statement that “the issues raised were around housing” shows how social problems such as inappropriate accommodation were not considered to be the responsibility of this social work team. So these assumptions are part of a local epistemology that underpins practice and leaves people falling between the boundaries of the different agencies – the very core of the problem of the “whole system”. Mrs Y and her husband were not alone in suffering from what appeared to be a wholesale change in the nature of social work that exacerbated the very problem it was introduced to change. In order to consider how a fuller understanding of the writing of Gregory Bateson can help with finding a more ecologically friendly response to “whole system” problems the paper will now discuss the action taken by the writers to help this agency.

Reflexive conversations

The principles above suggest that approaches that do not allow for the self-fulfilling aspect of epistemologies are likely to have limited or no impact. The work carried out in this agency used the Batesonian principles through a piece of action research. This starts from the idea that research should promote organisational learning. Any actions that need to follow data collection should come from practitioners and managers themselves and should be realised through reflection on their own understandings of what is good practice. To achieve this is not simple and it is suggested this can be attempted through what have been termed “reflexive conversations” (Bilson, 1997, 2006; Bilson and White, 2004; Lawler and Bilson, 2004). These seek to focus attention of participants on the epistemologies that shape practice and provide news of difference through the construction by the researchers of patterns that offer alternative views of the problem.

Atkinson and Heath (1987, p. 15) suggest that a reflexive approach to research needs to encourage the consumers of research “to be more open to the research process” stressing the need not only to give direct access to the research “data” but also to demonstrate how the researcher constructed their results from them and the researcher’s own premises. This approach does not make truth claims about the findings or value the research “evidence” above the wisdom of members of the system worked with. Rather it accepts its own groundlessness and seeks to demonstrate how the distinctions made by the researchers lead to a particular moral view of the data. Rather than hiding the processing of the data into the “findings” this process is exposed to share the possibility of constructing a new pattern or view and the distinctions used to create it. The researcher thus demonstrates reflexivity, the creation of patterns and then encourages practitioners to reflect on their own assumptions. Epistemologies are, by their very nature, self-fulfilling and rationally complete (Maturana, 1988). The development of reflexivity cannot therefore be based on rational argument and seeks to engage participants emotionally through a range of approaches including telling stories and metaphor (Bateson and Bateson, 1988).

The paper will now give a short example of engagement in a reflexive conversation to address whole system problems drawn from the authors’ work in the social work department mentioned above. In order to find out about the operation of the system we had undertaken an audit of social work files and a series of interviews with

practitioners and managers. Throughout this study we engaged the various staff in conversations about how we were viewing the information we were finding sharing our thoughts and assumptions in a range of ongoing conversations and stories in which our understanding of what we read and heard changed and developed. Once the study was completed we provided feedback in a number of forums both within the agency and in multidisciplinary meetings.

For the purpose of illustration the paper will focus on a one-day seminar held for all members of staff working with older people in the agency. The seminar had a number of stages that were used to develop a reflexive conversation (Bilson, 1997) as follows:

- (1) The day started with a presentation of the study in which we explained the view we had developed, the patterns we constructed from the data we gathered, our emotional response and the assumptions that shaped the construction of our findings. In order to develop news of difference we used a range of metaphors and case examples as well as data to illustrate our thoughts and the findings. For example, we discussed the way that people with dementia and their families were not provided with emotional support and information about the difficulties of dealing with the “loss” of a family member whilst they were still present. The pattern we saw was that there were high levels of stress in these families which was not addressed by the packages of physical care that were the focus of social work interventions. We discussed how these older people not only ended up in residential care but the continuing stress caused breakdowns and rejection by their families. We told the story of Mr X:

Mr X admitted to Ward 5 suffering with constipation. He has dementia and “social problems”. He lives with his daughter who provides 24 hour care. Constipation resolved and Mr X ready for discharge. Daughter refusing to take him home no longer feels able to cope. Mr X bed blocking. Assessment of needs requested.

His admission to hospital followed an argument with his granddaughter who had epilepsy which in turn led to a fight with his daughter. There appeared to be no attempt at conciliation or any emotional support for this woman who had to cope with caring for her father and a daughter who also had serious difficulties because of her disability and we saw that this stemmed from the medical focus on the grandfathers problems. The following quote from the father gave a good illustration of the emotional impact on Mr X.

Spoke to client about how he felt, he got upset by the situation he now finds himself in, knows that his daughter can no longer look after him at home and he said he’s not bothered where he goes, so long as he can stay there as he feels he’s being pushed from pillar to post at the moment which is having an impact on his mental and physical health.

- (2) Following some discussion of the patterns we discerned from our research a number of older people who had been invited to attend the meeting shared their views on the services they received and on the presentation. This very moving discussion showed how the ways of working affected the day to day lives of individual older people and stressed the very positive part that well focussed services could play in helping them to have a more fulfilling life.

- (3) In order to allow participants to reflect for themselves on the way we constructed the patterns, we next gave participants the opportunity to consider a set of anonymous extracts from recent cases. Participants were asked to discuss these in small groups and, if they felt that the actions taken were not the best, they were to suggest what specific actions might have been taken to improve what was done.
- (4) In a plenary discussion of these cases participants felt that much could be done to improve services. Participants were able to discern the patterns raised by the research about the fitting of people to particular solutions rather than designing solutions to fit the needs of people but they also identified other issues.
- (5) Following lunch we made a short presentation about systems ideas in the process of change and discussed concepts such as unintended consequences of reform, more of the same loops and the counter-intuitive nature of system reform.
- (6) Participants were then given the opportunity to further discuss issues raised in the research and in their own review of recent cases and to try to identify priorities for change. This was followed by a whole group session trying to identify the smallest steps that could be taken that would make a difference to these issues. Staff at all levels volunteered to continue to work together on different aspects of the problems.

This process is not intended to be used inflexibly but rather illustrates how a reflexive conversation can be structured. In fact using a systems approach means changes to the whole of the research process with the researchers not taking an objective position but seeing all the research activities from the initial contracting through data collection and dissemination as an opportunity to develop conversations about the problem and different views that might be adopted.

The impact of this intervention has not been evaluated but in a telephone call to the senior manager responsible for the services he said that he was struggling to keep up with the pace of change that staff were promoting. Similar interventions in other aspects of health and social work have been accompanied by substantial and lasting changes to practice (for a number of case examples see Bilson, 1995, 2006; Bilson and White, 2004; Bilson and Ross, 1999; and Bilson, 1997 for a more detailed account of a reflexive conversation).

Conclusion

This paper has given a case example of a systemic approach as an alternative to the increasingly centralised government control of English speaking countries epitomised by the increasing use of tightly defined and monitored performance indicators. This was illustrated by considering the UK Government's escalating response to "whole system" problems in health and social work and suggesting this response threatens the delicate ecology of health and social work practice.

The paper has also shown how action research based on principles drawn from Bateson can provide a different approach. This requires a fundamental change of epistemology from one of centralised control to a framework of participation, reflection and respect. Such change cannot be achieved through rational arguments and exhortations and those wishing to promote cybernetic wisdom need to find other ways

to help people to reflect on their epistemological assumptions. Maturana has called this process aesthetic seduction and this paper suggests that one approach to this is through stories and emotional engagement.

Note

1. Bateson (1973, p. 262) uses the term punctuation to demonstrate that a particular description is one of a number of different and equally valid descriptions of the interactional sequence which depends on the starting point and order in which the sequence is described.

References

- Atkinson, B.J. and Heath, A.W. (1987), "Beyond objectivism and relativism: implications for family therapy research", *Journal of Strategic and Systemic Therapies*, No. 1, pp. 8-17.
- Bateson, G. (1973), *Steps to an Ecology of Mind*, Paladin, New York, NY, (first published 1972 Chandler publishers).
- Bateson, G. (1977), "Afterword", in Brockman, J. (Ed.), *About Bateson*, Dutton, New York, NY.
- Bateson, G. (1979), *Mind and Nature: A Necessary Unity*, E.P. Dutton, New York, NY, (Bantam edition 4th printing 1980).
- Bateson, G. and Bateson, M.C. (1988), *Angels Fear: An Investigation into the Nature and the Meaning of the Sacred*, Rider, London.
- Bilson, A. (1995), "Facts, figures and fantasy: a constructivist approach to professional training in the use of client information systems", in Kolleck, B. and Rafferty, J. (Eds), *Both Sides: Technology and Human Services*, Alice-Saloman-Fachhochschule, Berlin.
- Bilson, A. (1997), "Guidelines for a constructivist approach: steps towards the adaptation of ideas from family therapy for use in organizations", *Systems Practice*, Vol. 10 No. 2, pp. 153-78.
- Bilson, A. (2004), "Escaping from intrinsically unstable and untrustful relations: implications of a constitutive ontology for responding to issues of power", *Journal of Cybernetics and Human Knowing*, Vol. 11 No. 2, pp. 21-35.
- Bilson, A. (2006), "Rationality, reflection and research", in White, S., Fook, J. and Gardener, F. (Eds), *Critical Reflection and Professional Development State of the Art*, Open University Press, Maidenhead.
- Bilson, A. and Ross, S. (1999), *Social Work Management and Practice: Systems Principles Second Edition*, Jessica Kingsley Publishers, London.
- Bilson, A. and Thorpe, D. (2004), "Report on a study of careers in older people's services", unpublished report, Local Authority Social Work and Housing Department, Nuffield Institute for Health, Leeds.
- Bilson, A. and White, S. (2004), "The limits of governance: interrogating the tacit dimension", in Gray, A. and Harrison, S. (Eds), *Governing Medicine*, OUP, Maidenhead.
- Bloor, M. (1976), "Bishop Berkeley and the adeno-tonsillectomy enigma: an exploration of variation in the social construction of medical disposal", *Sociology*, Vol. 10, pp. 43-61.
- Chapman, J. (2004), *Systems Failure: Why Governments Must Learn to Think Differently*, Demos, London.
- Hall, C. (1997), *Social Work as Narrative: Storytelling and Persuasion in Professional Texts*, Ashgate, Aldershot.
- Keeney, B. (1983), *Aesthetics of Change*, Guilford Press, New York, NY.
- Latimer, J. (2000), *The Conduct of Care: Understanding Nursing Practice*, Blackwell Science, Oxford.

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- Lawler, J. and Bilson, A. (2004), "Towards a more reflexive research aware practice: the influence and potential of professional and team culture", in Bilson, A. (Ed.), *Evidence Based Practice in Social Work*, Whiting and Birch, London.
- Maturana, H.R. (1988), "Reality: the search for objectivity or the quest for a compelling argument", *Irish Journal of Psychology*, Vol. 9, pp. 25-82.
- Maturana, H.R. and Poerksen, B. (2004), *From Being to Doing: The Origins of the Biology of Cognition*, Carl-Auer Verlag, Heidelberg.
- Pithouse, A. (1987), *Social Work: The Social Organisation of an Invisible Trade*, Avebury Gower, Aldershot.
- Watzlawick, P., Weakland, J.H. and Fisch, R. (1974), *Change: Principles of Problem Formation and Resolution*, Norton, New York, NY.
- White, S. (1998), "Examining the artfulness of risk talk", in Jokinen, A., Juhila, K. and Poso, T. (Eds), *Constructing Social Work Practices*, Ashgate, Aldershot.

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Still disturbing

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Abstract

Purpose – The aim of this paper is to show how students of today react to Bateson's texts when they are not integrated in a semantic explanation.

Design/methodology/approach – Students of social work at the University of Dresden were asked to develop plans for a certain social problem. Afterwards they studied certain texts of Bateson. Finally, they had to review their former plans.

Findings – Bateson's thoughts are still disturbing for today's students. However, if they are able to connect his thoughts with their own problems there is a good chance of opening ways for a more complex thinking.

Originality/value – The paper shows how Bateson's legacy might be used today.

Keywords Cybernetics, Social services, Problem solving

Paper type Case study

Introduction

When I was asked to contribute to this Gregory Bateson memorial I decided to have a look at how students react today to Bateson's thoughts when they are not embedded in the semantic context of my explanation. It was a kind of a pilot project, also for myself. Owing to the lack of time there was no possibility to me cover the subject scientifically. So this is rather a personal account.

Student reaction to Bateson's texts

Students of Social Work in Germany (Sozialpädagogik) are mainly concerned with two issues to:

- (1) understand the theories of social politics and municipal administration; and
- (2) acquire tools of pedagogical support and counselling.

In this course of their studies they normally develop an "intentional" attitude for social situations. They tend to act and intervene in order to attain a certain aim. Planning for them means to find a way to fulfill political or professional instructions. The general atmosphere has traits of conceitedness, an attitude they regard as professional.

This was the general background for my seminary "Social Planning in Theory and Practice: Bateson's Concept of Ecology" which was held 2006/2007 with 12 students at the University of Dresden.

At the beginning, the students were asked to make proposals for a quite usual problem:

In a district with a high population (about 4.000 people in multi-storey buildings with migrant background in a little town with 18000 inhabitants) there is a high incidence of vandalism, thefts and mobbing. The offenders are mainly young male Russian-speaking German immigrants. What kind of plans would you develop?

They were instructed to make plans in which they should not become active themselves.



This question confronted the students with a bundle of problems they were more or less aware of:

- They face a foreign “sub-cultural” minority they are not acquainted with.
- The social context is difficult (closed area, rivalling groups and gangs).
- Such areas are undersupplied in terms of “institutional” presence. (Municipal politicians do not want to set special policies for such residential areas, there are no political objectives besides integration.)
- Juvenile delinquency is well present in the media and places municipal governance and administration under high pressure, although criminologists know that juvenile delinquency is temporary and ubiquitous in juvenile development. It dissolves into individual biographies, especially when social control agents do NOT intervene in a formal way (adjective procedures) and instead engage with the young people in a diversion process.

The measures the students proposed ranged from practical interventions to more theoretical aspects like:

- local information, more leisure-time activities, direct discussions with the young, cooperation with the local police and politicians; and
- gathering more data on the living situations or the involvement of experts.

These are the usual tools of social workers. Interestingly, these tools were mainly proposed with the intention to control the situation and to attain a defined result.

As a next step the students had to work on the texts “Effects of Conscious Purpose on Human Adaptation” (Bateson, 1972, pp. 440-7), “A Theory of Play and Fantasy” (pp. 177-93), “Social Planning and the Concept of Deutero-learning” (pp. 159-76) and “Schismogenesis – or the Minister of the Interior is in danger” (Ivanovas, 2001). These texts were selected to show that:

- there are not only facts but also patterns of interaction;
- learning is not a simple acquisition of data but also the adaptation to certain situations;
- interventions (especially aimful interventions) into a social context may lead to unexpected and harmful developments; and
- planning might be non-technical and is able to lead in a non-intentional way to changes.

This move was rather disturbing for the students. They did not understand how these texts could be related to the topic of the seminary and with the exercise they had to write.

In several sessions we worked on different interpretations. But I did not have the impression they got an idea of the implications of the concepts they used. Therefore, I introduced an even wider frame. We investigated the effects of some social initiatives of the German Government of the last years, especially a job program for people under 25. A main consequence of this program has been that it improved the life style of certain people, but it did not help them to be integrated into the labour market or into new social nets.

The result of our attempt to bring social experience and a theoretical background together was the discovery that young people for whom programmes are developed in fact learn and adapt to their social reality, but quite often not as intended by the creators of the programmes. This discovery created a general helplessness concerning the topic of the seminary (Then it seems to be impossible to plan!!!) and it led to a long enduring phase of uncertainty.

We encountered this deadlock from different angles, leading eventually to a better understanding of a general interconnectedness (“we are part of a professional process with an open end and many participants – it is quite good to back people in their own interests – there is no pressure to set our aims as the only possible”).

- (1) We analysed the role of communication in backing and involvement processes on different levels:
 - on the level of official contacts (political institutions and administration); and
 - on the level of professional involvement (social workers, police, local action groups, associations and clubs).
- (2) We analyzed the living area in order to detect social and personal resources, especially in regard to the members of the groups creating problems – which have, of course, problems themselves.
- (3) The own role as social planners was reflected.

At the end of the seminary the students did not make essentially different propositions in how problems like vandalism could be approached. What had changed, however, was the way they thought about such problems, their attitudes, their understanding of professionalism and their self-esteem. They had learned to live with the feeling of uncertainty, had understood that a lot of factors (especially the way of communication) play a role. Moreover, they were more inclined to initiate process which would not necessarily lead to the defined “scientific grounded aims” but would continue even when they lost sight of the related persons.

However, my behaviour had changed, as well. This seminary was rather different from what I had done so far. And as I regard it as a quite promising approach it induced further activities. First, the students will be further supported through an internet platform we initiated after the seminary. Second, a future project would be to involve a new group of students into the process of judging their own changes which might eventually lead to a conjoint publication.

References

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Ivanovas, G. (2001), “Schismogenese oder Gefahr für den Innenminister”, available at: www.ivanovas.com/schismogenese.html (accessed 9 February 2007).

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Struggling for a Russian Bateson

Struggling for a
Russian Bateson

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Abstract

Purpose – This paper aims to describe the author’s efforts to translate and publish books by Gregory Bateson in the difficult conditions of post-communist Russia.

Design/methodology/approach – The story of this publishing project can be traced back to early 1980s and included the author’s personal meeting with Michael Murphy during his visit to Moscow.

Findings – Describes the production of translated version of Bateson’s works published in Russian.

Originality/value – Provides information of value to those interested in the human condition.

Keywords Russia, Cybernetics, Literature

Paper type Viewpoint

The late 1970s to the early 1980s in Russia is regarded as the very apotheosis of “Brezhnev’s era of stagnation.” Nothing worked, this huge land was frozen in a condition of inactivity that was paralleled by the *marasmus senilis* of the General Secretary of the Communist Party, Leonid Brezhnev. Towards the end of his rule he could hardly talk.

But in downtown Moscow astonishing things were happening. Former microbiologist and hypnotherapist Joseph Goldin, a charismatic figure who lived in a dilapidated three-storey apartment building on Yuzhinsky Lane, set about organizing a Moscow branch of the Esalen Institute. He was quite convinced that this was possible – to start a branch of Esalen in the very center of the Communist world – “in the center of the cyclone” so to speak.

In the late 1970s, I had just graduated from the Physical Faculty of Moscow State University and was a member of a group of enthusiasts who gathered around Joseph Goldin and were inspired by his aims. It was in his circle that I became acquainted with modern trends in humanistic psychology and read a number of important books in English, such as Erick Berne’s *Games People Play*. It was in this book where I first came across the name of Gregory Bateson. Then I translated *The Book of Est* by Luke Rhinehart, which describes the experience of attending Werner Erhard’s famous *est*-training. My translation was conducted for the purposes of our small circle and typed up in several copies that circulated within the group. There was simply no way to publish books like these in the USSR – they were considered to be incompatible with Marxist-Leninist ideology – so *samizdat* (self published) books were very common.

Actually, nothing came of Joseph Goldin’s plans at that time. However, had his efforts occurred seven or eight years later at the height of Gorbachev’s policy of *glasnost*, the results might have been quite different. But even in the early 1980s Joseph Goldin achieved some amazing things. Since, he had a keen understanding of the functioning of the Soviet bureaucratic machine and of its “undocumented options” he managed to organize several visits to Moscow of key personalities in the Human Potential Movement, including Werner Erhard and Michael Murphy. It was Michael Murphy who first gave me first-hand information about the important yet



enigmatic figure of Gregory Bateson, who had then only recently passed away. But I had no access to genuine Bateson texts and for me he remained a mythical figure for another ten years.

Then Leonid Brezhnev died, the regime changed, and in the mid 1980s Gorbachev's *perestroika* took hold. This Russian word means "reconstruction" and reflected the irrational belief of soft-liners within the Communist establishment that there was some mysterious "hidden potential" within Socialism that could be activated to make the dying Soviet system work. We now know that these hopes were futile. But back then we were all seized by this new experience of political and social life. Our "human potential" circle disintegrated of its own accord. Joseph Goldin became involved in the first Soviet-US "spacebridges" which linked Russian and American audiences via satellite TV. These were led by Vladimir Posner on the Russian side and Phil Donahue on the American side.

Owing to the relaxation of state censorship and the ideological press, more and more New Age books became available in translation. I read everything I could find and came across the name of Gregory Bateson in increasing frequency. I found references to him in books by Allan Watts, Ronald Laing, Fritjof Capra and Stanislav Grof. He was constantly cited in the books on Neuro-Linguistic Programming (NLP) that first appeared in Moscow around that time. Once I happened upon an American magazine with an article describing the cybernetics of a schizophrenic family. I cannot now recollect the author but perhaps it was Mara Selvini Palazzoli. The article intrigued me, but I could not find out anything more about the subject. Back then, we were very limited in our ability to search for information, the internet still had not reached Russia. So I had no overall, coherent picture of Batesonian ideas.

A radical shift in my relationship with Bateson came a few years after the Soviet Union collapsed in 1991. In 1993, Bateson's well-known article "Towards a theory of schizophrenia" appeared in the *Moscow Psychotherapeutic Journal*. This was the first Russian translation of an authentic Bateson text and for me it was a veritable culture shock. Through mutual friends I contacted the translator, Michael Papush – a Moscow psychotherapist – who gave me a photocopy of Bateson's book *Steps to an Ecology of Mind*.

Steps to an Ecology of Mind is quite a diverse and multidimensional book and Bateson himself recommended reading it selectively. So I focused on Part III: *Form and Pathology in Relationship*, which contains articles connected with Palo-Alto Project, the theory of schizophrenia and double bind theory. The more I read the more excited I became. The passion these texts aroused in me had a serious systemic basis. One of Bateson's most important concepts is "the pattern that connects." I realized that for me, personally, Batesonian ideas themselves were "connecting patterns," perfectly linking the two parts of my mind, which then existed in regrettable separation. That is, his ideas connected my "scientific mind" with my "humanitarian mind."

I had had a serious education (my specialization was theoretical physics) so I felt perfectly at home among Von Neumann's "games", cybernetic circuits, feedbacks, statistical redundancies and the like. But Bateson was applying all these matters to the world of behavior, emotions and even – amazingly! – art. Of course, I was well acquainted with Norbert Wiener's works on the application of cybernetic ideas to physiological and sociological matters, but Bateson was aiming even further,

to an extent that seemed almost impossible. To me, the most striking thing was his notion that the behavior of madmen – seemingly the most absurd and chaotic phenomenon of all that can be found in the world of human interactions – appears to be formalized and predictable, almost mathematical. Apparently, chaos is no longer that chaotic when broken down into logical levels.

The possibility, demonstrated by Bateson, of linking the Platonic world of rigorous formalism with the hurly-burly world of living organisms impressed me then and still impresses me now. It was clear that these articles must be translated and made available to a Russian audience.

My initial plans were quite modest. I could not consider translating such a voluminous and diverse book as *Steps to an Ecology of Mind* in full. I decided to work on just one section, *Form and Pathology in Relationship*, which is dedicated mostly to the cybernetics of schizophrenia. By the end of 1997, ten articles were ready for publication (Michael Papush's 1993 translation, plus nine others translated by me). I had already lined up a small private publishing house to publish what should have been a modest but decent paperback. But then the economic crisis of 1998 happened. My publisher went bankrupt, as did thousands of small businesses across Russia.

Here, I should say a few words about the copyright situation in Russia. The Russian Federation is assignee to the Soviet Union which was a signatory to the Universal Copyright Convention in 1974. Hence, books published before 1974 are not copyright on the territory of the Russian Federation. This applies to *Steps to an Ecology of Mind* because it was initially published in 1972.

The economic and social chaos, the avalanche of bankruptcies and the galloping inflation that followed the 1998 crisis put my publishing plans into doubt. I appealed one by one to the few remaining publishing houses that specialized in psychology but nobody wanted to take the risk. They all considered the project to be commercially unviable.

Nevertheless, through trial and error, my search for a publisher finally bore fruit. At the beginning of 1999, I was approached by Dmitry Leontiev, the Director of Smysl, a Moscow publishing house. He had rejected my project several months before but was now applying for a grant from the Soros Foundation to publish a number of books and he wanted to include *Steps to an Ecology of Mind* in his list. I submitted an extract of my translated Bateson text and, of the six books that Leontiev applied for money to publish, only *Steps to an Ecology of Mind* won the grant. So I set about translating the rest of the book.

The first part of 2000 saw experts at the Soros Foundation and scientific editors of Smysl scrutinizing the translated text. Finally, in November 2000 book was published. What had been unimaginable only a few years before was now reality (Figure 1).

The works of Bateson pose a serious challenge to the translator. First, they are highly complicated in content, second, the form in which this content is presented can hardly be called simple. Bateson's love of citing sophisticated and sometimes obscure poetry (like that of William Blake, Steven Wallace or Thomas Elliot) creates a lot of problems. Some terms coined by him (e.g. "difference that makes a difference") are difficult to translate into Russian for they are based on play on words. Many of the examples he provides to explain his complicated concepts involve cultural realities that are completely unknown in Russia, and consequently explain nothing to the Russian

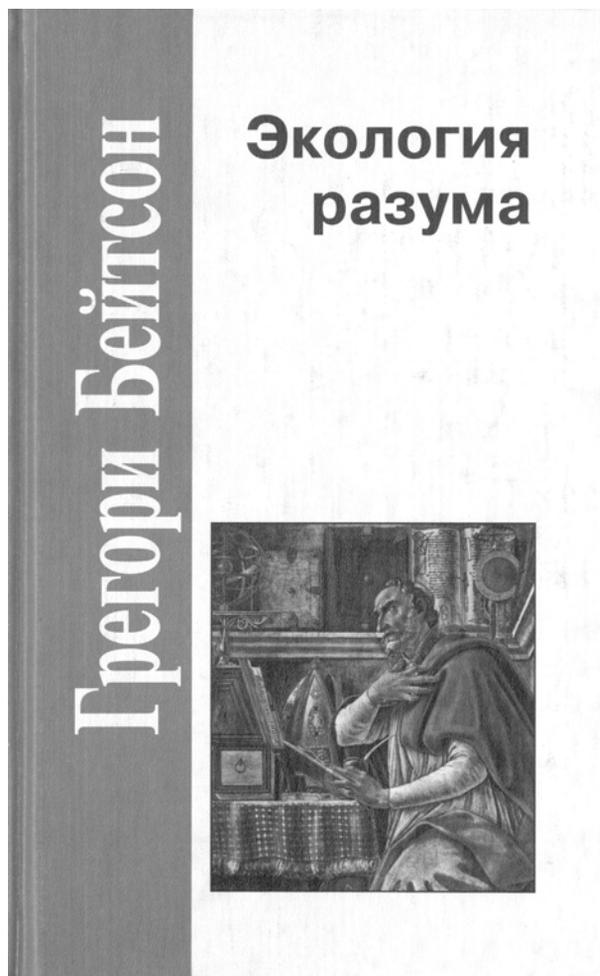


Figure 1.
Ecology of Mind, Smysl,
Moscow, 2000

reader. Fortunately by 1999, I had internet access and that helped me to clarify what Bateson was saying.

The internet also enabled contact with Mary Catherine Bateson, daughter of Gregory Bateson and Margaret Mead and head of the Institute for Intercultural Studies (www.interculturalstudies.org) which holds the literary rights of Gregory Bateson. She kindly commented on some of the most difficult parts of her father's book. I reproduce a small part of my correspondence with Mary Catherine Bateson as I think her comments could be of value to English readers as well:

DF: Dear Mrs. Bateson! At the moment I'm working at the article "Minimal Requirements for Theory of Schizophrenia" in which Gregory Bateson refers to "telencephalized brain": At this point it is necessary to compare three types of hierarchy with which we are faced:

- (1) the hierarchy of orders of learning;
- (2) the hierarchy of contexts of learning; and
- (3) hierarchies of circuits structure which we may – indeed, must – expect to find in a telencephalized brain.

From Webster I know that: “telencephalon – the anterior subdivision of the embryonic forebrain or the corresponding part of the adult forebrain that includes the cerebral hemispheres and associated structures,” but “telencephalized brain” still does not make sense to me. Could you please help?

MCB: Dmitry! In general, I assume that GB here means “a brain (advanced to the point of) having a telencephalon.” This is part of the neocortex found in mammals. Implicit here is that this furthest front part of the cortex is the newest or most evolved part of the brain. The reference to embryology in the dictionary definition seems irrelevant (the last evolved part of the brain would be the last to develop in the embryo).

He seems to have coined the verb. It’s pretty clear but probably unnecessarily mystifying. He could as easily have said “mammalian” but the eye would slide over it without recognizing that he is saying that higher levels of learning require the best available brain.

So that explained *telencephalisation*. But the most serious problem of translation arose with *double bind*, perhaps the most important of all Bateson’s terms. Not only is the concept of a double bind difficult to understand – for it implies understanding Bertrand Russell’s multi-level logical typing – but also the very verbal construction is another of Bateson’s play on words.

The English adjective “double” splits into two semantic branches – one of which corresponds to the notion of “twofold” or “dual” while the other corresponds to the notion of “duplicitous” or possibly “tricky.” For this second semantic branch, the Collins Dictionary gives the following synonymic row:

double (adj) – deceitful, dishonest, false, insincere, knavish, perfidious, treacherous, vacillating.

This meaning is reflected in the idiomatic constructions: doubling, double-dealer, double-faced, double-tongued, double-talk, double-cross, double-think, etc. From the standpoint of the subsequent notion of the pathogenic and schizophrenogenic characteristics of double bind, this second branch is possibly even more important than the first.

The problem is that in Russian there is no one adjective that combines both these connotations. That is why in Russian literature on psychology and psychiatry translators have used about a dozen variants to translate this phrase. None of them is adequate. It is interesting to note that the concept of double bind started infiltrating Russian thought long before Bateson himself was first mentioned.

That is why for the Russian edition of 2000 Michael Papush and I wrote an extensive foreword explaining this complicated linguistic situation. For the term double bind, we proposed a neutral minimalist variant that back-translates into English as “dual message”. This variant emphasizes the idea that double-binding is first of all a communicative phenomenon. This Russian variant is now being used with increasing frequency in Russian professional circles.

In October 2006, Moscow publishing house URSS (<http://urss.ru>) published Bateson's *Mind and Nature* in my translation for which URSS bought the Russian publishing rights from the Institute for Intercultural Studies (Figure 2).

Using internet search engines, I keep a constant track of Russian publications and can certify that the number of times Bateson is cited is growing steadily. Nevertheless, Bateson's legacy and ideas are still relatively unknown in Russia, certainly much less than they deserve to be.

I am now working on a translation of *Sacred Unity: Further Steps to an Ecology of Mind*, a second (posthumous) collection of Bateson's essays edited and published by Dr. Rodney E. Donaldson in 1991. In its structure, this collection is similar to the famous collection published in 1972 but is, strangely, little-known. *Sacred Unity* is, to a considerable degree, composed of articles that Bateson wrote towards the end of his life, indeed, some he wrote while writing *Mind and Nature*. Unfortunately, the tragic



Figure 2.
Mind and Nature, URSS,
Moscow, 2006

circumstances of the last part of Gregory Bateson's life meant that *Mind and Nature* was brief. The articles in *Sacred Unity* can be regarded as expanded commentary on many of the complicated items that are only briefly touched upon in *Mind and Nature* and are therefore extremely important.

Struggling for a
Russian Bateson

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Batesonian analysis of value hierarchies and the transformation of Russia

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Abstract

Purpose – The aim is to analyse changes of mass distributed value hierarchies in the course of social transformations in Russia during the last 25 years.

Design/methodology/approach – The article's approach is development of the model of value hierarchies within the framework of Batesonian thinking and analysis of secondary sociological and economic data on Russia.

Findings – The value hierarchy model, built within the Batesonian approach, provides a framework for analysis of the behavioural alternative choice by social individuals. Crisis events in Russia in the 1990s were related to the demolition of behavioural contexts and mass scale learning-III of the adult population. New value hierarchy structures were subsequently formed in the early 2000s. Attention of social planners to the structure of mass-distributed value hierarchies and the need to learn in changing contexts could improve the efficiency of social transformation.

Research limitations/implications – Research findings are limited by the use of secondary data. However, even in this case, the model of value hierarchies has been found a useful tool of sociological data interpretation.

Practical implications – Need for changes in epistemological grounds that underlie the design of massive socioeconomic reforms.

Originality/value – The value hierarchy model was developed as a contribution to the Batesonian tradition of epistemology. Insights were provided into value hierarchy changes as the key driver of chronic crises in Russia in the 1990s. Social scientists and social planners within the system thinking approach could benefit from this paper.

Keywords Cybernetics, Russia, Social anthropology

Paper type Conceptual paper

Introduction: transforming Russia

Between the time when Gregory Bateson summarized his key ideas, and the time when these ideas penetrated the Russian academic society, one would see a symbolic gap of approximately a quarter of a century: *Steps to Ecology of the Mind* and *Mind and Nature* were published in the mid-1970s, and their translations reached Russian readers in the early 2000s.

Dramatic changes took place in Russia during these 25 years. In the 1980s, the USSR, which seemed to be at the height of its economic and military power, was watched with fear and admiration. A few years later, the country was in the full swing



of transformation with “perestroika” and “glasnost” – and in the early 1990s the Soviet Union (“inviolable” as its anthem promised) ceased to exist. The country then sank into the largest economic and demographic crises of the last 300 years (Illarionov, 2002). In the 2000s, signs of recovery finally appeared.

The last 25 years in Russia marked a period of change, unprecedented not only for the country, but also for the world. During this period, the largest man-made social project of Communism was wound up, the Soviet Union collapsed, and endeavours to create a Western European type country failed. In the circumstances of total social transformation and the inability to find any reliable benchmarks, the population of millions tried to gather its “views of the world” and develop adequate behavioural patterns.

The current historical outcome, according to many observers, was the inability of Russia to adopt Western institutions that could establish a democratic, economically efficient, and consistently developing society. The “shock therapy” of 1992, which was supposed to cure the economy and revive the country, instead struck the deadliest blow to it. Introduction of democratic political institutions invoked chaos and disorganization.

Among the dramatic consequences of transformations were the sharp decrease in birth rates and the surge in death rates (Figure 1), the substantial aggravation of health levels, the deterioration of the quality of education and overall cultural level of the population and the decline in the wellbeing of the majority of the population. The number of births per woman has become one of the lowest in the world with 1.17 in 2001, twice below the replacement rate (*The Economist*, 2001). Between 1990 and 1994, the death rate among working-age men in Russia increased by 74 per cent and translated into a decline in male life expectancy from 63.8 to 57.6 years (Shkolnikov *et al.*, 1998).

Russia has entered the top-list in alcohol consumption per capita, in the number of suicides per capita, and in the rate of deadly diseases spreading such as tuberculosis and AIDS (Powell, 1998). The quality of its primary, secondary and tertiary education deteriorated dramatically. The economic system until recently has continually

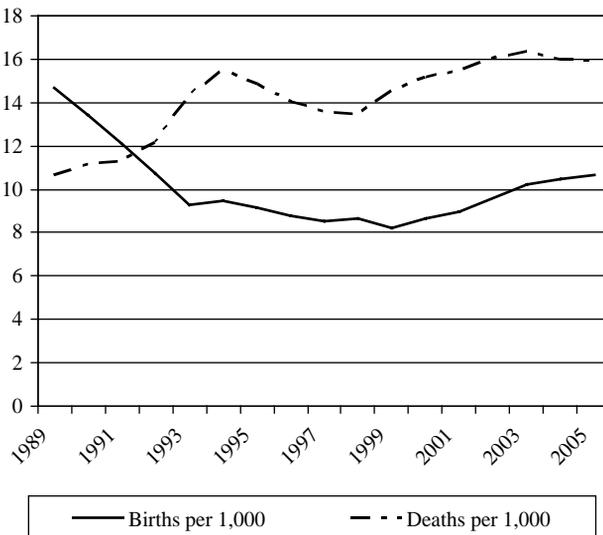


Figure 1.
Birth and death rate in
Russia, 1989-2005 (data of
US Census Bureau)

contracted, and having shrunk by the end of 1996 to half of its size in 1989 has stagnated until 2000s (Figure 2).

Many social scientists try to understand what actually happened to the country that was once considered a superpower and a role model for the developing world. Most theoretical considerations are unsatisfactory, since they account only for specific aspects (e.g. economic, political, educational, demographic) of a multi-faceted transformational process. Explanations should be sought with factors that define long-term behavioural patterns within the population of Russia. Mechanisms of social choice need to be tackled in order to analyse such patterns.

We were challenged by the editors of the present volume to consider the current situation in Russia from the Batesonian position. We then decided to apply the model of human choice to examine problems of Russian transformation and lessons which could be learnt.

It should be clarified here that the model introduced in the paper was not specifically designed for this task. Instead, it was developed and tested as tool of micro-level applied research, to study behavioural patterns of individuals and organizations. However, as we accepted the challenge, we attempted to adjust our approach in order to consider secondary data analysis of macro-level dynamics of modern Russian society.

Lack of epistemology

Transformations of Russian society were primarily catalyzed by a batch of reforms implemented after the “disassembling” of the Soviet Union. These reforms were conducted by a group of liberal politicians under the supervision of international structures (IMF, World Bank, TACIS, etc.). They intended to transform the country into a Westernized market-based society. A substantial share of studies of economies in transition attributes these reforms as the cause of the ensuing socio-economic crises (Stiglitz, 1999).

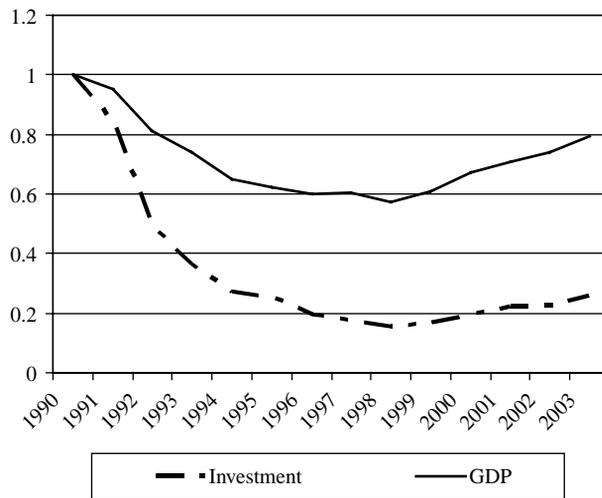


Figure 2.
Investment and GDP in
Russia in 1990 constant
prices, 1990 = 1 (data of
UN Statistics Division)

It could be rightfully expected that a design of reforms of such a scale needed to be adjusted to cultural specificities: in particular, to the typical value systems of the given society. However, the methodology of the Washington consensus used in the Russian reform design implicitly contained assumptions of social and economic behaviour models (e.g. *Homo oeconomicus*) – models that were considered universal by reformers (Rutland, 1999). No serious survey was ever conducted or even planned, that could identify the adaptation potential of the population to the proposed radical changes (Khrushcheva, 2002). Partially, this could be explained by the relatively short interval for decision- and policy-making – but it is hard not to admit that Russian reformers had a shallow understanding of the society that they were supposed to transform, simply lacking the proper studies.

The issue of values is essential for social dynamics. It is generally agreed that the widespread value systems structure typically on mass behaviour in society (Campbell, 1975). Value, generally understood as the relative importance of specific objects, relations and processes for individuals and groups, is the key factor determining individual choices – since it introduces comparability and ranking of alternatives.

Sociologists and anthropologists are aware that value orientations can vary significantly: relativity of value systems is rarely debated, as many instances of such relativity were discovered (Benedict, 1934). Anthropologic studies of G. Bateson also demonstrated that some cultures have value systems ultimately different from those of Anglo-Saxon society: e.g. the value system of Balinese is oriented towards the maintenance of social stability and the individual homeostasis of pleasurable emotions, and not the maximization of satisfaction (Bateson, 1949).

Transformations of Russia were driven by the reforms. These reforms were designed according to specific theories, obtained by scientific consensus in Anglo-Saxon countries. Theoretical models applied were designed with mathematical rigour, and they could have been mathematically correct, but their underlying assumptions, their metatheoretical basis was incorrect for the given society. Consequently, dramatic Russian crises were, in our opinion, connected to the inappropriate epistemological grounds in the orchestration of social transformations.

In order to understand the process of social reproduction and change, to recognize problems of the past (such as reform failures) and perspectives of the future, one needs to analyze the structure of widespread value systems. In other words, one demands a proper epistemology that would permit to consider value orientations. As we further argue, value systems are always structured as hierarchies, through engagement of learning mechanisms at various logical levels.

So, how can Batesonian thinking assist with a task such as this? Bateson did not provide a comprehensive view of social systems at any rate comparable with those of Durkheim, Sorokin, Parson, or Luhmann. A series of his works, however, gave a clear view of the formation and the maintenance of patterns of human behaviour. In particular, in his “Cybernetics of self” (Bateson, 1971), contesting widespread models of human action, Bateson considered behavioural patterns as “inclusions” into an organism – environment relationships.

Since various behavioural patterns are realized within the same organism, the system always faces the problem of scarcity, the problem of limited resources. This problem cannot be resolved unless a mechanism exists, which would prioritize these patterns at any given moment in time. Therefore, models of learning and behaviour need to be

complemented with the model of choice, and such a model is not provided explicitly. In this sense, the epistemology of Bateson is not complete.

At the same time, one cannot simply borrow models of choice developed in other fields such as behavioural economics, since such models use assumptions that, within the Batesonian approach, should be criticised and challenged properly. In particular, ideas of the self-interested and self-consistent behaviour resulting from rational choices have been contested (Bateson, 1971).

There are many hints and indications provided regarding the possible form of a Batesonian model of choice. A concept of logical levels of learning and conduct implies that behavioural patterns can be organized into hierarchies of their relative importance, or value hierarchies. We attempt to elaborate this model in more detail.

Structure and organization of value hierarchies

The inequivalence of different behaviour types and values is found already in many ancient philosophical and religious sources. Value hierarchies were then constructed through oppositions of the sacred and the ordinary, the divine and the human – a collection of higher values was formed as a set of moral imperatives. This approach has continued in early scientific considerations on the problem of choice, assuming that “objective”, universal (to all people) and robust value hierarchies exist (Min, 1998). Later, the non-universality of value hierarchies has been observed in anthropology and sociology, and the concept of value hierarchies was abandoned altogether.

The hierarchical structuring of valuable opportunities remains an important assumption in models of economic behaviour (Heyne *et al.*, 2005). However, the change in emphasis towards the level of individuals was accompanied by the repudiation of analysis of the individual value hierarchy structure and origin. It could be argued that this is likely a consequence of particular Anglo-Saxon social epistemology which praises the sovereignty of individual choice and suggests that any inquiries of underlying mechanisms of choice could become a threat to such sovereignty, as choices may become manipulated.

A model of choice is appropriate to be designed in terms of cybernetic approach. The mechanism of choice regulates resource flows in the organismic system, and it therefore acts as its governor subsystem. This governor can itself be considered as a specific pattern of operation, a “connecting pattern”. Since every choice brings an action, and every action brings a new choice, the “pattern of choice” and the “behavioural pattern” continuously flow into each other.

Various behavioural patterns compete for resources of an organism, and this could lead to disorganization in the system. But life, and human life in particular, is never chaotic. Organismic systems structure behavioural patterns by their priority: those that solve organismic tasks better than others are actualized in the first turn, subject to opportunities, the available information and the inevitable shortage of time. Thus, an organism establishes an individual epistemology of means and processes that would allow it to maintain its homeostasis.

An individual organism requires this epistemology because it constantly appears at the intersection of ultimately different stimuli, markers of contexts and metacontexts, and it repeatedly has to choose proper activities. An isolated stimulus with a known conditioned response, as in a behaviourist laboratory, is never the case; even in the

Skinner box an animal has to make choices. A choice (how to act/not to act) is a pledge of survival[1].

Therefore, an individual has to concord various contexts and activities, and this process needs to be structured as a separate pattern of value-based choice, whereby behavioural patterns are organized into hierarchical systems of priorities. The emergence of a control system, as Turchin (1977) showed, is a meta-transition, and it is accompanied by the formation of hierarchies.

We suggest that values are associated with weights, or relative importance, of individual and collective behavioural patterns. Such patterns, and their connecting meta-patterns, result from individual and social learning. As recent neurophysiologic studies of learning suggest, even basic innate behavioural proto-patterns (such as drinking or food intake) are significantly altered by learning processes (Ito, 1999).

The behaviouristic approach could have been problematic in a value system consideration, as values are usually considered intrinsic and non-observable. However, at least for humans, there is a possibility to reveal the content of value systems through verbal communications; and thus, verbal markers can be used as indicators of “internal” (non-observable) states of a behavioural pattern.

Based upon the analysis of logical categories of learning (Bateson, 1972) and the concept of structural determinants of human agency in cognitive theory (Bandura, 1999), we argue that human behavioural patterns universally have the following triadic structure:

- specific individual action (activity or passivity);
- specific social and natural context of specific action (markers of “external” states of organismic system), identified by observable non-verbal markers of context; and
- corresponding “interiorized” “meaning” of action (a verbal generalization of markers of “internal” states of an organismic system), identified by observable verbal markers of context.

As Figure 3 shows, for someone observing an action (A) from outside (an external observer), some variables, which can be called markers of internal states (D), are non-observable, and these can only be revealed by naming them, using verbal

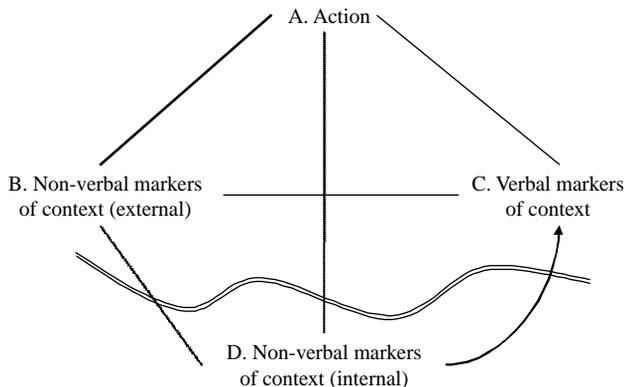


Figure 3.
Behavioural pattern for
external observer (ABC)
and internal observer
(ABD/ABCD)

markers (C); other states are pure sensory experiences which can be identified as non-verbal markers (B). For an actor herself (an “internal” observer), any action is placed into a context marked by non-verbal markers (B + D), all of which are equally “real” (sensations as well as hallucinations and dreams).

Every level of a value hierarchy (value level) is a behavioural triad. This level can be characterized by its relative importance with respect to other patterns, its non verbal markers and its verbal markers. In sociology, “value” is usually associated with the meaning of an action (an idea behind an action). “Value” in this perspective, is a verbal marker of a value level that includes this action.

A choice occurs in the presence of an alternative: another activity or passivity, or the same activity with another level of intensity (in fact, “choice” is a sensible category only if an alternative is present). Actualization of a specific value level occurs through the process of gradual specification of context, which acts like a funnel narrowing a range of possible behaviours.

Value hierarchy is a learnt hierarchy of contexts, organized by their relative importance. Sets of “internal” and “external” markers cue the most appropriate action for an individual: when in doubt about a choice, one would look for additional markers which would signal the appropriateness of an action. Presence of a non-verbal marker specifying the context can be overrun by the presence of another, more powerful marker that specifies a “higher” context.

This process can be best understood by a simple illustration. Suppose we take a basic behavioural alternative. In the example in Table I, the alternative is to wash/not to wash dishes (example derived from Andreas and Andreas, 1987). In this example, a respondent begins with relatively low value level and ends with a high (existential) value level.

Each level in this example is triggered by non-verbal markers. However, a value level can be triggered by verbal markers and internal non-verbal markers alone, even when external non-verbal markers are weak. Words are able to call behavioural patterns which they mark.

What can also be noted from Table I is that the composition of the value hierarchy is linked to the temporal aspect of individual existence: from momentary choices to those that determine large spans of life. Situational choices submit to larger ones – and in this respect value levels guiding long life spans are “higher” than levels guiding short life spans. The lowest levels concern the behaviour “here and now” and highest levels establish the style of life, the occupation, etc. they establish the “meaning of life”.

Using the inquiry methods described elsewhere (Tkachev, 2003), value hierarchy studies have been conducted by one of the co-authors. Circa 2000 interviews have been carried out across different social and organizational environments[2]. These studies revealed, in particular, the typical dynamics of individual value hierarchy actualization. Lower levels of value hierarchy (“daily” tasks) are regularly actualized within the time span of a day to several months. Middle levels (“tactical” tasks) are actualized within the span of several months to one year. Higher levels of hierarchy have to be actualized within the span of several years. An individual has to believe that there are perspectives for actualization of the highest value levels within at least a third of his/her active life; otherwise, a lack of foreseeable perspectives to realize highest values becomes a personal tragedy.

Level	Behavioural alternative	Circumstances (non-verbal markers of context)	Meaning (verbal markers of context)
0	I will wash plates IF	I see plates in the sink	BECAUSE I wash plates daily
1	BUT I will not wash dishes IF	there are too few plates	BECAUSE I want to save time
2	BUT I will wash dishes IF	I know that guests will come	BECAUSE I want to impress guests
3	BUT I will not wash dishes IF	I will cook	BECAUSE I want to be perfect (in my cooking)
4	BUT I will wash dishes IF	plates are very dirty	BECAUSE I want to maintain my hygiene
5	BUT I will not wash dishes IF	there is an emergency in my neighbourhood	BECAUSE I want to try and save somebody
6	BUT I will STILL wash dishes IF	there are competent people to deal with the emergency	BECAUSE I want to be helpful in crisis resolution
7	BUT I will not wash dishes IF	there is a threat to my life	BECAUSE I value my life (terminal value)

Source: Andreas and Andreas (1987), with amendments by present authors

Table I.
An example of an inquiry
revealing elements of a
value hierarchy

Every value level is defined with respect to its context, and a value hierarchy can be defined with respect to a set of such contexts, i.e. to a metacontext. Since, human individuals face a variety of metacontexts, an average individual could be expected to have more than one value hierarchy. However, since social metacontexts are typical and limited in variety, one should not expect too many different value hierarchies for an average social individual.

Individual value hierarchies differ on the level of metacontext. For a self-consistently behaving individual it is necessary that they are structured on the level of meta-metacontext, a set of metacontexts which could otherwise be called a “life landscape” unique for every individual and determined by one’s innate and acquired qualities. A normal individual requires that all higher and lower levels of all of one’s value hierarchies need to be actualized within their appropriate time spans.

To gain standard patterns of choice, individuals learn to mark contexts, to sort their own activities within these contexts given the intensity of “internal” and “external” stimuli, and to accomplish choices of behavioural patterns based on this marking and sorting. Formation and maintenance of value hierarchies engage all logical levels of learning (given limitation of this paper, we cannot argue this engagement at length). Evidently, the set of value hierarchies, specified by a variety of social metacontexts, is formed through learning-III and usually, as Bateson indicated, does not change through lifetime (it is observed that the structure of individual preferences rarely changes in adults (Caplan, 2003)).

As individuals learn their value hierarchies, a great variety of value hierarchies could be expected, related to the unique development trajectory of a specific person. The traditional “philosophical” concept of a value hierarchy universal to all humans, or to specific cultures, is therefore inappropriate. However, social experiences of different individuals are similar, due to invariants of human anatomy and invariants of a self-reproducing society. Social learning through imitation and mechanisms of social norm enhance the “standardization” of behavioural patterns. In groups with similar circumstances and trajectories of life, one should expect typical sequences of value hierarchy levels. Consequently, the typical variety of individual value hierarchies can be summarized within closed social groups (organizations, subcultures) or across large samples of respondents, permitting discussions of national-level value hierarchies and considerations of their transformation.

Analysis of value hierarchy dynamics in transforming Russia

In the present paper, we briefly consider transformations of mass-distributed value hierarchies during the transition from the USSR to Russia. Our interpretations are based on secondary data and do not provide a comprehensive description of factors relevant to this process. Still, even this superficial modelling may give interesting insights regarding the nature of changes that occurred in the country during this period.

General changes of value hierarchies

A lengthy existence of the Soviet Union and the Communist regime were not possible unless it had grounds in the basic values of Russian culture. The promise of Communism supported three axiological dimensions essential to Russian civilization (Naishul *et al.*, 2006):

- significant improvement in the quality of life (“operational” values);
- establishing social justice (popularly understood as an egalitarian society) (“tactical” values); and
- involvement in global (nation-/country-/world-wide) activities (“strategic” values)[3].

The Moral Code of the Communism Builder, published by the Communism Party after the war, regulated Communist project participant behaviour. It was, in fact, as an explicit system of value hierarchy administration for society to be constructed. However, Communism builders were supposed to act “for the good of their children and their grandsons”. Since the time of actualization of the upper levels of value hierarchy exceeded the average life longitude, for true Communism believers this led to an existential crisis.

This problem was acknowledged, and the Party leaders revised the main objective as “to build Communism within one generation”. However, the increased separation between the common citizens and “nomenkatura” (the Party elite) contrasted the social expectations for the non-verbal markers of Communist egalitarian society. Growing attention to personal well-being in the society during the decline of the USSR in the 1970-1980s testifies that higher levels of mass-distributed value hierarchies ceased to actualize.

The Soviet Union and the Communist project collapsed, arguably, not only because of economic, social and ideological controversies – although all of these factors catalyzed the process. One of the main reasons was the inability of Soviet citizens to maintain old institutes, old behavioural patterns and higher values to which the ideology assigned through propaganda and daily working routines. Propagandistic slogans (verbal markers) on their own, in the absence of non-verbal markers of context (experienced as a “non-conformity between slogans and reality”), simply could not trigger proper activities.

The state and its processes became meaningless and values devaluated, creating an “ideological” vacuum during early the 1990s[4]. The “loss of the meaning of life” was named as the key character of the periods in public opinion surveys (Ryvkina, 2001). Evidently, many of the “old” (Soviet) context markers disappeared, and the majority of population was generally unable to identify “new” markers. Existing individual value hierarchies became inappropriate.

The disappearance of a powerful state patronizing lives of common people demanded, in the first half of 1990s, to learn new patterns of self-dependent behaviour:

- self-dependent economic behaviour (entrepreneurship or participation in the labour market), which replaced guaranteed lifetime employment;
- self-dependent political behaviour (participation in elections and political parties), which replaced guaranteed (forced) inclusion into Communist ideological processes; and
- independent self-identification with cultural, ethnic, economic, and social groups, which replaced identification with *de jure* classless Soviet people, etc.

The majority of the Russian population managed to learn new contexts of their value hierarchies during the first decade of reforms, as confirmed by value orientation

studies: in the 1990, respondents named order in the State and personal integrity amongst their most important values, while the egoism and the individualism were reproached; but already in 1995, the entrepreneurial spirit and the personal success were called the most important instrumental values (Kudryavtsev, 2002).

However, this adaptation has not come without pain and disillusionments. The share of population in poverty increased tremendously, while a tiny group of “novy russkie” (new Russian riches) enjoyed its super-wealth. Political life was monopolized by a gang of corrupted politicians hiding behind democratic slogans. Important social strata (doctors, teachers, scientists, etc.) became unneeded, while some unprivileged strata (e.g. salesmen) and even those marginal (e.g. criminals) suddenly became “elite” (as their behavioural strategies turned to be suitable for the changing circumstances). The mode of living in 1990s was called “survival” in public surveys (Ryvkina, 2001) – which implies that only lower levels of value hierarchies were commonly actualized, while higher levels were not involved.

The Russian adult population was suddenly forced to adapt to a new and changing world. Because of the massive change of social (economic, political, ideological, etc.) metacontexts, the population had to commence, on a mass scale, the learning of new contexts of contexts (learning-III). The necessity to learn new value hierarchies became a traumatic experience for the majority of population. As Bateson (1972) indicates, first of all, this type of learning is rare among adults (usually ending by the age of seven), second, it brings learners to a situation of a steady existential paradox, when no points of reference exist which could help in the rational understanding of life – and life becomes a Zen koan.

The beginning of the 2000s was characterized by feelings of stabilization, hinting that lower levels of value hierarchies have been learnt. However, higher value levels remain disconnected with nation-wide initiatives: the majority of Russian citizens do not see them as markers of their personal life contexts. For instance, *de facto* revocation of free elections by the President in late 2004 (connected to the value of political freedoms) did not cause any significant protests, and about the half of the population was simply unaware of these policies (Byzov, 2004). Unlike that, the benefit monetization initiative (i.e. the decision to dismantle the Soviet-type system which supported retired and indigent citizens through natural benefit provision) in early 2005, which impacted the well-being of the retired, led to protests all over Russia.

Gradual restoration of higher levels of national value hierarchies introduces the need for actualization of one of the basic values of Russian culture: the value of justice (comparable status of various social groups). Popular opinion surveys in late 2006 confirm that moods of discontent with unjust distribution of income and privileges become widespread in Russian society (Byzov, 2006). Within the next few years, this issue can become essential for social dynamics.

Reproduction values

The mass actualization of values supporting social reproduction (value of childbirth, of education, of wealth accumulation, etc.) is necessary for the normal retention of society (Parsons, 1951). Reproductive activities relate to long-term behavioural patterns, i.e. to higher levels of value hierarchies. Reforms of the 1990s negatively influenced social reproduction in Russia. From the perspective of our analysis, it is possible to provide additional insights into these processes.

In the 1970-1980s, before the terminal crisis of the Soviet Union, the country already transited to a typical late-industrial society reproductive pattern of low birth and death rates. In the economic sphere, conservative investment programs dominated, without breakthrough investments that were typical for the post-war recovery period. Amongst the verbal markers of this period were the “stability” and the “certainty in the future” (Ryvkina, 2001) (supported by free healthcare, free education, guaranteed employment and income, state regulated prices, etc.).

In the mid-1990s, reproduction processes have declined considerably. The drop in birth rates evidently concerns changes in value orientations: the average desired number of children dropped from 2.72 to 2.33 between 1990 and 1995 (WVS, 2006). The dramatic increase of mortality in Russia after 1992 is well-documented (Shkolnikov *et al.*, 1998). The economic sphere experienced reductions in investment activity, along with a catastrophic decline in output: investment into fixed capital in 1995 dropped to 25 per cent of its 1990 level (Fedotov, 2005).

The verbal markers used to explain low reproductive activities of the 1990s in public opinion surveys were “uncertainty” “unpredictability” and “absence of the future” (Ryvkina, 2001). Such comments provide evidence that connections between values, context and activities were broken on higher levels that regulate long-term behavioural patterns. In the absence of stable contexts, the majority of the population was deprived of key stimuli that trigger patterns of reproductive behaviour. Obviously, the “shock therapy” reform in the 1990s demolished old context markers but provided no time to learn new contexts.

The inability to actualize higher value levels usually leads to existential crises, expressed in psychosomatic diseases and self-destructive activities. Unprecedented growth in drug usage and alcoholism, a surge in deaths from suicide and blood-transmitted diseases in Russia in the early 1990s mirrors this unresolved conflict of behavioural indeterminacy.

In the early 2000s, Russia observed a reversal of trends: the birth rate increased, and the mortality rate started to decrease for younger strata (Figure 1). In the economic sphere, investment started to increase again, though still lower than pre-reform levels (Figure 2). The period of the 2000s in popular opinion is associated with the restoration of stability, “recovery of perspective” (Byzov, 2006). Such a perception of the social situation could be an indication that new behavioural patterns were learned and new value hierarchies were stabilized. The relative stability of contexts and metacontexts of social life allowed for a revival in reproductive processes in Russian society.

Periodization of Russian transformation from value hierarchy perspective

The proposed periodization of value hierarchy transformation (Table II) shows that the change in value hierarchies is an essential driver of the social dynamics in Russia. The collapse of the USSR in 1991 was to a large degree led by the degradation of value hierarchies and the cessation of higher value actualization. In the 1990s, the population faced a deficit of known contexts and metacontexts – which forced learning-III of adults on a mass-scale, an experience that the majority of the population found traumatic. In the 2000s, the gradual re-establishment of new value hierarchies allowed to revive processes of social reproduction and re-engage higher levels of value hierarchies.

Table II.
Mass change of value
hierarchies across periods
of social transformation

Period	Transformation of value hierarchies	General dynamics of value hierarchy levels	Reproduction (higher) values
1970-1980s	Gradual degradation of value hierarchies due to inconsistencies between verbal and non-verbal markers of activities	Cessation of higher level value actualization Focus on "personal well-being" (lower value levels)	Conservative reproductive processes (presence of contexts relevant to long-term behavioural patterns)
1990s	Collapse of value hierarchies, collective pressure for learning-III for adults due to absence of proper contexts and metacontexts	"Flattening" of value hierarchies Focus on "survival" (lowest value levels)	Sharp deterioration of reproductive processes (collapse of higher level contexts)
2000s	Gradual re-establishment of value hierarchies (stabilization of contexts and metacontexts, completion of learning-III)	Gradual "thickening" of value hierarchies Gradual restoration of higher value levels	Gradual recovery of reproductive processes (re-establishment of higher level contexts)

The need to learn new value hierarchies was ultimately disregarded in the course of Russian transformations. Furthermore, even when it was admitted, the understanding of the underlying processes (dynamics of value hierarchies) was still poor. For instance, consideration of proposed reform initiatives from the Batesonian perspective could predict the disturbing outcome of forced collective learning-III in the Russian adult population. The lack of proper epistemology in social transformation design had dramatic consequences for Russian society. Many of the unwanted consequences of transformations could have been avoided, or at least softened, had the appropriate epistemological tools been present.

Conclusions

We summarize our key conclusions from the theoretical consideration and applied analysis presented in the paper:

- The value hierarchy model, built within the Batesonian approach, provides a framework for analysis of the behavioural alternative choice by social individuals. This model provides opportunities to reinterpret available sociological data on value orientation dynamics.
- Analysis of transformation processes in Russia during the last 25 years shows that crisis events in the 1990s were related to the demolition of behavioural contexts and mass scale learning-III of the adult population, with the subsequent formation of new value hierarchy structures in the early 2000s.
- Attention of social planners to the structure of mass-distributed value hierarchies and the need to learn in changing contexts could improve the efficiency of social transformation. In particular, consideration of specific value orientations of the Russian population could help to prioritize the sequence of necessary reforms and the most demanded policies.

Notes

1. Consequences of the inability to accomplish choice of a behavioural pattern are illustrated by the famous parable of Aristotle about a man placed between two vitally important alternatives (food and water) and dying of inability to choose one of them, or by the famous “ass of Buridan” described by Leibniz.
2. Including studies of: contexts that motivate studying in private schools; contexts that motivate purchase of specific goods; contexts that motivate working activities in private firms; contexts that motivate elections of specific political candidate; contexts that motivate the decision to emigrate, etc.
3. Which responds to values formed most likely in Russian Orthodox Christianity, and linked to ideas of Messianic role of Russian people (Duncan, 2000).
4. During that time, in the attempt to fill in this gap, sects and spiritual movements of all kinds invaded Russia, including odious organizations such as Aum Shinrikyo.

References

- Andreas, S. and Andreas, C. (1987), *Change your Mind – and Keep the Change*, Real People Press, Moab, UT.

- Bandura, A. (1999), "Social cognitive theory: an agentic perspective", *Asian Journal of Social Psychology*, Vol. 2 No. 1, pp. 21-41.
- Bateson, G. (1949), *Bali: The Value System of a Steady State*, Institute for Intercultural Studies, New York, NY.
- Bateson, G. (1971), "The cybernetics of 'self: a theory of alcoholism", *Psychiatry*, Vol. 34 No. 1.
- Bateson, G. (1972), "Logical categories of learning and communication", in Bateson, G. (Ed.), *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*, University of Chicago Press, Chicago, IL.
- Benedict, R. (1934), *Patterns of Culture*, Mentor Books, New York, NY.
- Byzov, L. (2004), "Election system: new parties for new system" (in Russian). *Vedomosti*, 1 December.
- Byzov, L. (2006), "Conservative wave in Russia", VCIOM, 2 October, available at: <http://wciom.ru/arkhiv/tematicheskii-arkhiv/item/single/3298.html>
- Campbell, D.T. (1975), "On the conflicts between biological and social evolution and between psychology and moral tradition", *American Psychologist*, No. 30, pp. 1103-26.
- Caplan, B. (2003), "Stigler-Becker versus Myers-Briggs: why preference-based explanations are scientifically meaningful and empirically important", *Journal of Economic Behavior & Organization*, No. 50, pp. 391-405.
- Duncan, P. (2000), *Russian Messianism: Third Rome, Holy Revolution, Communism and After*, Routledge, London.
- (*The Economist* (2001), "Endangered species", *The Economist*, Survey on Russia, 19 July.
- Fedotov, K. (2005), "Investment breakthrough" (in Russian). OpEc, Vienna, available at: www.opec.ru/library/article.asp?tmpl=def_article_print&d_no=5555&c_no=19&c1_no= (accessed 29 August).
- Heyne, P., Boettke, P. and Prychitko, D. (2005), *The Economic Way of Thinking*, 11th ed., Prentice-Hall, Englewood Cliffs, NJ.
- Illarionov, A. (2002) paper presented at the 3rd International Conference of Russian Economic Modernization, Moscow, 3 April.
- Ito, M. (1999), "Neuroscience of the mechanisms of mind and behavior", *Artificial Life and Robotics*, Vol. 3 No. 1, pp. 3-6.
- Khrushcheva, N. (Ed.) (2002), *Lessons of Transition: The Cultural Contradictions and the Future of Russian Liberalization*, World Policy Institute, New York, NY.
- Kudryavtsev, V.N. (2002), "Morals of society in transition", *Vestnik RAN: Nauka i obschestvo*, Vol. 72 No. 3 (in Russian).
- Min, T-K. (1998), "A study on the hierarchy of values", *Proceedings of the Twentieth World Congress of Philosophy, Boston MA*.
- Naishul, V., Itskovich, D., Leibin, V. and Popov, O. (2006), "Three vectors: space of discussion for Russian situation" Polit.Ru, available at: www.polit.ru/analytics/2006/09/12/thesis.html (in Russian).
- Parsons, T. (1951), *The Social System*, The Free Press, Glencoe, IL.
- Powell, D.E. (1998), "The dismal state of health care in Russia", *Current History*, Vol. 97 No. 621, pp. 335-41.
- Rutland, P. (1999), "Mission impossible? The IMF and the failure of the market transition in Russia", *Review of International Studies*, No. 25, pp. 183-200.
- Ryvkina, R.V. (2001), *Drama of Reforms*, Delo, Moscow (in Russian).

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- Shkolnikov, V., Cornia, G., Leon, D. and Meslé, F. (1998), "Causes of the Russian mortality crisis: evidence and interpretations", *World Development*, No. 26, pp. 1995-2011.
- Stiglitz, J. (1999), "Whither reform? Ten years of the transition", Keynote Address World Bank Annual Bank Conference on Development Economics, April 28-30.
- Tkachev, A. (2003), "Model of preference management through hierarchies of lateral dominance" OpenMeta, available at: www.openmeta.org/metonymous (in Russian)
- Turchin, V. (1977), *The Phenomenon of Science. A Cybernetic Approach to Human Evolution*, Columbia University, New York, NY.
- WVS (2006), *World Values Survey Research*, available at: www.worldvaluessurvey.org/

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Human robustness and conscious purpose in contemporary medicine

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Abstract

Purpose – The purpose of this paper is to ask what role robustness plays in current medicine and in how far medical practices influence human robustness and thus the ability to be adapted and survive under changing conditions.

Design/methodology/approach – In order to do this Bateson's concepts of learning and network pathologies are applied to the medical topic of immune reaction.

Findings – Current medical research does not take sufficiently into account that natural stimuli and therapeutic interventions might lead to a large-scale of changes. This is mainly due to the lack of related epistemological tools.

Practical implications – This lack leads to a restricted validity of many medical findings. There is even some evidence that the current therapeutic approach might lead to a decline of human robustness.

Originality/value – This paper shows how systemic concepts can contribute to a deeper understanding of the therapeutic processes.

Keywords Learning, Adaptability

Paper type Conceptual paper

Robustness

Between August 4 and 18, 2003 about 15,000 people died during a heat wave in France and in the winter 2003/2004 about 50,000 people died in the UK of the consequences of cold weather, over 2,500 in one week. At least in France this was no harvesting effect (people who were expected to die within the next months), but a clear excess mortality (Poumadère *et al.*, 2005).

It is quite safe to state that a lot of people had a reduced ability to adapt to changing weather conditions. Although the weather was quite extraordinary (the summer 2003 was hotter than the last 50 years), the conditions cannot be regarded as extreme. These conditions might even represent the normal case when the predictions of meteorologists become true and summers become hotter due to the greenhouse effect and/or winters colder due to the reduced circulation of the Gulf stream.



In the first place these people did not die because they were not sufficiently adapted. This would be a mere tautology. It is also inappropriate to say (as often read) that they died because of hyperthermia and heat stroke (summer) or bronchitis or coronary thrombosis (winter). These are descriptions of how they died but do not refer to causes. In general, the question of a cause is problematic as it involves certain silent assumptions. There is always a danger to use a kind of logic which, in its final consequence, leads to ridiculous results such as “people died because they were alive”. The statement that people died because of dehydration involves a simple measure (drinking) which improves adaptation during hot periods. The statement that people died because of a lack of fuel due to poverty (Rudge and Gilchrist, 2005) introduces a political point of view. If people had more fuel they would not have died. But many important questions remain. Why did more people die during the cold in Britain than in Russia where the weather is colder, people are poorer and medical treatment less available? And why did relatively more people die in France than in Portugal where weather conditions were not much different? Is it simply the fact that the Portuguese and Russian people are more used to such kind of weather? And what would this imply?

Such questions cannot be formalized easily in medicine. Our attempt is to use some of Bateson’s logical tools, in order to open new ways of thinking and to tackle this and similar problems on a sound basis. First, we prefer the term robustness instead of adaptation. Robustness is clearly defined as the stability and evolvability of a system towards perturbations and under changing conditions (Ahn *et al.*, 2006). It became a well-known notion lately and refers more to the point of view of the physician than adaptation. Moreover, robustness has already a long tradition in medicine. In balneology robustness was and is increased by a procedure called hardening (including cold baths, warm applications, physical exercise, etc.). As a matter of fact, hardening increases robustness not only towards a defined stressor, towards warm (Sauna) or cold (cold baths). Health in general is improved. This is not only the old knowledge of balneologists and proved by hundreds of observational studies. The effects can also be demonstrated on the level of lymphocyte reaction (Kreutzfeldt *et al.*, 2003).

But in the current medical discourse robustness is rarely taken into account. The propositions made to reduce mortality due to extraordinary weather conditions, for example, mainly involve technical interventions such as heating or cooling. For example, a proposition was made to heat the waiting areas of public transport in Britain during winter (Keating and Donaldson, 2004). Such a measure might prove to be effective in an observational study. However, it would be quite expensive and promote climate change even further. That is, both consequences of such a move (the lack of money and climate change) might lead to a further increase of mortality in other areas. Furthermore, such a measure does not improve the robustness of the people to cold weather conditions. It even might reduce it as it represents a kind of “weakening”. Bleuler who never heated the floors in his hospital and also kept the ward rooms on a quite low temperature, maintained that he had no deaths during the Spanish flu 1918/1919 whereas comparable institutions had quite a lot of casualties. He insisted that providing a frame of good healthy conditions is the best way to prevent and treat most of the diseases (Bleuler, 1962, pp. 54-6). As the danger of an epidemic of an avian flu is imminent, his arguments are as relevant as 80 years ago. Today the discussion on prevention centres only around drugs and vaccination, well knowing

that in an epidemic both will not be sufficiently available and may even not be effective. We attribute the lack of an understanding of robustness to the fact that the currently used epistemology is not appropriate to describe such phenomena.

Current medical epistemology and its limits

The current medical paradigm is characterized by two main features: first, modern medicine is based on measurement. By that observations are quantified and experiments become comparable. Second, in order to cope with the complexity of human physiology and pathology the observed phenomena are broken down into defined parts, a procedure called reductionism.

Under the conditions of such an experimental setting a certain range of observation is defined. In this range parameters and their changes through interventions can be coherently tracked. Thus, the concept of cause and effect is introduced.

The received descriptions and reactional patterns (physiology, pathology, biochemistry, etc.) are called specific. Current medicine speaks of “specific” diseases like rheumatoid arthritis, mononucleosis or diabetes mellitus. Interventions to alter such specific pathologies are called “specific treatments”. Methotrexat in rheumatoid arthritis, insulin in diabetes or neurotransmitters in depression represent such treatments.

Bateson called this specific approach conscious purpose. This expression refers to an attitude where in a complex ecological context certain defined goals are aimed at with defined interventions (Bateson, 1972, pp. 426-47). Conscious purpose in the reductionist setting implies that internal and recursive reactions of the organism are not taken into account. That leads to a situation where the scientist uses epistemological tools that do not really fit for natural processes. That is, the construction of the specific/unspecific frame does not represent a final truth, but the condition of the observer by allowing only certain observations and excluding others. But the predictability of the specific approach is limited as a lot happens outside the defined frame of observation. These events are necessarily qualified as unspecific. There are side effects which are called unspecific, when they are not predictable by the physiological model. There are unspecific diseases with no clear-cut pathology. Chronic fatigue syndrome is such an example, despite many attempts to formulate a specific nature. And of course, there are unspecific therapies. The placebo effect is one. Hardening is another.

In regard to adaptation the specific approach creates problems:

- In reductionism the effect of an intervention or of a therapy has to be based on certain criteria (surrogate-parameters). But such parameters might not be relevant for robustness and there is always an insecurity whether the defined space of observation and the chosen parameters are relevant. If not, an intervention might show outstanding results but might lead to a decline of robustness. Around 1980-1990 the standard therapy of osteoporosis (defined as the loss of bone mass) was sodium fluoride (NaF), known to stimulate osteoblasts. According to all (mostly industry sponsored) trials the therapy was effective. It took years and an independent study to show that, in fact, bone mass was higher but so was the incidence of extra vertebral fractures. Through the therapy bone mass had increased, but the bone had become more brittle (Riggs *et al.*, 1990).

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- As reductionist research needs defined conditions the validity of its findings is restricted when conditions change. That is, something effective in a certain context might turn out to be ineffective or harmful in a different context. For example, β receptor blockers are helpful in a lot of diseases from hypertension over glaucoma to anxiety. One of its adverse reactions is that it reduces reactivity during hot weather conditions, thus increasing heat-related mortality (Bouchama and Knochel, 2002). Thus, under changing conditions – such as climate change – former evidence might lose its validity.
 - The effects of a therapy might exceed its “conscious purpose”. For example, there had been reports that the vaccination of children in Guinea Bissau led to an increased overall mortality (Kristensen *et al.*, 2000). Another study showed that the vaccination with DPT and BCG in Burkina Faso led to a decrease in overall mortality (Vaugelade *et al.*, 2004). These effects could be neither explained by statistics nor by the specific reaction towards tuberculosis, diphtheria, tetanus or polio. Although highly specific such findings are normally labelled as unspecific (Fine, 2004).

The concept of learning in the medical context

A suitable epistemological tool to model such effects is the concept of “learning of higher order” introduced by Gregory Bateson. He distinguished five types of learning (Bateson, 1972, pp. 159-76, 279-308):

- (1) *Zero learning* is found in cases where an “entity shows minimal change in its response to a repeated item of sensory input”. This is seen in simple mechanical circuits or in living organisms which are overstimulated, or where the response is structurally fixed.
- (2) *Learning I* is the typical learning investigated in laboratories. It measures to which extent and in which time a person is able to solve a mathematical riddle or to remember nonsense syllables. Learning a language is also learning I.
- (3) *Learning II, or deutero-learning* is a second order phenomenon. It is learning to learn. Someone who learns nonsense syllables is after a few tests able to learn nonsense syllables more easily, or might even remember numbers better. Learning a language enables an individual as well to learn a different language more easily. But second order learning cannot be detected by the simple measurement of a certain variable. It can only be detected by series of similar experiments and their comparison and a related theory.
- (4) *Learning III* is characterized by more fundamental changes. It involves learning to limit, direct or change what is acquired by learning II. We propose as a paradigm the change from a reductionist and linear approach to an ecological/systemic thinking. Such a change does not involve measurements or comparison of measurements. It is a different understanding of data and contexts altogether.
- (5) *Learning IV*, according to Bateson, is a change in the learning structure, that is, a change of the genetical adaptation which only happens due to evolutionary selection involving many generations.

During his lifetime Bateson changed this concept several times (Lutterer, 2000, pp. 123-40). One reason might have been that there are some difficulties in its application to observations. There are no major problems with learning 0-II. There is, however, some

incertitude about what learning III really is. But the main obstacle is learning IV. Bateson's concept is based on the old axiom that transmission is the transmission of DNA and that acquired characteristics cannot be transmitted. Yet, during the last years epigenetics (the science which investigates how heritable changes occur without a change in DNA sequence) is flourishing and it becomes quite doubtful what "inheritance" really means (Jabolka and Lamb, 2005).

The knowledge on epigenetics is still quite rudimentary. But it is clear that single nutrients, toxins, behaviours or environmental exposures of any sort can silence or activate a gene without altering its code. That is, a given genotype can give rise to different phenotypes depending on environmental conditions. Such responses to the environment may be expressed in the offspring rather than in the parent and might persist across a number of generations, even if the environmental factor itself has changed (Bateson *et al.*, 2004). The following examples shall just give an impression of what is attributed to epigenetics today:

- The nutritional status of grandfathers before adolescence has been found to be of major influence for the health of their grandchildren. A period of famine, for example has a health protective influence in the grandchildren (Kaati *et al.*, 2002).
- Good baby care in rats activates some genes in the hippocampus. This activation remains for generations and these rats show more care for their babies (Weaver *et al.*, 2004).
- Genetically similar fish have different gene expressions according to their life-style and genetically different fish have a similar gene expression when they share the same way of living (Giger *et al.*, 2006).
- Environmental stress changes plant physiology over generations (Molinier *et al.*, 2006).

Although we do not believe that different levels of learning really exist (we regard them as a metaphor), they are helpful in sorting out different aspects of a certain reaction, aspects which are often not taken into account in the judgment of an intervention. Such categories are necessary when the restricted point of view of a linear model is left behind. This shall be demonstrated with the example of immune reaction.

Learning 0 prevails when under similar circumstances a certain infection reoccurs. Some people develop tonsillitis having a cold, some women suffer from herpes labiales during every menses. Also short-term death after an infection should be regarded as learning 0.

Learning 1 is, for example, the development of a lifelong immunity after an infection as in measles or varicella.

Learning II is observed when the immune reaction triggered by one germ improves the immune reaction against other germs. In AIDS there is a survival benefit when the person is infected with the GB virus, a close relative of the hepatitis C virus (Pomerantz and Nunnari, 2004), or with measles (Moss *et al.*, 2002). To go through a flu might improve robustness towards bacterial infections.

Learning III occurs when an acute infection is the starting point of the improvement of a chronic disease. A classical example are worm infections improving asthma (Wilson *et al.*, 2005) or Crohn's disease (Summers *et al.*, 2005). That is, the impact of

an infection onto the immune system might have a beneficial effect for the function in general and is not limited to the protection against germs. This example of learning III is also the core of the so-called hygiene hypothesis (Watts, 2004). This hypothesis says that the exposition to germs is beneficial, as children who live in an environment with a lot of germs (on a farm or with many siblings) are less likely to develop allergies, asthma and many other diseases.

Learning IV is given when following generations benefit from an infection of their ancestors. When measles, varicella and other viral diseases came to the new world through the Spaniards, they were extremely lethal during the first decades. The same was true for syphilis which – according to the prevailing theory – was brought back by Columbus in return. But after some time the diseases became less aggressive. Even people who never had contact with the germ before and probably did not possess specific antibodies had milder forms. Former theories explained this only by selection. It was supposed that the more susceptible people just died, so that the surviving population became genetically more resistant. However, this theory was never convincing. It is not probable either that all germs change when they remain in a new population. This typical example of learning IV involves certainly a strong epigenetic component.

But the ecological context plays a role, too. As seen in learning II the “infection” with certain viruses might lead to a survival benefit in other viral diseases and a person equipped with a certain set of viruses might be better adapted when confronted with a new virus. That is, a person defined as more or less ill in a certain context might be better adapted in the case of an epidemic. One reason is that the immune system normally overreacts when confronted with a totally new virus. For example, the high mortality of Spanish flu 1918/1919 was due to such an overreaction and not to the lack of immune response (Kobasa *et al.*, 2004).

It would, however, be a mistake to believe that learning through germ contact only induces positive effects. An infection often has severe side effects like glomerulonephritis after a streptococcal tonsillitis (learning I). An infection might promote or worsen other infections (learning II). Infections might lead to a total change of human function (learning III). This is seen in many chronic diseases and lately a whole range of such chronic diseases are attributed to infections. This so-called germ theory (Edwards, 2002) is actually the opposite of the hygiene hypothesis. And all this might have negative influences onto following generations (learning IV).

This analysis shows that in the living organism the observation of only one factor (the effect of a “conscious purpose”) is necessarily defective. An intervention might produce favourable results but might lead to the decline of robustness simultaneously.

Although this can be partly modelled with the levels of learning, poly-contextual models (von Goldammer and Paul, 2007) or the concept of network pathologies are necessary to understand deeper impacts of a certain stimulus.

Network pathologies

A network pathology arises when the feedback mechanisms of the organism are no longer tuned and the response to perturbations becomes inadequate.

The tuned immune reaction depends on the balance of two types of helper cells (Th). An overweight of Th 1 cells (cell mediated immune reaction) leads to autoimmune diseases like multiple sclerosis (type 1 diseases). An overweight of Th 2 cells (humoral immune reaction) is associated with atopic disease, asthma and other (type 2 diseases)

(Kreutzfeldt and Müller, 2001). In rheumatic disease, for example, the same genetical disposition might lead to the type 1 disease of rheumatoid arthritis (Tokuhiko *et al.*, 2003) or to the type 2 disease of lupus erythematosus (Prokunina *et al.*, 2003).

It became recently clear that the adequate immune reaction is a tightrope walk between autoaggression (type 1) and inappropriate defence (type 2). Little is known how the balance is kept. But infections certainly play a central role in the development of an equilibrium and in its loss. It is somehow striking that the two types of helper cells inhibit each other through a negative feedback mechanism (Park *et al.*, 2004). Without outer influence they tend to develop a schismogenetic pattern. But as not every disturbance of the Th1/Th2 relation leads to a chronic disease (many diseases show up in mild form for some time and occur never again) this antagonistic organization has to be embedded in a wider semantic structure with other positive and negative feedback mechanisms involved. That is, the cause of the chronic disease is neither found in Th1, nor in Th2, nor in the relation of Th1 and Th2 alone.

One of the first to study how network pathologies evolve was Bateson. He distinguished two types of pathologies (Bateson and Bateson, 1988, p. 119):

- (1) monotone change, continuous increase or decrease; and
- (2) to fix a value of a variable.

A pathology of the first type (monotone change) is seen when the negative feedback mechanism between Th1 and Th2 is not interrupted. Experience tells us that it takes months or even years until chronic diseases arise after the occurrence of the first symptoms. Much quicker is the development in Systemic Inflammatory Response Syndrome (SIRS). An inflammatory cascade might lead to sepsis within hours or days.

The second network pathology (fixing a variable) is more difficult to conceive. Bateson starts with the premise that all biological systems contain subsystems which are potentially regenerative, that is, they would go into exponential “runaway” if uncorrected. These regenerative potentialities depend on other subsystems to which they are connected through cybernetic feedback loops. If in such a system, due to outer influences, one variable is held constant other variables are necessarily changed. After some time such a change will spread through the whole system leading to a different homeostasis. He defines such a change as a kind of learning (Bateson, 1972, pp. 440-7). As a consequence, of this change unexpected runaways will occur after some time (Bateson, 1972, pp. 330-1).

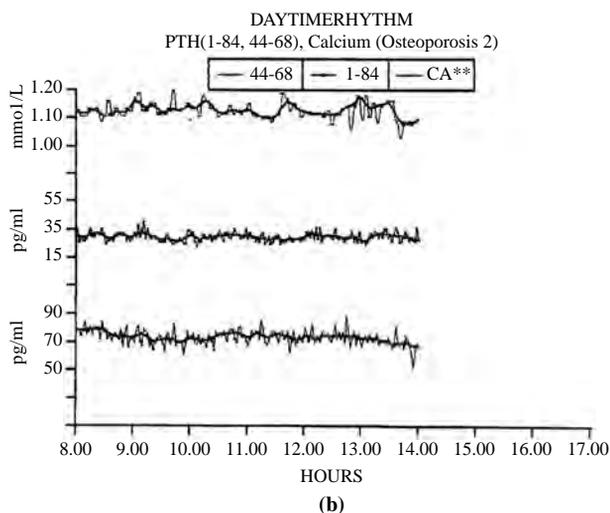
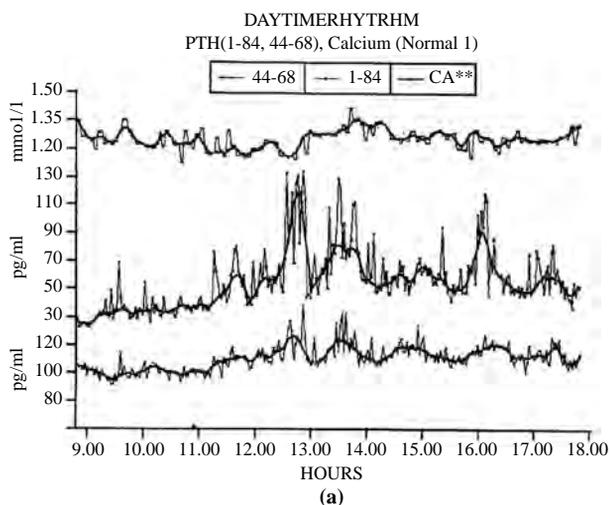
This hypothesis implies that modern medicine which often aims at holding variables stable tends to induce network pathologies. As so often in medicine, such a hypothesis would be difficult to prove. An example in this direction is the analysis of polytraumatised soldiers of the battles of Trafalgar and Waterloo. It revealed that the survival rate was then about the same as in today’s intensive care, despite all drugs and technology. The main reason why current intensive care does not prove better is the high incidence of sepsis (Singer, 2004), the typical example of a runaway. As sepsis became one of the leading causes of death in the Western world it might be concluded that runaways through the fixation of a variable occur mainly (or become more visible) under extreme circumstances.

The related picture of cybernetics is that of the tightrope walker. A tightrope walker makes chaotic and sometimes vehement movements with his bar in order to keep his balance. Inhibiting his free movement facilitates his falling.

There is growing evidence that this simplistic picture is quite meaningful for human physiology. In all kinds of processes a chaotic distribution of variables is an expression of health, whereas constancy is an expression of disease.

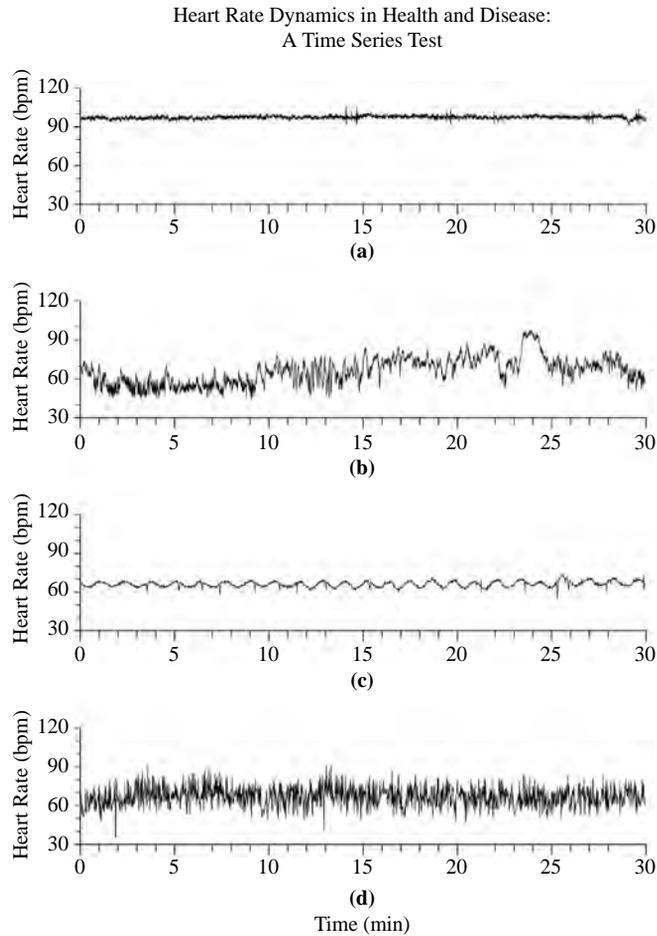
In Figure 1 the course of calcium concentration in blood (above), of parathormone (middle) and its metabolite amino acid (below) is intense and chaotic in the healthy (a), with a loss of nearly all oscillation in severe osteoporosis (b) (Gerok, 1990, p. 30).

Figure 2 shows the analysis of heart rates (PhysioNet). A and C derive from patients in sinus rhythm with severe congestive heart failure. D is from a subject with a cardiac



Note: With kind permission of Wolfgang Gerok

Figure 1.
Concentration of calcium,
parathormone and its
metabolite in health and in
severe osteoporosis

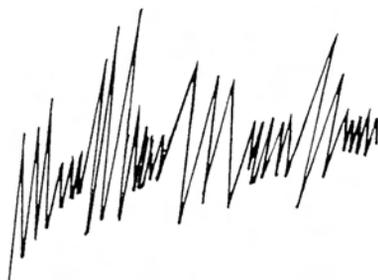


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Figure 2.
Heart rate dynamics in health and diseases: a time series test

arrhythmia, atrial fibrillation, which produces an erratic heart rate. The healthy record, B, far from a homeostatic constant state, is notable for its visually apparent nonstationarity and “patchiness”. The healthy pattern is neither rigid nor random (Goldberger *et al.*, 2002).

The Figure 3 shows the behaviour of healthy families. Although more a guess than a measurement, it implies that a “balanced” family is mainly in a sort of “disequilibrium alternating with periods of homeostasis and the fluctuation remains within a manageable range” (Minuchin and Fishman, 1981, p. 22). This contradicts the myth that functioning marriages are free of problems. In contrary, family therapists regard always balanced and harmonious families as potentially rigid. They are endangered to become symptomatic during major transition periods and stressful live events, such as the birth of a child, a member leaving the family, a parent losing his job, etc.



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Figure 3.
Healthy family
relationship

This description of rigidity vs robustness seems to fit quite well to the findings in infectious diseases where we probably also see an oscillation between a type 1 and a type 2 reaction and where continuous perturbations with a certain amount of germs seems to be beneficial as long as the immune system is able to keep the effects in a certain manageable range. The lack of such a confrontation might be the first step towards chronic diseases.

Conclusion

The classical concept of physiological control assumes that healthy systems are self regulated to reduce variability and maintain physiological constancy. But the opposite seems to be true (Goldberger *et al.*, 2002). Inducing constancy – often the aim of current medicine – might even reduce robustness. Such a reduction cannot be detected under normal conditions. Normal conditions do not inform us about the fitness of a biological system. Only in challenging situations it is possible to distinguish between adaptability and rigidity. As efficacy control in medicine is mainly done under stable conditions, trials are mostly not able to tell us whether a therapy increases rigidity or adaptation. Even worse, the current concept of efficacy control seems to propagate a learning 0 situation in which an organism reacts the same every day. As learning 0 is mainly found in overstimulated organisms there is some probability that current therapies in order to be regarded as efficacious provoke the rigidity which is then seen as favourable. If this assumption is true, current medicine would partly contribute to a decrease of robustness. This could turn out to be disastrous in times of crisis like war, famine or even under climate change. In order to avoid such possible consequences we propose in every kind of therapy to take the improvement of robustness into account.

References

Ahn, A.C., Tewari, M., Poon, C.S. and Phillips, R.S. (2006), "The limits of reductionism in medicine: could systems biology offer an alternative?", *PLoS Med*, Vol. 3 No. 6, e208, available at: <http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10%2E1371%2Fjournal%2Epmed%2E0030208> (accessed 2 June 2006).

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Bateson, G. and Bateson, M.C. (1988), *Angels Fear. Towards an Epistemology of the Sacred*, Bantam, New York, NY.
- Bateson, P., Barker, D., Clutton-Brock, T., Deb, D., D'Udine, B., Foley, R.A., Gluckman, P., Godfrey, K., Kirkwood, T., Lahr, M.M., McNamara, J., Metcalfe, N.B., Monaghan, P., Spencer, H.G. and Sultan, S.E. (2004), "Developmental plasticity and human health", *Nature*, Vol. 430, pp. 419-21.
- Bleuler, E. (1962), *Das autistisch-undisziplinierte Denken in der Medizin und seine Überwindung*, Springer, Berlin.
- Bouchama, A. and Knochel, J.P. (2002), "Heat stroke", *N Engl J Med* Vol. 346, pp. 1978-88.
- Edwards, P.E. (2002), *Plague Time: How Stealth Infections Cause Cancers, Heart Disease, and Other Deadly Ailments*, Anchor Books, New York, NY.
- Fine, P.E.M. (2004), "Non-specific 'non-effects' of vaccination", *BMJ*, Vol. 329, pp. 1297-8.
- Gerok, W. (1990), "Ordnung und Chaos als Elemente von Gesundheit und Krankheit", in Gerok, W. (Ed.), *Ordnung und Chaos*, pp. 19-42.
- Giger, T., Excoffier, L., Day, P.J.R., Champigneulle, A., Hansen, M.M., Powell, R. and Largiadèr, C.R. (2006), "Life history shapes gene expression in salmonids", *Current Biology*, Vol. 16, pp. R281-2.
- Goldberger, A., Amaral, L.A.N., Hausdorff, J.M., Ivanov, P.C., Peng, C.K. and Stanley, H.E. (2002), "Fractal dynamics in physiology: alterations with disease and aging", *PNAS*, 99, Suppl., Vol. 1, pp. 2466-72.
- Hall, J. (2004), "Vaccination and child mortality", *Lancet*, Vol. 364, p. 2156.
- Jabotka, E. and Lamb, M.J. (2005), *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life*, MIT Press, Cambridge, MA.
- Kaati, G., Bygren, L.O. and Edvinsson, S. (2002), "Cardiovascular and diabetes mortality determined by nutrition during parents' and grandparents' slow growth period", *European Journal of Human Genetics*, Vol. 10 No. 11, pp. 682-8.
- Keating, W.R. and Donaldson, G.C. (2004), "Winter mortality in elderly people in Britain – action on outdoor cold stress is needed to reduce winter mortality, letter to the editor", *BMJ*, Vol. 329, p. 976.
- Kobasa, D., Takada, A., Shinya, K., Hatta, M., Halfmann, P., Theriault, S., Suzuki, H., Nishimura, H., Mitamura, K., Sugaya, N., Usui, T., Murata, T., Maeda, Y., Watanabe, S., Suresh, M., Suzuki, T., Suzuki, Y., Feldmann, H. and Kawaoka, Y. (2004), "Enhanced virulence of influenza A viruses with the haemagglutinin of the 1918 pandemic virus", *Nature*, Vol. 431, pp. 703-7.
- Kreutzfeldt, A. and Müller, K. (2001), "Verbesserung der Immunregulation durch Methoden der Physikalischen Therapie", *Phys. Rehab. Kur. Med.*, Vol. 2001, pp. 188-95.
- Kreutzfeldt, A., Albrecht, B. and Müller, K. (2003), "Einfluss des Wassertretens nach Kneipp auf die Immunregulation", *Phys. Rehab. Kur. Med.*, Vol. 2003 No. 13, pp. 208-14.
- Kristensen, I., Aaby, P. and Jensen, H. (2000), "Routine vaccinations and child survival: follow up study in Guinea-Bissau, West Africa", *BMJ*, Vol. 321, pp. 1435-9.
- Lutterer, W. (2000), *Auf den Spuren ökologischen Bewußtseins*, Wolfram Lutterer, Freiburg.
- Minuchin, S. and Fishman, C.C. (1981), *Family Therapy Techniques*, Harvard University Press, Cambridge, MA.

-
- Molinier, J., Ries, G., Zipfel, C. and Hohn, B. (2006), "Transgeneration memory of stress in plants", *Nature*, Vol. 443, pp. 1046-9.
- Moss, W.J., Ryon, J.J., Monze, M., Cutts, F., Quinn, T.C. and Griffin, D.E. (2002), "Suppression of human immunodeficiency virus replication during acute measles", *Journal of Infectious*, Vol. 185, pp. 1035-42.
- Park, J.H., Yu, Q., Erman, B., Appelbaum, J.S., Montoya-Durango, D., Grimes, H.L. and Singer, A. (2004), "Suppression of IL7R α transcription by IL-7 and other Prosurvival Cytokines: a novel mechanism for maximizing IL-7-dependent T cell survival", *Immunity*, Vol. 21, pp. 289-302.
- PhysioNet, National Center for Research Resources (NCRR) (2006), PhysioTour, examples, available at: www.physionet.org/physiotour/fig2.html (accessed 6 September 2006).
- Pomerantz, R.J. and Nunnari, G. (2004), "HIV and GB virus C – can two viruses be better than one?", *N. Engl. J. Med.*, Vol. 350 No. 10, pp. 963-5.
- Poumadère, M., Mays, C., Le Mer, S. and Blong, R. (2005), "The 2003 heat wave in France: dangerous climate change here and now", *Risk Analysis*, Vol. 25 No. 6, pp. 1483-94.
- Prokunina, L., Castillejo-López, C., Öberg, F., Gunnarsson, I., Berg, L., Magnusson, V., Brookes, A.J., Tentler, D., Kristjansdóttir, H., Gröndal, G., Bolstad, A.I., Svenungsson, E., Lundberg, I., Sturfelt, G., Jönsson, A., Truedsson, L., Lima, G., Alcocer-Varela, J., Jonsson, R., Gyllensten, U.B., Harley, J.B., Alarcón-Segovia, D., Steinsson, K. and Alarcón-Riquelme, M.E. (2003), "A regulatory polymorphism in PDCD1 is associated with susceptibility to systemic lupus erythematosus in humans", *Nature Genetics*, Vol. 32, pp. 666-9.
- Riggs, B.L., Hodgson, S.F. and O'Fallon, W.M. (1990), "Effect of fluoride treatment on the fracture rate in postmenopausal women with osteoporosis", *N. Engl. J. Med.*, Vol. 322, pp. 802-9.
- Rudge, J. and Gilchrist, R. (2005), "Excess winter morbidity among older people at risk of cold homes: a population-based study in a London borough", *J. Public Health*, Vol. 27 No. 4, pp. 353-8.
- Singer, M. (2004), "Waterloo and medicine today", UCL, London's Global University News December, available at: www.ucl.ac.uk/news-archive/archive/2004/december-2004/latest/newsitem.shtml?04120108 (accessed 20 December 2006).
- Summers, R.W., Elliott, D.E., Urban, J.F., Thompson, R. and Weinstock, J.V. (2005), "Trichuris suis therapy in Crohn's disease", *Gut*, Vol. 54, pp. 87-90.
- Tokuhiro, S., Yamada, R., Chang, X., Suzuki, A., Kochi, Y., Sawada, T., Suzuki, M., Nagasaki, M., Ohtsuki, M., Ono, M., Furukawa, H., Nagashima, M., Yoshino, S., Mabuchi, A., Sekine, A., Saito, S., Takahashi, A., Tsunoda, T., Nakamura, Y. and Yamamoto, K. (2003), "An intronic SNP in a RUNX1 binding site of SLC22A4, encoding an organic cation transporter, is associated with rheumatoid arthritis", *Nature Genetics*, Vol. 35, pp. 341-8.
- Vaugelade, J., Pinchinat, S., Guiella, G., Elguero, E. and Simondon, F. (2004), "Non-specific effects of vaccination on child survival: prospective cohort study in Burkina Faso", *BMJ*, Vol. 329, p. 1309.
- von Goldammer, E. and Paul, J. (2007), "'The logical categories of learning and communication' – reconsidered from a polycontextural point of view – learning in machines and living systems", *Kybernetes*, Vol. 36 Nos 7/8.
- Watts, G. (2004), "The defence of dirt", *BMJ*, Vol. 328, p. 1226.

K
36,7/8

Weaver, I.C.G., Cervoni, N., Champagne, F.A., D'Alessio, A.C., Sharma, S., Seckl, J.R., Dymov, S., Szyf, M., Michael, J. and Meaney, M.J. (2004), "Epigenetic programming by maternal behavior", *Nature Neuroscience*, Vol. 7, pp. 847-54.

Wilson, C., Taylor, M.D., Balic, A., Finney, C.A.M., Lamb, J.R. and Maizels, R.M. (2005), "Suppression of allergic airway inflammation by helminth-induced regulatory T cells", *JEM*, Vol. 202 No. 9, pp. 1199-212.

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Reflections on learning and addiction: porpoises and palm trees

Gregory Bateson
(Edited by Nora Bateson)

Reflections on
learning and
addiction

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Abstract

Purpose – To provide a glimpse into Gregory Bateson’s thought processes about addiction and learning.

Design/methodology/approach – This piece is a combination of a transcribed and edited lecture called Civilizations and addiction II, and a previously unpublished piece from the Angel’s Fear manuscripts, “Definition of Addiction.”

Findings – Addiction is examined as a relationship between two or more entities.

Practical implications – This paper may provide a different and more integrated understanding of addiction. It may also lead to further research, into re-thinking the nature addiction, and subsequent courses of action to get through addictive situations.

Originality/value – This paper forms a valuable insight into numerous current cultural, social and individual issues dealing with addiction, and achieving higher levels of learning.

Keywords Cybernetics, Addiction, Learning

Paper type Viewpoint

During Gregory Bateson’s last years (1975-1980), several informal lectures were recorded at Esalen Institute in Big Sur, CA. These talks were usually given in his living room to groups of Esalen’s “Work Scholars,” that is, people of all ages and levels of education, who came to Esalen for a time to experience a different lifestyle and new context of ideas. What follows is an edited transcript from the second part of a series on Civilization and Addiction. At this juncture we no longer know who the participants were, so they are listed in the dialogue merely as “participant,” even though several of the 20 or so attending contributed to the discussion. Among the attendees was Joe Wheelwright, who was Gregory’s best friend, and a well-known Jungian analyst.

Gregory Bateson’s mode of teaching was the opposite of the quick and bite-sized sound bites of information we are becoming increasingly accustomed to these days. In keeping with his interest in an interdisciplinary approach to looking at the world, he would start a talk with an idea, and then gather several more thoughts over the course of the hour, giving time and weight to the portrait of their interrelationships. As you will see, his lecturing style was to travel through a topic on a looping thread of stories, picking up and dropping off ideas along the way, like hitchhikers. Those of you who have read other works by Bateson may recognize some of the stories he uses to convey the ideas in this lecture. Gregory loved stories, and he loved to look at them from multiple



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perspectives. In this way, he pulled new metaphors from familiar tales to illustrate unfamiliar concepts.

Following this transcription is a note. "Definition of addiction" found in the manuscripts for possible inclusion *Angels Fear*. It is an unfinished work in progress continuing the ideas he was toying with in the *Civilization and Addiction* lectures. Gregory often used lectures as a place to try out new ideas and to poke them around. Later he would go back and work on the ideas in writing. We have included it to offer a rare peek into the initial stages in the process of Gregory's formulating and formalizing a thought (though the definition that follows is not fully formalized, it remains mostly as it was found; in progress).

Civilization and addiction – Part II

Gregory Bateson (GB): I talked to a previous generation of *Work Scholars* last week about addiction, and I sort of felt that it was rather an unfinished talk – good as far as it went, but unfinished. So I thought I would resume it this week but I now have another generation of *Work Scholars* – those having gone, these having come, and I am not quite sure how I should continue, or how I should summarize what I said last week. And how much I should start from the – well, you know.

How many of you have heard nothing of what I said last week? About two-thirds. OK, Well, let me summarize. Because really the framing I think was quite interesting.

I framed the talk around a question which Norbert Wiener, the cybernetics man, had forced me to deal with in connection with schizophrenia. The question, which he put, was, "I am an engineer" he says. How would you specify to me the characteristics of a machine of some kind, such that you would agree that that machine was schizophrenic? Now this forces you, you see, to decide whether you really mean something by the word schizophrenia or is it just a nice cultural myth for putting people in lunatic asylums. Does schizophrenia differ from other psychopathologies and what are its formal characteristics?

The machine is not interested in, you know – mothers or milk or pigs or anything – so what you have to specify are formal characteristics. And we did indeed specify some formal characteristics which were – the conversation ran from half an hour to an hour – and between us we fantasized a machine which would be rather like a telephone exchange and it would be able to hear the human voice and when you said to it connect me to subscriber number 398, it would indeed connect you to subscriber number 398, but if in conversation with 398 you said you wanted 245 pigs f.o.b Detroit, it would hear 245 say "oh, that's another number" disconnect you from 398 and ring you to number 245 and this would not be what you wanted. And in fact the schizophrenic characteristic would be the making of errors, either accidental deliberate or whatever, in the classing of different sorts of messages thinking that the number means in fact the number of another subscriber when in fact was only a quantity of pigs. And this is the sort of thing schizophrenics do in many sorts of ways.

The next question after that was, how would one train a machine, supposing one was capable of learning, to make these errors? And of course, you would train it this way by punishing it every time it was right in guessing what sort of a number a number is. This was the invention of the double bind.

However, we are not talking about double binds we are talking about addiction. And specifically how to specify to an engineer that this behaving entity call it a machine, a creature, whatever you want is "prone to addiction" – not "is addicted to some thing"

that could be rather easy to define you know. As a machine, it won't work unless you oil it. All machines are addicted, and my machine (a VW Rabbit) is addicted to diesel fuel actually. But how would one define "prone to addiction" which isn't quite the same. It's one degree more abstract somehow. This is what we pushed around last week. And did not complete the session in the sense that we did not come up with the specifications for a machine. So, I thought it would be nice to push it around some more and see if we could get some specifications for a machine. I am not sure we can. We can get pieces of it.

Alright. We touched on several things which were interesting – Two, I think are very interesting and are worth bringing forth this evening, and seeing if we can go from there.

One was a curious offhand wisecrack of Samuel Butler's. I am a fan of Butler and think he was one of the best biologists of the nineteenth century. (Though I don't think he ever looked at any organism, other than his cat and himself). Anyhow, he remarked somewhere or another in one of the notebooks – that alcoholism would be a virtue if the headache preceded the intoxication. But as the headache follows the intoxication it's a vice. And indeed an addictive vice and this sometimes has something to do with it. And the other thing that came out of last week's talk was that we can't talk about addiction as distinct from learning, adaptation or something.

You have to have at least two entities which change. That is, I might learn to get water from a well by going to the well with a bucket to get water, but that doesn't make me addicted to going to the well with a bucket to get water. If on the other hand the well itself changes in some way because I go to it with a bucket to get water, so that as a result of the well's changing the getting of the water becomes more difficult for some reason, or it requires a bigger bucket or a smaller bucket or something, then we are on the way to an interactive thing which can start to escalate and become in some sense addictive. Therefore, in thinking about addiction one of the first specifications would be two orders of change probably in different parts of it, in different entities. I mean, the two things that change could be inside a single human being conceivably. Or they could be between a human being and environment, or conceivably between two human beings so that if individual A makes an adaptive change, B makes some change in response, and now if A does it he has to do it rather more than he did before because B is somehow defended or modified. You've got to have a double changing system to get anywhere with the word addiction.

Now those were both sort of touched on last time and I've wondered – I don't know how to do this – whether one could put together those two ideas – scrub them together in some way and, you know get a third idea out of it. This being one of the ways profitable thinking is sometimes done. Because I am just as much interested in telling you about how profitable thinking can sometimes be done as I am in solving the problem of addiction, which I don't think we shall solve. That's a big one.

Alright.

Now, there are a lot of situations which variously one calls double binds, or are related to what we used to call double binds, which have the characteristic that they force the individual to learning at a higher level. We did this with the porpoises, it is easier to use animal examples because the learning contexts are simpler and you have control over them and so on. The problem we set up for the porpoises was to have a porpoise learn to do something new in a given context which it had not previously done in that context. It is easy to take an animal and teach him to do a specific thing in response to what? – A buzzer, a stimulus of some sort – when the buzzer buzzes the porpoise should go through a hoop and whenever it buzzes it goes through a hoop – that's easy. That's the sort of experiment you do with rats, and is the basis of instrumental training experiments.

But now we are setting up something more difficult. It has got to do something new . . . whenever that context occurs. The actual training arrangement was a public show tank, with glass sides in an auditorium for two to three hundred people. The outfit I was with put on porpoise shows in Hawaii. And behind the show tank was two holding tanks. Well we knew it was possible, because when I arrived in Hawaii I found that the trainers had invented a piece of programming with the audience in which they said to the audience "We are going to show you now how we train a porpoise". "When the porpoise comes out from the holding tank I am going to watch it and when it does something I want it to repeat I will blow my whistle. The porpoises have already been trained that the whistle means fish and she will come over to me and get a fish and then she will do again the thing for which I blew the whistle and I will again blow the whistle and you will see this is how we select from the porpoises' vocabulary what we want it to do". Now it was quite evident when one looked at this that the porpoise knew the game – You see, first of all you couldn't just take a standard piece of behavior, a certain head flap or something, and pick on that each time – probably because the audience would come back and the individuals would see that it was the same thing and that you really haven't taught the porpoise anything, So the porpoise had to, in fact, be rewarded only if it did something "new". Something which the trainer could recognize as a piece of behavior – god knows what a piece of behavior is – and rewards it with some of the fish. And indeed the porpoise evidently knew that this was what was expected of it – that it would not be rewarded for what it had done in the previous performance – five shows a day – six days a week. That is, the porpoise knew that it was to come on and do something totally new and the question was, well now this is an order of learning you see above the level of learning that is ordinarily used in experimental psychology. Fine.

We set up a situation in which the porpoise would have three or four experimental sessions a day and would be carefully recorded with films and in detail. And, when the porpoise was released from the holding tank, she would not be rewarded, the whistle would not be blown for whatever she had done in the previous session, and on the whole would not be blown for anything except for new behavior. Well, the porpoise would come on and start to swim around and would be irritated or something- give a tail flap of some kind and then trainer blows the whistle and the porpoise gets a fish – does the tail flap again, gets another fish, does the tail flap again, gets another fish, six or eight times and then it is the end of the training session and she was sent back to the holding tank until the next session two or three hours later. At the next session she comes on and does that tail flap because that is what she was rewarded for – in the first round – no reward – does it again. – No reward – does it again – no reward – is wasting two thirds of the training session repeating that for which she was rewarded the first time and is not now being rewarded. Finally, the porpoise loses its temper or something of the kind, and does one of these splash movements that an irritated porpoise will do, and for *this* it gets its reward. It does this three or four times and that is the end of the session. Next session it does the splash movement – no reward. And it is wasting two thirds of each session of not getting a reward and repeating. This went on for fourteen sessions – that's four or five days – and then between the fourteenth and fifteenth session the porpoise got enormously excited in the holding tank – it is dancing and splashing and jumping. When she comes on stage she instantly does eight entire new pieces of behavior which no one had seen in that species before and quite obviously the porpoise has "got the idea".

The learning is not a smooth curve – it is a jump. A quantum change as they say now. And what I am saying is that there is a particular sort of frustration, of misery, rage, which is imposed upon you when you are asked to behave at the next highest level of abstraction or any higher level of abstraction than that which you were behaving at. You are being forced to a sort of insight which your previous ways of thinking did not contemplate. This can be very painful.

One of the interesting things about it is that we could never persuade the trainer to obey the rules of the game. The rules were strict – no fish for that porpoise unless it does something new. But the wretched trainer would always throw an occasional fish to the porpoise and we, the scientists said, “You mustn’t do that, is against the rules of the experiment”. And the trainer said, “But I will lose the porpoise if I don’t”. That is, she would lose her relationship to the porpoise. Once she’s lost the relationship with the porpoise she was not a useful trainer for that porpoise you see – she’d broken the thread.

Now, I take it into the field of psychotherapy – which is Joe and Janie Wheelwright’s field and no doubt the field some of you are going to work into. If you are going to force your patient, your client, your porpoise to make a jump into a newly insightful world – a new order of insight – to change its presuppositions, its character, its life, – it may be necessary to throw some unearned fish to your client, patient, porpoise whatever it is, to mitigate the pain that you are forcing upon him. I notice that this pain is of the general type which Samuel Butler said would be virtuous, that is, the pain which precedes the joy, which follows when you’ve solved the problem. Notice that this is exactly what happens if you successfully “cold turkey” an addiction to a drug, or narcotics something of that kind. You go through a disruption of the second order adaptation.

Let me explain. The statement is, and I think this is probably right, that we have an A and we have a B. And if we are going to talk about addiction we really have to talk about this joint system as the system within which whole things can occur. There is always, you see, this trap in language of talking as if there is a “something” – Addiction, Courage, Cowardice, Fear, Greed, all these things, as if these things existed, you know, *inside* a single individual and could be described inside a single individual. But all the human characteristics, which after all are the stuff of what we are all hooked into most of the time, grist for the mill, are in fact relational characteristics between usually two persons or a person and an environment.

That is the other half of what I am talking about you see.

Participant: So you are saying that they don’t exist independent of the person and his environment?

GB: We have an A and B. I am willing to say that A is a person and B is a person, or if you want to have it that way, A is a liver and B is a colon – and in order to get an adaptation in the colon you have to change the liver – and if you change the liver you’ve thrown the colon out of kilter again. This is the sort of problem. But it is simpler to think of A and B as two persons because it is difficult, and I don’t know enough physiology – to put it that way. Right?

The concept of addiction depends upon this concept – this larger thing which is a two person relation -or a two entity relation – two part relation.

Now the thing is, that you’ll see when we look at our porpoise (whom we will suppose for the moment is a A) is vis a vis a trainer or is vis a vis an environment, or whatever, – is that the hell of it is that when the porpoise did the right thing – in the first session – it thereby made that same action not the right thing for the second session. You’ve got the animal operating as though it was on a moving stairway *and the movement of the stairway is being produced by the adaptive action which keeps destroying the adaptation*. So, you always have to have a first level learning to do the right thing in the particular context, but a wider learning at the next level to deal with the fact of the changing context which you change by your own response. I mean, life is hell . . . this is how it is, you know. Only actors on stage are allowed to go on performing in a uniform manner.

OK: Now what I am trying to say is that in this double sort of system, the discomfort which it induces pushes you up into a higher order of dealing with your environment. And that is the case which Samuel Butler regards as the case in which the situation is “virtuous”.

Participant: Out of pain and suffering comes growth and expansion?

GB: Yes. It becomes not only growth, but a growth of a particular kind, which is the next level of abstraction upwards. A metamorphosis.

Participant: Transformation.

GB: Enlightenment. We’re talking test tube versions of enlightenment.

Participant: Are we in it all the time?

GB: In a sense we are not in enlightenment all the time because we are talking about it at a very tiny test tube level, which is perhaps easier to talk about than the big ones that mystics hunt for.

Participant: What causes the pain that causes the growth?

GB: What causes the pain is that it is a pain of this larger entity. There was a change in A and that change induced a change in B. This now means that if A goes on doing the same thing, B will be up in arms. You see, you are forced either to suffer B being up in arms or to get off the pot and make a new move on your own side.

Participant: Did I hear you say that in order for a transformation to take place, the occasional fish has to be thrown, to make this possible?

GB: I am not saying that always. But I am saying it can be – that the pain is such that the individual or the part won’t take it. It may have to be, uh, bribed into taking some of it.

Participant: But unless it fully understands that’s what it is supposed to do at the next stage which it didn’t understand until the fourteenth session . . .

GB: It doesn’t, you see, because it didn’t understand. It is in a position in which subjectively is “unfair”.

Participant: Because it was reinforced then for the other behavior?

GB: Yes. It is punished now for doing that for which it was reinforced.

Participant: It was on the strongest reinforcement schedule it could have been on.

GB: Yes, this is very unpleasant.

Participant: Just like life.

GB: Just like life

Participant: Can growth become addictive? If you’re designing a machine?

GB: Ah, now that’s a bridge we haven’t quite made. Does growth become addictive? Now that’s a very good question.

They say that growth, I suppose, always has this general addictive characteristic. And the problem for any organism that is going to grow, is how it can in fact grow without discombobulating its own insides. This is a very serious question. The spirals, for example,

of the Spiral Nautilus or a snail are elegant devices for allowing the creature to get bigger without altering its proportions. That is why living things create spirals. You can consider a palm tree. A palm tree does not have a cambium. A cambium is a growing tissue which is between the bark of the tree and the wood of a tree. The cambium and leaves of a tree are *the* living parts of a tree, actually, otherwise the wood is dead – it is simply passive tubes. The bark is usually dead as well, it is like hair. However, the cambium between the two is alive – it is a very thin layer of cells that deposits wood on the inside and deposits bark on the outside; wood and bark both being made of dead cells, like the outer layer of skin. Now, a palm tree does not have a cambium surrounding the trunk. It therefore cannot grow thicker – what it has is a growing tissue at its top end. At the top where all those leaves come off of the palm tree, is living tissue which is growing very fast as it is simply depositing wood downwards. It is adding on to the length of this thing so that you get a thing which is getting longer and longer, but not getting thicker and thicker. What happens at some point is that it falls over. You see, it hasn't solved the problem of how to grow without changing its proportions. It grows in one dimension and that ipso-facto changes the proportions and at a certain point that palm tree, is unstable. It goes down. You can thicken the base if you make some sort of bowl but that is all you can do.

So in the palm tree the growth is always of this nature. It hasn't solved the problem of that pain at all. It has to live with it. Now, the question is: Is growth of this kind, in general, painful and is addiction somehow the reciprocal or opposite of growth?

Participant: Would it be the reciprocal or opposite?

Participant: There would be no change . . . it would be the same behavior pattern. No matter if it were destructive.

GB: Yeah, growth is a continuous sort of similar behavior pattern unless you can change the recipient of the other end of, or the rest of the organism which has to suffer the effects.

Participant: Would you consider, on a psychiatric level, addiction the same as what a Vedantist would call attachment?

GB: Yes. *Vairagya*?[1] We are running a word of which one piece is addiction. Those are all very closely related words (GB writes two words on a chalkboard: Addiction, and Attachment)

GB: Conceptually they are very close together . . . At the price of adaptation.

You see, with a civilization which is changing very rapidly technologically, the relation of those words is to be a sore-spot? Of pincers that keep catching us. You can think of A and B as two nations if you like, they are caught in an armaments race. You can think of A as the University of California and AB as the American nation, and ABB is *vis-à-vis* another great thing of that kind; America *vis-a-vis* say, Russia or China. Alright, now the University of California is running two very large atom labs which are diverted, devoted to investigating atomic weaponry. Jerry Brown put up to the Regents the other day, a motion that . . . he is himself a Regent, he is Chairman of the Regents, technically, and the motion is that the University investigate its contract with the government for these labs with the view to terminating that contract as soon as possible. Now this took a lot of guts – because in those labs, we, for example, employ 13,000 people – a lot of people, at rather high salaries, many of them. He is you know, in a sense, running a risk that the State of California would lose 13,000 jobs – at this point the pips begin to squeak, you know, when you press the lemon that way.

In a sense we have an addiction here which has grown up over the last thirty years to the extent of employing 13,000 people. And, actually, the University itself is not very

dependent upon spin off from those labs – prestige-wise perhaps, but financially they don't get much – they get about three million a year from them. (Which is half a day's budget for the University of California.) The total budget for the labs is in the order of nearly 700 million – between 6 and 7 hundred million per year – that is government money which goes into the labs. The employees of those labs have been tenured. They've been putting money into pension funds all these years . . . And so on, and so on. You've got what has grown up to be an elaborate organic attachment – I mean it is not a parasite which we can shake off tomorrow and feel a relief. It's a symbiont whose tissues have grown into our tissues and our tissues into them. We've got an organic tie there. And the withdrawal symptoms would be pretty remarkable if we started to drop it.

Participant: That's a tangible attachment, and some of the intangible.

GB: It's tangible and I use it because it's tangible.

Participant: And it's big.

GB: It's big.

Participant: Sort of like our country is addicted to oil because we are attached to our possessions that are run by energy.

GB: Yeah. And we'll go on burning it . . . However, there are more subtle attachments.

But, probably these are sort of basic mechanisms that we are talking about – a formal study of these things is going to be much the same, you know. What I want to say – and I keep trying to say it to the UC Regents: is that for God's sake we are spending some 700 million on the atom – physics – couldn't we spend two or three million doing the formal characteristics of addiction, adaptation, attachment? As these concern the entire nation.

Let's get back to the engineer. We've got to specify what we mean. This is a monstrous discipline that this question imposes upon him. To have to specify to an engineer what you mean by one of these sorts of character-logical-learning-behavioral sorts of things. We so far have one item to specify, namely that learning is to occur at two levels and to involve two interlocking parts, or entities or something of the kind.

Maybe that's enough . . .

Hmmm, I think there is another.

If you think of a living organism and you are going to describe it for example, you will want to say how long the joints of its little fingers are – you will want to say what the color of its eyes are – you will want to say how many eyes it has – the position of its nose relative to its eyes – and the mouth somewhat south – you know – it is going to have blood sugar levels – it is going to have an intake of water – it is going to have a body temperature – a million statements say to describe an amoeba – and then more than that to describe one of us. Now, those descriptive statements are not separate descriptive statements. They are all interlocked in loops of various kinds, in chains, so that in fact some of them are runaways, vicious circles, in the sense that as this one changes this one will get bigger, and get bigger and get bigger, and it would tend to get into an escalation of some kind – either inside the body or between this body or the next body, or whatever – between one species or the next. You can't build these organic systems without having some sort of escalations in them, but you also have to have self-corrections which sit on the escalations and control them in various ways. So, you've got an enormously complex set of interlocking loops. Now the result of that interlocking, that diagram that I've drawn is, you see, a grossly simplified caricature of the

complexity of interaction within my skin. I don't just have two parts inside me in some sort of competition in order of dependency or something, I have a very large number which all interlock and have the characteristics that the particular variables are kept in check. Blood sugar, or what have you – if it goes above a certain level – that's death – and if it goes below a certain level – that's death. And the same is mainly true for most of the variables that you can think of to describe a creature. The length of its femur – you might think that that was fairly safe but if it is more than three or four feet long, you know, it becomes non-viable. Won't do at all, at all, something has gone heavily wrong with the embryology. There is trouble. And so on. So that if I push one variable, say my body temperature, or my blood sugar or whatever it might be – to its extreme value – that is going to cramp a whole lot of other variables that are on the same loop with it. And you get to the end of the creature, the physiology of the creature – it's sort of tied by the leg – hampered in its changes. As long as this is nicely in the middle of its free amplitude – fine – but the moment it gets stuck this end or that end the whole thing begins to get cramped and in fact, what you get is an organism under what is technically called "stress".

And this – what I have just offered you – is a formal definition, more or less, of what I mean by stress.

You see, the same sort of thing is roughly true for a nation, and its inter-dependent variables. There is a monstrous thing which happens to alcoholics, which happens to nations – which by the way, is another component of our specification I think. What you get in addiction is, at least, an opinion that life depends upon a particular sort of *change*, not upon having a certain amount of luxury or a certain amount of alcohol in the blood but upon having a *rising* gradient of alcohol in the blood. There are binge alcoholics who are very skillful at maintaining a just positive gradient of alcohol in the blood; they can keep it going for four or five days. But you know, in these systems of interlocking variables -you cannot take one variable and change it continuously in one direction. Something will break. In the case of the alcoholic he finds himself one morning in the gutter. At four o'clock in the morning maybe. Not good. He spoiled that binge. He had been so careful you know – Of course, nations become addicted to having a continuously increasing Gross National Product for example. This is exactly the same sort of problem. You cannot take a variable in an interlocking system and have it change continuously in the same direction.

Participant: Doesn't it always balance itself out in equal and opposite direction?

Participant: The law of the universe is that if it goes too far in one direction it's got to come back the opposite direction.

GB: It don't "got to".

Participant: Eventually ... nothing dies.

GB: Well, in that sense it can die.

Participant: Yeah but if you look at life as consciousness or as a continuum ...

GB: If you want, you may say that this piece may die while this doesn't, or that the bigger one, and still bigger one doesn't. Well, I am willing to say that a galaxy doesn't die. But obviously large numbers of species, nations, cultures and individuals ... they go to meet their maker.

Participant: In a limited time and space, but [in] the infinite of time and space there is always a balance.

GB: That is true. Or probably true, only I shan't live to see it.

Participant: You could see a monetary problem with the Gross National Product going up because if there was an equal opposite reaction we would go into a depression.

GB: Of course we do oscillate dreadfully.

Participant: We have always been in a cycle of "boom and bust" but that could happen at an increasing level. I guess we could just keep busting.

GB: You can become addicted to busting. Look, you become addicted to war is what it comes to . . .

Participant: I can't see that the individual is different on a cosmic effect level than the planet earth, or the galaxy or the solar system..

GB: I agree about that. However, nor is it different from the individual.

Participant: Right. We're miniature.

GB: Yeah on the whole I agree, but with you know, a corresponding expansion of time span as well as the spatial expansion.

Participant: Attachments and addictions seem to be in the realm of Maya or in the realm of the illusions of the material plane, which is constantly changing – our addictions are constantly changing.

GB: Yes, but would you be willing to say it the other way around? That because we are subject to the illusion of Maya, and attach "reality" to the physical – Money? Food? The GNP? Whatever it is, that *that* is a necessary specification of addiction?

Participant: What is not addictive?

GB: That is a very awkward question.

Participant: Eating is addictive

Participant: Life is addictive

GB: Well, what about danger?

Participant: Another attachment.

GB: Danger is a very funny sort of attachment, isn't it. I mean, in a sense I think the motorbike racer, the Everest climber – these people – who are deliberately putting themselves in near mortal danger are getting from that experience a sort of release – it is a release you get from a brush with death. In a sense at the maximum point of velocity on the motorbike, maximum snow storm on the top of the Mt Everest or whatever it is, there is a freedom from a vast number of attachments, commitments. You don't worry about your income tax at the moment when your motorbike is hitting a wall. And you don't worry about what you are going to do on Friday, and will you get me supper, and does she love you . . . and all that.

We have the escapes from addiction, which are related to the fact that we cultivate the headache as a preliminary. You get the set of escapes from addiction that come from putting yourself in extreme danger. Well, at last, it is pretty hard to stay in extreme danger – and perhaps not wise.

GB: Then there is the problem of fear, which I suppose in the end is always a fear of confrontation of some kind. And then they go out on the motorbikes and up the mountains. In fact, to confront, I don't know what they confront, but, what you confront can be quite irrelevant if attachments are bothering you. It may take the stress off.

Anybody else know anything?

Joe Wheelwright: Gregory, my mind goes back to the porpoise and the fish – and the trainer and she says well, you know I've got to throw a fish occasionally or I lose the porpoise. And as an analyst, as a therapist, to me, for change and growth to occur the most important thing is indeed what you so irreverently referred to as the fish. Namely, relatedness. And the interaction. And if the therapist happens to feel that in this system, if you like, not only is it important that the patient is changing, but it is equally important that the therapist himself or herself is also changing in the interaction of the process because they are both involved in it. So I just thought that the fish was a bit of a ... well the fish bit got short shrift.

GB: Yes. I think I would agree with that. I spoke of the fish as if it were a fish. Whereas, the fish is the token of the relationship.

Participant: It seems to me that the fish stands for trust.

GB: Yeah. That's right.

Joe Wheelwright: It's feeling too.

GB: You see, this is where the behaviorists are always falling down. The main difficulty is that you have a sequence. Suppose you have a stimulus and there's a response and then there is a reinforcement. Now the question is what is this about? We say that's not good enough. That is, the "fish" – it is not good enough to say the fish is breakfast, that it is a food, that it has so much in proteins, calories, fats, whatever. Because the point is, that the fish is also a message whose subject matter is that whole sequence. The subject matter is an affirmation of the relationship. It is interaction.

The affirmation of the interaction is a particular part of the interaction which affirms that you are on the right track in the interaction. Indeed, it is real. Because also, you see, there are much bigger interactions going on over maybe a month's – year's – life's time span and each time, this one is not only about this, and about this, it is also about this, and, it is also this particular one in this detailed occasion and it is also these much bigger ones (gestures of expanding scale).

Participant: It is also a delay in the growth though.

GB: The unearned fish can also be a delay in the growth, yes.

Participant: Isn't there a difference between the fish that is offered and the fish that is received, though?

GB: Oh, yes.

Participant: It seems the reception of the fish in the example you were giving before means that the person or porpoise agrees to continue in this unfair situation, and to be seemingly punished, which is that class [of message] which I was saying before – it leads to allowing it to continue to happen. Whereas the giving of it could be just straight manipulation – it could be anything.

GB: It could be all sorts of things, yes. The unearned fish can very easily become a matter of addiction. The porpoise can learn to threaten the trainer by loss of the relationship to get fish: blackmail.

Participant: When the fish taker is threatening the relationship doesn't it indicate that the pain threshold is getting too high?

GB: At one order you're talking about pain thresholds – talking about how much training the trainer thinks the porpoise can take. But, there is a very curious phenomenon here, I think very closely related to the Samuel Butler point. [Whether] The headache precedes the intoxication or the other way around. And that is the problem of the nature of entertainment. And the contrast between entertainment and something which we might call art. That in entertainment, you are given your fish with each step more or less of the entertaining context. Whereas in art, this is the point that Collingwood makes in Collingwood's *Principles of Art* (which I admire very much), partly it is exploratory, which is the point he wants to make, that the purpose of art is what you learn about yourself, about the world or yourself on the world – and that learning is the reinforcement. But is always more or less up hill in some sense; it is in the nature of the effort preceding the reward, rather than the reward being spooned out.

One of the things that is important if you are subject to depression is: Do not get caught on the notion that entertainment will relieve your depression. It will, you know, briefly, but it will not banish it, and on the whole, as reassurance is the food of anxiety, so entertainment is the food of depression. The depression will eat up the entertainment and you get an addictive pair there of some kind. If actually you have any of these media as I call them, TV box or what have you, and you suffer from depression, I would very strongly recommend the classics rather than entertainment. The material that comes out of the classics makes certain demands of you and is much more comforting to the depression than the material (TV), which gives you sugar all the time. There is a temptation in depression to go towards entertainment. It is addictive and on the whole unsatisfactory. I wonder about this around Esalen. All the various techniques which we devise doing this and that to our bodies and our spirits – which are really in the nature of climbing and which are really in the nature of going down hill?

Participant: Isn't that subjective?

GB: Subjective? Sure all experience is subjective.

Participant: No, saying which is going up and which is going down...

GB: Yes. How could it be anything else? Everything we are talking about is subjective.

What else is real? That is attachment, when you begin to think of something as objective.

Participant: Well, some things are more of a group recognition than just an individual opinion.

GB; But, in the end, subjective.

Participant: Do you think there is an end to the game?

Participant: Enlightenment?

GB: Wait a minute – there are several questions hidden in this question of yours.

The question arose the other day – At breakfast we had bagels, and somebody told one of the children not to forget to eat the hole in the bagel. Somebody else asked, “What happens to the hole when it is eaten?” And without really thinking of what I was saying, I said, “It gets reincarnated in a doughnut”.

Now the hole, you know, is that which is not. And without that which is not, nothing is. (Laughing) So that when we look at these pretty words on the blackboard – Addiction and Attachment – the “d’s” are dependent on the hole in the middle and the whole thing depends upon the contrast between white and black – the message is not the chalk – the message is the differences between the chalk and the board. And when we wipe the blackboard, those differences have to go and get reincarnated on another blackboard.

So, I don’t expect much subjective experience after death. Oh you know, somebody will say, “Remember what Bateson used to say – I wonder what he meant?”

Participant: Maybe someone will come along and force you to the next level of abstraction.

GB: Maybe so, maybe so.

Participant: Maybe they’ll give you a fish.

GB: However, high you climb the ladder of abstraction, at the bottom of the ladder there is something called difference. The hole in the doughnut.

GB: I guess that’s it.

Participant: What about the addiction machine?

GB: Oh, there’s no hurry.

This next piece, titled, *The Definition of Addiction*, is not a definition but rather, thoughts about how Bateson might think about defining addiction. It is most likely a combination of several of the ideas above, plus Gregory’s other work on addiction, and a few new twists. It reads like it might have been the outline for the beginnings of the examination of an idea. Clearly, it is a work in progress, that we have included only to illustrate Bateson’s process.

Definition of Addiction

... So we return to the question from which we started. How shall we specify to an engineer the characteristics we require in a machine before we accept it as “prone to addiction”?

The Syntax of Addiction: The word, addiction, is commonly used as if it were a characteristic immanent in an organism, and an undesirable characteristic at that. And the meta-term “proneness to addiction” is similarly tar-brushed by value considerations and by that epistemology which would isolate the supposed phenomenon within an individual. We shall accept these characteristics as the end product of linguistic decay and assume that our inquiry should focus elsewhere, upon the processes of which addiction, in this sense, is an outcome:

- These processes have as their sphere of relevance – their venue – a system. They are not immanent within an individual or within some part of an individual. They are immanent in relationships or interaction between

individuals, or between parts of individuals or between individuals and environment.

- This shift of focus, from individual to interactive process will necessarily expunge from our inquiry all presuppositions about value. Whether some or all outcomes of a given process are desirable is a question which we cannot ask of the process itself. The question is deferred and must be deferred until the formal nature of the process has been elucidated[2].
- In other words, I shall focus upon processes, either addictive or adaptive (and only later outcomes or prophecy can say which they shall be). I shall not, for the moment, ask questions about “good” or “bad” but shall ask whether the processes are reversible or irreversible, self-limiting or self-maximizing, and so on. What characteristics shall we specify in these terms, that our engineer might build into our machine?
- For convenience of reference we designate an interface, I, between two parts (O and E) of a system. We note that in the simplest cases, O will have the characteristics of a living thing but that E will be perhaps a non-living environment. In more complex cases, E will itself be alive. In any case the total system (O and E) will have the characteristics of life.
- The reader is reminded that non-living components are commonly present within any single living organism. Familiar examples are: hair, teeth, serum, water, etc. Indeed, in principle, for every living thing, if in our thinking we divide it into small enough parts, we shall find that it is made of parts which are themselves non-living. Where there is interface or interaction between the “living” and the “non-living” it is in principle correct to regard the relation between them as a case of relationship between “part” or “whole”. The planet, Pluto, may be non-living when it is considered as a separate entity. But if there is interaction between Pluto and “me” it is legitimate (and for some purpose it is relevant) to examine the characteristic of a larger whole of which Pluto and “I” are parts. This larger whole will have “life” because [it includes] a component part “me” relative to Pluto.

The following paragraph suggests a definition for addiction:

If A or B are interactive parts of a living whole or system and the removal of, i.e. the loss, of interaction with one of these parts (e.g. B) will diminish or destroy the life of the other (A), then we shall say that “A” is addicted to “B”.

Please note: This definition has one important and appropriate feature in that it proposes questions about what A will do about the loss of B. And surely A’s interaction with other “parts” will undergo change leading to a re-shaping of A’s “need” or addiction to those other parts.

And keep in mind, the addiction of information gathering is established medicine: Note that the acquisition of information in any complex system raises always more questions than answers . . .

Notes

1. The Vedantic (Sanskrit) concept of “detachment,” which resolves “raga,” “uncontrolled attachment,” or “addiction” (edit).
2. From a point of view determined by a valuing of culture and its successful evolution, “progress” or even survival there is nothing so lethal as a premature grabbing at what looks like a desirable change or premature discard of that which seems to threaten. It is such shortsighted errors in logical typing 1/M imposing too small or too short a frame of relevance 1/M that lead to evolutionary and characterlogical culs de sac.

Reflections on
learning and
addiction

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“The logical categories of learning and communication”: reconsidered from a polycontextural point of view

Learning in machines and living systems

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Abstract

Purpose – Bateson’s model of classifying different types of learning will be analyzed from a logical and technical point of view. While learning 0 has been realized for chess playing computers, learning I turns out today as the basic concept of artificial neural nets (ANN). All models of ANN are basically (non linear) data filters, which is the idea behind simple and behavioristic input-output models.

Design/methodology/approach – The paper will discuss technical systems designed on the concept of learning 0 and I and it will demonstrate that these models do not have an environment, i.e. they are non-cognitive and therefore “non-learning” systems.

Findings – Models based on Bateson’s category of Learning II differ fundamentally from Learning 0 and I. They cannot be modeled any longer on the basis of classical (mono-contextural) logics. Technical artifacts which belong to this category have to be able to change their algorithms (behavior) by their own effort. Learning II turns out as a process which cannot be described or modeled on a sequential time axis. Learning II as a process belongs to the category of (parallel interwoven) heterarchical-hierarchical process-structures.

Originality/value – In order to model this kind of process-structures the polycontextural theory has to be used – a theory which was introduced by the German-American Philosopher and Logician Gotthard Günther (1900-1984) and has been further developed by Rudolf Kaehr and others.

Keywords Cybernetics, Learning

Paper type Conceptual paper

Introduction

Bateson himself summarizes his logical categories of learning as follows (Bateson, 1972, p. 293):

zero learning is characterized by *specificity of response*, which – right or wrong – is not subject to correction.

Learning I is a *change in specificity of response* by correction of errors of choice within a set of alternatives.

Learning II is *change in the process of Learning I*, e.g. a corrective change in the set of alternatives from which choice is made, or it is a change in how the sequence of experience is punctuated.

Learning III is a *change in the process of Learning II*, e.g. a corrective change in the system of sets of alternatives from which choice is made. (We shall see later that to demand this level of performance of some men and some mammals is sometimes pathogenic.)



Learning IV would be *a change in Learning III*, but probably does not occur in any adult living organism on this earth. Evolutionary process has, however, created organisms whose ontogeny brings them to Level III. The combination of phylogenesis with ontogenesis, in fact, achieves Level IV.

In the following we will discuss some of the questions already raised by Bateson himself:

... The question is not, “Can machines learn?” but what level or order of learning does a given machine achieve? (Bateson, 1972 p. 284).

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Nearly half-a-century later the answer is very simple: zero learning has been realized, for example, by Deep Blue – a chess-playing computer developed by IBM in 1997 – a machine which defeated the world champion Garry Kasparov. This event obviously affected modern economists so much that they still believe that von Neumann’s game theory – which forms the basis of all algorithms underlying models such as Deep Blue – is the up to date theoretical highlight for modelling and understanding economic behavior[1]. From an epistemological point of view all these game models belong to Bateson’s category of zero learning. Phenomena which approach this degree of simplicity occur in various contexts such as:

... in simple electronic circuits, *where the circuit structure is not itself subject to change resulting from the passage of impulses within the circuit* – i.e. where the causal links between “stimulus” and “response” are as the engineers say “soldered in”.(Bateson, 1972, p. 284).

Today one could argue differently, e.g.: phenomena which approach this degree of simplicity occur in algorithms, *where neither the instructions nor the data are subject to changes resulting from the passage through the set of instructions (the program)* – i.e. where the causal links between “stimulus” and “response” are pre-determined by the designer of the program.

In other words, if such a game will be repeated with the same moves, the result of the game always will be the same, i.e. the machine or the (zero order) algorithm does not learn anything at all.

Learning I also has been realized technically: The best known example are the models of artificial neural nets (ANN). In analogy to zero order learning, one could describe first-order learning as a:

... process where the data – but not the instructions(!) – of a learning algorithm are subject to changes resulting from the passage through the program and where the causal links between “stimulus” and “response” are again pre-determined by the programmer.

From a conceptual point of view these models are digital (nonlinear) data filters. The written down sequence of learning steps appears formally as a Markov chain and therefore is completely determined. Other models which belong to this category of “learning” are genetic algorithms where the data are adapted to a given fitness function by trial and error.

There is another important argument which was pointed out by Bateson in connection with Learning I:

Note that in all cases of Learning I, there is in our description an assumption about the “context”. This assumption must be made explicit. The definition of Learning I assumes that the buzzer (the stimulus) is somehow the “same” at Time 1 and at Time 2. And this

assumption of “sameness” must also delimit the “context” which must (theoretically) be the same at both times. It follows that the events which occurred at Time 1 are not, in our description, included in our definition of the context at Time 2, because to include them would at once create a gross difference between “context at Time 1” and “context at Time 2”. (To paraphrase Heraclitus: “No man can go to bed with the same girl for the first time twice.”)

The conventional assumption that context can be repeated, at least in some cases, is one which the writer adopts in this essay as a cornerstone of the thesis that the study of behavior must be ordered according to the Theory of Logical Types. Without the assumption of repeatable context (and the hypothesis that for the organisms which we study the sequence of experience is really somehow punctuated in this manner), it would follow that all “learning” would be of one type: namely, all would be zero learning”. (Bateson, 1972, p. 288)

All technical models which are known today and which have been realized fulfil the condition of a repeatable context. The reason is very simple: All technical models have one feature in common – they have no environment and hence no changing contexts. For example: a robot working at an assembly line in a car manufacturing process only has an environment from the standpoint of an observer of both the robot and the assembly line. From a “standpoint of the robot,” however, the robot does not have an environment. Such a robot even does not have its own standpoint. All the “environment” which is important for the functioning of the robot such as the screws or the car body, where the screws have to be fixed, are parts of the robot program and therefore belong to the robot and not to its environment – these robots neither have an environment nor an own standpoint.

Standpoint dependency is a necessity for modeling situations with changing contexts!

Classical mathematics and logic – which form the basis for any technical construct today – do not allow modeling of standpoint dependencies. Or, to phrase it in a somewhat shortened way: So far as mathematics is concerned, the result of 2 times 2 does not depend on standpoints and by analogy *all the classic standard and non-standard logic conceptions are non-standpoint dependent calculi* – or to put it in the terminology of Gotthard Günther *they are mono-contextural calculi*.

Learning II, III, IV or . . . the Tower of Babel

As an example where Learning II has been recorded Bateson refers to the cases such as “reversal learning”:

Typically in these experiments the subject is first taught a binary discrimination. When this has been learned to criterion, the meaning of the stimuli is reversed. If *X* initially “meant” R_1 , and *Y* initially meant R_2 , then after reversal *X* comes to mean R_2 , and *Y* comes to mean R_1 . Again the trials are run to criterion when again the meanings are reversed. In these experiments, the crucial question is: does the subject learn about the reversal? I.e. after a series of reversals, does the subject reach criterion in fewer trials than he did at the beginning of the series? (Bateson, 1972, p. 296).

From the two patterns in Figure 1 the process of reversal learning can easily be retraced: Any neural net model can be adapted to Pattern 1. If the net algorithm has been trained successfully to Pattern 1 then Pattern 2 will be offered and the adapting process starts again until the net algorithm is adapted to Pattern 2. Thereafter the adaptation of Pattern 1 begins again and so forth. The crucial question is: What does the net algorithm learn (by its own effort) from the reversion of the task? For learning

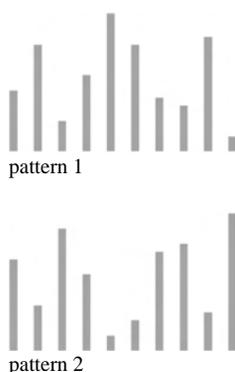


Figure 1.
Pattern for “reversal
learning”

algorithms that belong to the category of Learning II one has to expect a shortening of the learning time for the two processes of adaptation. For the models of ANN, however, nobody would expect and nobody ever has observed a shortening of the so-called learning process by reversion of the two adaptation processes using ANN models.

The question arises:

- (a) What is the difference between Learning I and Learning II from an algorithmic point of view?

And furthermore one has to ask:

- (b) Why “from an algorithmic point of view” and not from the view of logical types?

The second question already has been answered by Bateson himself, because . . . :

... the word “learning” undoubtedly denotes change of some kind. To say what kind of change is a delicate matter . . . Change denotes process. But processes are themselves subject to “change” . . . (Bateson, 1972, p. 283).

and:

... the world of action, experience, organization, and learning cannot be completely mapped onto a model which excludes propositions about the relation between classes of different logical type . . . (Bateson, 1972, p. 307).

Processes and actions can only be modeled algorithmically with the intention to implement the model into a machine (Kaehr, 2003).

An answer to the first question is much more difficult and has been given by the German-American Philosopher and Logician Gotthard Günther who introduced the *Theory of Polycontexturality* into life sciences (Günther, 1976, 1979a, 1980). Before we trace the main idea of this theory we have to take a short look on Bateson’s “Notes on Hierarchies” (Bateson, 1972, p. 307):

If C_1 is a class of propositions, and C_2 is a class of propositions about the members of C_1 ; C_3 then being a class of propositions about the members of C_2 ; *how then shall we classify propositions about the relation between these classes?* For example, the proposition “As members of C_1 are to members of C_2 , so members of C_2 are to members of C_3 ” cannot be classified within the unbranching ladder of types.

The whole of this essay is built upon the premise that the relation between C_2 and C_3 can be compared with the relation between C_1 and C_2 . *I have again and again taken a stance to the side of my ladder of logical types to discuss the structure of this ladder. The essay is therefore itself an example of the fact that the ladder is not unbranching.*

It follows that a next task will be to look for examples of learning which cannot be classified in terms of my hierarchy of learning but which fall to the side of this hierarchy as learning about the relation between steps of the hierarchy [emphasis by the authors].

Figure 2 shows an example of Bateson's hierarchy of different types (classes). Based on Platon's pyramid of *Diairesis* a physical object can be defined through a generic term (*genus proximum*) and specific attributes (*differentia specifica*) such as information on the weight, length, material, or shape, etc. Each entity exists as something in particular and it has characteristics that are a part of what it is. In other words, Aristotle's law of identity strictly holds, i.e. everything that exists has a specific nature. What the pyramid of different classes (or types) in Figure 2 shows, is the structural pattern of an absolute hierarchy where all elements are linked by a common measure. This is the well known world of natural sciences which – from an epistemological point of view – belongs to an *ontology of identity*. In other words, Bateson's categories of learning describe the *results* of different processes with attributes observed during different learning situations. From a technical point of view, however, the central question is:

How can we model the *process* of Learning II? What about the transitions between the different levels of logical types? How can these transitions be modeled in a formal mathematical way in order to develop and to implement algorithms which are able to learn in the sense of learning II by their own efforts?

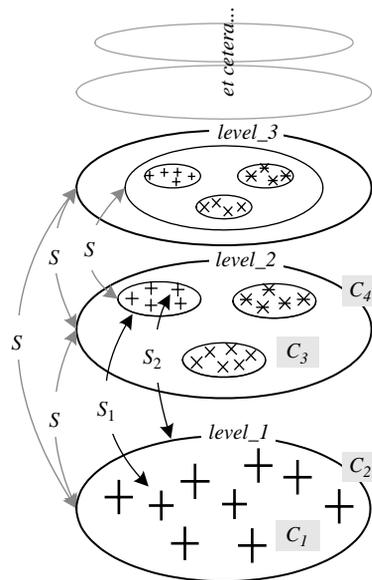


Figure 2.
The hierarchy of logical types: C_1, C_2, \dots see text

Circles and “(un)branching ladders” or ... “from classification to process” (Bateson, 1979, p. 204)

For an analysis of these questions, we will introduce the following symbol for the order relation which exists between an operator \underline{O} and its operand O :

$$T, \underline{(O)} \xrightarrow{\text{order relation}} F \ (O) \quad (1)$$

Relation (1) also stands for a logical domain – as it is shown, in Figure 2 by the domain labeled as “level_1” – and T and F stand for true and false (or 1, 0) where an order relation exists between T and F by the rules, the syntax of the logic. A logical domain may be realized technically, for example, by the model of a Turing Machine (TM), i.e. by a computer which strictly works according to the rules of classical logic. Günther introduced the notion contexture for a logical domain, i.e. the model of the TM or today’s computer are mono-contextural logical machines.

In the following we describe Learning I by the relation $\underline{O}(O)$ which stands for an hetero-referential process as given by equation (1). Since an operator is always of logical higher type than its operand, C_2 in Figure 2 may be considered as an operator and C_1 as the corresponding operand. In order to describe Learning II as a process, we have to ask for relations that correspond to transitions which have been marked in Figure 2, for example, by $?_1$ or $?_2$. Since classical standard logic and all non-standard derivatives as well as mathematics are mono-contextural theories, we are faced with a well-known fundamental problem – the problem of self-referentiality – a problem, which has been shown by the graphical metaphor in Figure 3.

For any modeling of cognitive-volitive *processes* one has to distinguish logically between the picture and the image of the picture or between the object and the image of the object. This has been achieved in Bateson’s work – describing the *results* of learning processes – by different logical categories which leads to the hierarchy of logical types (logical domains) as shown in Figure 2. However, there are no logical operators which allow the modeling *between* the different logical types (domains) – operators which become necessary if the *process* of learning has to be modeled and not only the result, but also the content of a learning process.

Figure 3(a) represents the different logical types of Figure 2 using the symbolic metaphor of equation (1). The crucial point of Figure 3(a) is, to understand that the different logical domains are *not* mediated, they are isolated, i.e. there are no logical operators that allow transitions between the different logical types (domains) and their elements. And as a matter of fact any system of n logical types can always be reduced (type reduction) to only one logical type whereby the different processes which are the object of modeling will be homogenized to sequential process-structures that always obey the transitivity law. Therefore, these processes are always hierarchically – and never heterarchically – structured; and any attempt of a formal logical description of

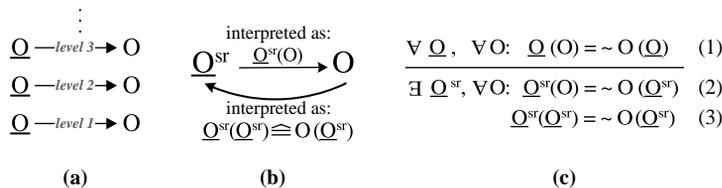


Figure 3.
The problem of self-reference from a monocontextural point of view

Notes: ~ : negation, ∀ : universal quantifier, ∃ : existential quantifier

cognitive-volitive processes ends up within the thicket of notorious *circuli vitiosi* (Günther, 1979a; Kaehr and von Goldammer, 1988, 1989).

Figure 3(b) represents the process of hetero-referencing from the operator (cognitive system) to the operand (object), a process where an image of the object is created from which the cognitive system references on itself in order to make a distinction between itself and its environment. This is a self-referential process. From a logical point of view, this process is a vicious circle, i.e. a logical antinomy. This has been shown in Figure 3(c). Relation (1) in equation 3(c) expresses the fact, that an order relation exists between an operator and its operand, i.e. the operand cannot become an operator of it"self". Relation (2) refers to the hetero-referential aspect of the process and relation (3) to the self-referential aspect. Needless to say that relation (3) is in contradiction with the self-referential situation in Figure 3(b) and within this context it can be seen, that self-referentiality cannot be modeled by recursion as suggested frequently by artificial intelligence scientists. In other words, self-reference cannot be modeled without antinomies and ambiguities within the linguistic frame of classical standard logic – the classical standard logic reveals a basic weakness as an intellectual tool for modeling *self-referential processes*.

In Figure 4 we have introduced a symbol for an exchange relation between an operator O_{i+1} and operand O_{i+1} which belong to different logical domains, respectively. Within the mono-contextural logical world no such exchange relation exists. The logical domains are mediated provided the exchange relation is based on logical operations between different logical domains (contextures). In other words, in Figure 4 different logical places come into play – a situation which has no meaning in all classical standard and non-standard logic conceptual designs. Since, we are not restricted to a limited number of contextures, Figure 4 shows an ensemble of any number of *mediated contextures*. Obviously here is the ladder to escape the eye – the black hole, the abyss – of circularities. The question is, how can we work with such a ladder?

Mnemonic Traces or ... “mental process requires circular (or more complex) chains of determination” (Bateson, 1979, p. 114)

In order to show the meaning of the *mediated* contextures in Figure 4, a decision-making process between three different standpoints as shown in Figure 5 will be discussed. Figure 5(c) reflects the transitivity law and will not be discussed anymore since it is self explaining. The arrows in Figure 5(a) are interpreted as follows: Standpoint S2 is preferred to standpoint S1, S3 is preferred to S2 and S1 is preferred to S3 and accordant in Figure 5(b). Although the transitivity law does not hold for both

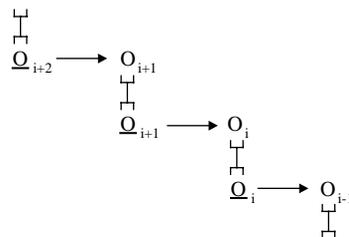


Figure 4.
Self-Reference from a
polycontextrural point of
view: $\square \text{---} \square$ exchange
relation, \rightarrow order relation

Source: von Goldammer and Kaehr (1990)

processes represented by Figure 5(a, b) they do not symbolize a decision process if they are considered separately. The reason is very simple: In both cases a decision already has been made in advance, i.e. the three standpoints have already been arranged according to some priorities – but this should be the result of a decision process and cannot be taken for granted. To put it in other words: any modeling of a real decision process requires coequal, equivalent standpoints during the decision-making process. This can only be achieved in the symbolic representation of Figure 5(a, b) if both processes represented by the two circles are thought parallel and simultaneously. But this is impossible, as it was nicely described in Bateson’s (1972, p. 21) metalogue “How much do you know?”:

D: I wanted to find out if I could think two thoughts at the same time. So I thought “It’s summer” and I thought “It’s winter.” And then I tried to think the two thoughts together.

F: Yes?

D: But I found I wasn’t having two thoughts. I was only having one thought about having two thoughts.

F: Sure, that’s just it. You can’t mix thoughts, you can only combine them. And in the end, that means you can’t count them. Because counting is really only adding things together. And you mostly can’t do that.

It is not only impossible to think two thoughts at the same time, but one can also neither observe or measure (directly or indirectly) a decision-making process(-structure). In other words: It is in general impossible to observe or to measure mental processes such as thinking or learning. What we can observe or experience are the actions, i.e. the “products” the content of these processes but not the processes themselves [2].

Why is it so?

The answer can be given with reference to McCulloch’s undiscovered paper “A hierarchy of values . . .” (McCulloch, 1945): the structure of all mental processes is an interplay of heterarchical and hierarchical interwoven components. A heterarchical process structure is defined as a process where the transitivity law cannot be applied any longer and therefore these process-structures cannot be mapped sequentially, i.e. these process-structures never can be measured! To express it inversely: for any measurement the transitivity law strictly holds; its validity is – so to speak – a necessity for all experimental processes of measurement.

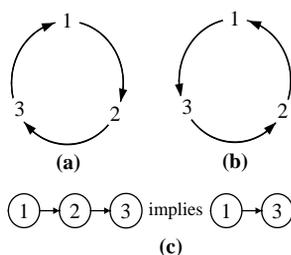


Figure 5.
Günther’s “heterarchical” circles

It was Gotthard Günther who provided a basis for modeling such process structures. His *polycontextural theory* not only contains a many-placed logic but also a theory of heterarchical numbers (Günther, 1976) and the *pre-logical* theory of morphogrammatic as well as the *pre-semiotical* theory of kenogrammatic (Kaehr, 2003, 2004).

In the following we will demonstrate in a short and somewhat simplified way how a decision-making process can be rationalized within the language of Günther's poly-contextural theory, a theory which has to be considered as *the* basis for a standpoint dependent systems theory.

Again three standpoints are considered which will be indexed by natural numbers. Each number stands not only for a standpoint but also for a logical place which represents a standpoint by at least one contexture, i.e. a logical domain[3]. The following chain of negations which is very often taken as an example in the work of Gotthard Günther will be interpreted:

$$p = N_{1,2,1,2,1,2} p \tag{2a}$$

and:

$$p = N_{2,1,2,1,2,1} p \tag{2b}$$

Where $p = N_{1,2,1,2,1,2} p$ corresponds to:

$$p = N_1(N_2(N_1(N_2(N_1(N_2 p)))))) =_{\text{def}} N_1 N_2 N_1 N_2 N_1 N_2 p \tag{3a}$$

and $p = N_{2,1,2,1,2,1} p$ corresponds to:

$$p = N_2(N_1(N_2(N_1(N_2(N_1 p)))))) =_{\text{def}} N_2 N_1 N_2 N_1 N_2 N_1 p \tag{3b}$$

The different (global) negations in equation (2a, b) will be executed from the right to the left. The negation N_1 and N_2 are defined according to the equation (4a, b).

Equation (4a)		Equation (4b)	
p	$N_1 p$	p	$N_2 p$
1	2	1	1
2	1	2	3
3	3	3	2

The proposition variable p will be considered from a standpoint $S1$ in relation to standpoint $S2$ or any other standpoint. In other words, the (global) negations have to interpreted as inter-contextural negations, i.e. a contexture is negated or rejected in relation to another contexture. (3b) can be interpreted as given in the following steps.

Step 1: $p = N_2 N_1 N_2 N_1 N_2 N_1 p$

If the proposition p is considered from $S1$ in relation to $S2$, standpoint $S1$ can be designated or not designated, i.e. negated or rejected. A designation (affirmation) of $S1$ would be the end of the inter-contextural negation process, i.e. the logical domain (contexture) corresponding to $S1$ would have been chosen. If, however, $S1$ in relation to

S2 will not be designated – which is the case in our example – then an exchange of the standpoint from S1 to S2 occurs, as indicated in Table I (4a). Since, every standpoint is characterized by at least one logical domain (contexture) this process corresponds to an exchange of standpoints. From a logical point of view it is an inter-contextural (or discontextural) process.

Step 2 : $p = N_2N_1N_2N_1N_2N_1p$

Now the proposition p will be considered from standpoint S2 in relation to S3. Again the negation (or rejection) of S2 in relation to S3 is of interest, because an affirmation (or designation) of S2 would terminate the inter-contextural (discontextural) process. According to Table I (4b) an exchange from standpoint S2 to S3 results.

Step 3 : $p = N_2N_1N_2N_1N_2N_1p$

Now the proposition p will be considered from S3 in relation to S1/S2 and no exchange of the standpoint occurs (Table I (4a)).

Step 4 : $p = N_2N_1N_2N_1N_2N_1p$

Considering the proposition from S3 in relation to S2 causes an exchange from S3 to S2 ((4b)).

Step 5 : $p = N_2N_1N_2N_1N_2N_1p$

Within the range of Step 5 the proposition p will be considered from standpoint S2 in relation to S1 (inversion of Step 1). An exchange from S2 to S1 takes place.

Step 6 : $p = N_2N_1N_2N_1N_2N_1p$

Step 6 can be considered as the inversion of Step 3, i.e. the proposition p is considered from S1 in relation to S3/S2 and no exchange of the standpoint occurs (Table I (4a)).

At the end of such a negation circle the proposition p has a “history of reflection” as Günther (1979a, b) calls it in the foreword of his *Beiträge . . .* (2nd volume). The classical negation (\sim) never gains such a “history of reflection”. While the inter-contextural transitions (the rejections within the negation chain) correspond to the cognitive aspects of a cognitive-volitive process. The designation of a standpoint, of a contexture on the other side corresponds to the volitive aspects of a cognitive-volitive process. For a more detailed discussion on cognition and volition it is referred to the literature, especially to Günther’s (1979a) “Cognition and Volition”.

Upshot: the classical standard logic as well as all (classical) non-standard logics like modal-logic, probability logic, fuzzy logic, or paraconsistent logics, etc. are truth-definite in the sense of an *ontology of identity* (“something is or is not” – any third is excluded – cf. example above). Günther calls the sciences or languages based upon these truth-definite logics positive sciences or languages. All natural languages as well as the artificial languages like the classical standard- and non-standard-logics or mathematic are positive languages. *Positive languages* are characterized by their (intra-contextural) negations which *always imply indirectly the corresponding positive proposition*.

Günther’s (1979b) *negative language* can be considered as complementary to the artificial positive languages. The negative language is characterized by a variety of negations (negation chains or negation circles) which operate inter-contextural (not intra-contextural) and which are mutually mediated. Therefore, any inter-contextural

negation always refers to at least one further contexture, i.e. any rejection (negation) of a contexture (standpoint or logical place) is always related to at least one further contexture (standpoint or logical place) as it was demonstrated above (Step 1-6). In other words, a contexture (standpoint or logical place) can only be negated (rejected) in relation to (at least) one further contexture. This corresponds to a process (not a state!) where the positive appears not before a contexture (standpoint or logical place) has been designated in the sense of an affirmation. From the view of the classical logic these negations are meaningless since all classical standard- and non-standard logics are mono-contextural, i.e. only one contexture (one standpoint, one logical place) exists which can be located only outside but not within the contexture.

Resume or ... “time is out of joint” (Bateson, 1979, p. 231)

Learning only occurs in systems with cognitive-volitive abilities. Until today no such technical devices have ever been constructed. On the basis of the classical ontology of identity one never will be able to model the cognitive-volitive abilities of living systems in a formal mathematical way – this is, so to speak the blind spot of modern brain research and of modern artificial intelligence research.

Today’s situation is dominated by a scientific mainstream of brain and artificial intelligence research that neither has analyzed McCulloch’s “A heterarchy of values ...” nor Bateson’s “Logical categories of learning ...” and – most notably – the scientific-logical consequences of these nearly half a century old basic studies which – from a methodological point of view – are still unexcelled. With the fundamental work of Gotthard Günther the situation is even worse: it has been pointedly ignored by the scientific mainstream of artificial intelligence and brain research. And strange enough even the community of second order cybernetics was unconcerned about Günther’s theoretical work and his philosophy.

Links and further readings

A complete bibliography of Gotthard Günther’s work can be found at the electronic journal: www.vordenker.de (Paul, J., ed.)

URL: www.vordenker.de/ggphilosophy/gg_bibliographie.htm

Fundamental theoretical studies of the post-Güntherian era on poly-logic, polycontextuality, morpho- and kenogrammatic by Rudolf Kaehr can be found at: www.thinkartlab.com (Kaehr, R., ed.)

Notes

1. The economists Robert J. Aumann and Thomas C. Schelling in 2005 got the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel “for having enhanced our understanding of conflict and cooperation through game-theory analysis”.
2. This is, so to speak, the quintessence of Varela’s closure thesis (Varela, 1979) – Closure Thesis: “Every autonomous system is organizationally closed ... organizational closure is to describe a system with no input and no output ...”
3. For an implementation Günther’s heterarchically structured numbers, which he called dialectical- or keno-numbers have to be used. This is of importance in present context because the heterarchically structured system of numbers prevents any formation of a hierarchy of logical types. Using natural numbers instead of keno-numbers is only one of the simplifications which we use in the presented example. We also have not mentioned the

proemial relationship and its importance in Günther's theory of polycontextuality. In his scientific essay "*Strukturelle Minimalbedingungen einer Theorie des objektiven Geistes als Einheit der Geschichte*" (Günther, 1980, Band 3, pp. 136-82) Günther describes the logical complexity underlying any formal description of mental processes. Both Günther's morphogrammatic which is a pre-logical theory and his kenogrammatic which is a pre-semiotic theory also cannot be discussed within such a short report. For more details it is referred to the literature (Kaehr, 2004).

References

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Intertext Books/International Textbook Company Ltd/Chandler Publ. Company, London.
- Bateson, G. (1979), *Mind and Nature – A Necessary Unity*, W. Collins Sons and Co. Ltd., Glasgow.
- Günther, G. (1976), "Cybernetic ontology and transjunctional operations", in Günther, G. (Ed.), *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, Band 1, pp. 249-328, available at: www.vordenker.de
- Günther, G. (1979a), "Cognition and volition", in Günther, G. (Ed.), *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, Band 2, pp. 203-40, available at: www.vordenker.de
- Günther, G. (1979b), "Identität, Gegenidentität und Negativsprache", *Hegeljahrbücher*, English translation by J. Paul, J. Newbury (2005), pp. 72-88, available at: www.vordenker.de
- Günther, G. (1980), *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, Felix Meiner Verlag, Hamburg, Band 1-3.
- Kaehr, R. (2003), "Derrida's machine", in Kaehr, R. (Ed.), available at: www.thinkartlab.com/pkl/media/index.htm
- Kaehr, R. (2004), "Skizze-0.9.5: Strukturierung der Interaktivität", in Kaehr, R. (Ed.), *Grundriss einer Theorie der Vermittlung*, available at: www.thinkartlab.com/pkl/media/SKIZZE-0.9.5-medium.pdf
- Kaehr, R. and von Goldammer, E. (1988), "Again computers and the brain", *Journal of Molecular Electronics*, Vol. 4, pp. S31-7.
- Kaehr, R. and von Goldammer, E. (1989), "Poly-contextural modelling of heterarchies in brain functions", in Cotterill, R.M.J. (Ed.), *Models of Brain Functions*, Cambridge University Press, Cambridge, pp. 483-97, available at: www.vordenker.de
- McCulloch, W. St (1945), "A heterarchy of values determined by the topology of neural nets", *Bulletin of Mathematical Biophysics*, Vol. 7, pp. 89-93, Reprinted in: McCulloch, W. St (1988), *Embodiments of Mind*, The MIT Press, Cambridge, MA, available at: www.vordenker.de
- Varela, F. (1979), "Principles of biological autonomy", in Klir, G. (Ed.), *General Systems Research*, Vol. II, North Holland Publ., Amsterdam, p. 58.
- von Goldammer, E. and Kaehr, R. (1990), "Problems of autonomy and discontextuality in the theory of living systems", in Moeller, D.P.F. and Richter, O. (Eds), *Analyse dynamischer Systeme in Medizin, Biologie und Ökologie, Informatik-Fachberichte 275*, Springer, Berlin, pp. 3-12, available at: www.vordenker.de

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Looking for “scientific” social science

The Macy Conferences on Cybernetics in Bateson’s itinerary

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Abstract

Purpose – The paper studies the participation of Gregory Bateson at the Macy Conferences on Cybernetics, that would prove to be a real turning point in his intellectual itinerary.

Design/methodology/approach – It bases itself on more or less known documents and on the newer studies on early cybernetics, focussing in particular on the earliest Macy meetings.

Findings – Being still an anthropologist, Bateson insisted on the importance and lack of theory in social sciences. Arriving at the first Macy meeting, he hoped that the new researches conducted by Norbert Wiener with others would have helped him to clarify the concept of circular causality that he believed to be a very central theoretical notion in social sciences. Indeed, Wiener was strongly sceptical about the inclusion of social sciences in the new cybernetic programs. Nevertheless, Bateson could learn about negative and positive feedback, about how negative feedback was able to explain finality in a non-metaphysical way, and discovered the specificity of phenomena concerning information. In addition, he became acquainted with Russell’s theory of logical types, which resonated in his mind with his ideas about deuterio-learning. Very quickly, his reasoning about circular processes in society began to include also problems of communication and self-referentiality.

Originality/value – It wants to explain one of the most important moments in Bateson’s scientific evolution, emphasizing theoretical problems in social sciences demanding still now a stable clarification.

Keywords Cybernetics, Social processes

Paper type Conceptual paper

An anthropologist dreaming a “scientific” social science

“Bateson you will remember, is the man who insists on the importance and lack of theory in sociology.” Such were Warren McCulloch’s words describing Bateson to Walter Pitts in 1946 (McCulloch to Pitts, February 2, 1946, quoted in Heims, 1980, p. 202), a few days before the first Macy Conference on Cybernetics. It is interesting to notice that Bateson’s complaint about the deficiency of theory in the social sciences dates back to the time he had given up zoology for anthropology, in 1925. Bateson had just become an Alfred Haddon’s student in anthropology, when he confessed:

... it is terrible to find how shaky all the ground is on which the elements of anthropology ... are based and it will be so much more difficult to absorb the facts, there being no structure of theory upon which to hook them (G. Bateson to C. B. Bateson, August 31, 1925, quoted in Lipset, 1980, pp. 114-5).

Because of his need for “theory,” he was immediately attracted by the new functional-structuralist anthropology (Lipset, 1980). Nevertheless, he was unsatisfied.



Curiously enough, although the holistic and organicist approach will become the most distinguished feature of Bateson’s thought, it was the effect of a personal conquest after a tireless struggle with the forerunners of this point of view in the social sciences. This epistemological “wrestling” appears clearly in *Naven*, a book concerned with the descriptions of Iatmul society but, at the same time, also with the epistemological problems entailed by these descriptions.

Bateson could have accepted Radcliffe-Brown’s idea of a stable “structure” persisting unchanged above the incessant turn over of individuals, although that was, for him, a too static approach. But, he could in no way accept Malinowski’s idea of “function”: how could we scientifically justify that social institutions have always a function to satisfy a specific need? It would be like stating that the reason why the moon exists is to light people’s nights: a teleological point of view. In this sense he will say: “I even wrote an anthropological book, *Naven*, within the orthodox antiteleological frame” (Bateson and Bateson, 1987, p. 12).

Therefore, he sought to find a more dynamic theory which was able to explain the reasons and the ways of the processes leading to those structures and came upon the notion of “schismogenesis,” to indicate social interactions in which an escalation in behaviors takes place. As it is well known, he pointed out at two different cases: “symmetrical schismogenesis,” where two pairs or groups show similar patterns of behavior, for example, in armament races; and “complementary schismogenesis,” where the two pairs or groups show different and complementary patterns of behavior, as in the case of dominance-submission. In both cases, Bateson saw circular causal processes. However, this explanation seemed inadequate to him (Bateson, 1958, pp. 286-7). In both symmetrical and complementary schismogenesis, we have cumulative processes, and a cumulative process tends to amplify effects. Since, the Iatmul society does not explode, something else must be there to stabilize it. Maybe – Bateson guessed – the two kinds of processes could reciprocally compensate. But, how could be possible to admit a perfect mutual interaction “by coincidence” alone, considering that, quantitatively, the two kinds of processes could have had lots of possible status? Here, once again we come across the teleological problem.

So, to repair the lack of theory in social sciences, Bateson gradually focussed on circular causal phenomena in society. After that, to clarify this notion, in the early 1940s, he became very concerned on automatic controls, first with L.F. Richardson’s equations on international armament races, and after with the studies on feedback and teleology of the Norbert Wiener’s group.

Norbert Wiener researches during Second World War

Norbert Wiener was an MIT mathematician with a wide philosophical background[1]. During the Second World War, he was involved, as a mathematician, in strategically important researches: on one hand in projects on the electronic digital computers, on the other in a project for anti-aircraft systems based on radars and computers.

From the end of 1940 to 1945 – helped by the Engineer Julian Bigelow – Wiener worked in a project on anti-aircraft radar detection and fire control. As a matter of fact, the system operated in the following way: a radar detected the position of an enemy airplane and sent the relative signal to a computer; the computer predicted the future position and sent the relative signal to a gun which automatically oriented itself and shot the plane. The prediction of the airplane position was calculated by means of

mathematical tools expressly devised by Wiener, the so-called “prediction theory” which, under a definite scientific viewpoint, was the most original and important result he attained (Wiener, 1949).

The feedback is called “positive” (or “regenerative”) when the output variable is added to the input variable, and “negative” (or “degenerative”) when the output variable is subtracted to the input variable. A negative feedback was operating in Wiener and Bigelow’s system: if the gun had failed the target, the system would have been able to detect the difference between the predicted and the real position of the plane, sending the aim error to the computer, which would have been able to recalculate a new position, again and again, until the plane was shot down.

At the beginning, the anti-aircraft systems included an operator receiving information from the computer to adjust the aim to shoot. Also when, in the future, the gunner will be replaced by an automatic device, it will be always necessary to take into account another man: the enemy pilot. Thus, the system had to consider the human factor. In that situation, it was very easy, particularly for an instinctive behaviourist like Wiener, to consider both gunner and pilot as components of the system to be studied as if they were mechanical devices. For this reason, Wiener asked permission to speak of this secret project with his old friend Arturo Rosenblueth, Physiologist, assistant of Walter B. Cannon, working at Harvard Medical School.

Looking at man as at an automatic control device they noticed that a lot of physiologic human behaviours had to include feedback loops. For example, the behaviour performed to pick up a pencil seemed analogous to the behavior performed by the anti-aircraft system to shoot a target. A more interesting fact was that specific malfunctioning in the anti-aircraft system seemed to be analogous to physiological pathologies. From this consideration, the project to regard all the intentional (or “purposive”) human or animal behaviors in parallel to machines with several degrees of teleological complexity was born. This project merged in Wiener *et al.* (1943).

Cybernetics as communication theory

However, the real core was not in feedback but in communication. Here, we find a crucial point to understand Wiener’s idea of cybernetics. While in the past – according to Wiener – the main problem of engineering was producing, transporting, transducing and using energy, the focus of the communication engineering was at the present producing, transmitting, elaborating, receiving information (Wiener, 1949, pp. 2-3). In the meantime, Wiener still used the term “communication engineering,” but it was clear as far back as wartime that the new field required a new name. In fact, in this new vision, they were messages not only voices or images, but also the “tap on a key” and “the angular position of a rudder” or “of a crank.” It did not even need be “the result of a conscious human effort for the transmission of ideas.” And, as in the case of hi-fi music, for all kinds of messages, it was possible to amplify and filter its noise. For Wiener, this communication engineering included not only the whole control theory but also the computer science, and their parallels “in flesh”: the nervous system he was studying with Rosenblueth and the neuronal net studied by McCulloch and Pitts. The first public presentation of this new field of work, still without a name, was a meeting organised by Wiener and John von Neumann, on January 6 and 7, 1945 at Princeton Institute (Wiener to Rosenblueth, January s, quoted in Heims, 1980, pp. 185-6). To try and test their ideas, in 1945, Wiener and Rosenblueth had worked for two months in a

joint experiment, at Instituto Nacional de Cardiologia of Mexico City, where Rosenblueth had just been appointed. The research Wiener and Rosenblueth (1946) was centered on the idea of Wiener and Pitts to reformulate the neuronal net of McCulloch-Pitts in stochastic terms.

Looking for
“scientific” social
sciences

The Macy Conferences on Cybernetics

On May 13-15, 1942 – Wiener was absent – Arturo Rosenblueth anticipated the content of Wiener *et al.* (1943) at a seminar of Macy Foundation. The auditorium included several human and social scientists as well as Bateson and Mead. Rosenblueth’s speech created an exciting atmosphere. In particular, a discussion about feedback deeply struck Bateson. As Bateson (1972, p. X) will tell:

In 1942, at a Macy Foundation conference, I met Warren McCulloch and Julian Bigelow, who were then talking excitedly about “feedback.” The writing of *Naven* had brought me to the very edge of what later became cybernetics, but I lacked the concept of negative feedback. When I returned from overseas after the war, I went to Frank Fremont-Smith of the Macy Foundation to ask for a conference on this then-mysterious matter. Frank said that he had just arranged such a conference with McCulloch as chairman. It thus happened that I was privileged to be a member of the famous Macy Conferences on Cybernetics.

The meeting “on feedback” was set on March 17 and 18, 1946. It became the first of a series of ten meetings (1941-1953), that beginning from the sixth – after the publication of the famous Wiener’s book *Cybernetics* – will be known as “Macy Conferences on Cybernetics”[2]. The restricted number of members was formed essentially by two groups. One was constituted by psychologists, psychiatrists, economists, sociologists, anthropologists all more or less close to Macy Foundation and its programs, generally permeated with holistic and organicist ideas. The second group was composed by mathematicians and engineers closed to Wiener and the other outstanding mathematician John von Neumann, substantially coinciding with the participants to Princeton Meeting. Physiologists as McCulloch, Rosenblueth and Lorente de N6 belonged to both of the groups and formed a sort of hinge. They had quickly coagulated on several technical and experimental projects sprung after 1943.

So, during Macy Conferences, two main interests overlapped. Knowing only the paper Wiener *et al.* (1943), human and social scientists were essentially interested in his philosophical meaning, generically demanding to extend the ideas of automatic control to their sciences. On the contrary, in 1946, for its authors and for many others that had joined them, the paper Wiener *et al.* (1943) constituted by that time a very solid program for mathematical and experimental researches and technological applications.

On March 17, in the morning, von Neumann spoke on new digital computers, followed by the Lorente de N6 on the neuronal net of McCulloch-Pitts. In the afternoon, Wiener spoke on “goal-seeking devices,” talking on the different kind of feedback and in general about control engineering from Hero of Alexandria until their present days. After that, Rosenblueth talked on self-regulating mechanisms in living organisms (McCulloch, 1947, pp. 2-3).

Apparently, all went very well. That was a synthesis of the Meeting of Princeton, and was very interesting for both the groups. In addition, the discussion appeared very exciting. In particular, during von Neumann speech, the auditorium could hear a real “duet” performed by him and Wiener. Von Neumann stressed that a general purpose computer (similar to today’s ordinary computers) could “compute any computable

number or solve any logical problem presented to them in their own language provided it had a solution” (McCulloch, 1947, p. 1). Wiener explained what would happen in case of a problem without solution. He said that if we asked a computer to solve a Russellian paradox:

.. it ought to go into a series of operations instead of coming to a conclusion, so that if it first decided that something was true it would next decide that it was false and vice versa. (McCulloch, 1947, p. 2).

For Bateson it was a sort of illumination

A session for the social and human sciences was scheduled for the next day, but that same evening Bateson and Mead could speak about schismogenesis and deuterio-learning (McCulloch, 1947, p. 3). That day for Bateson was a sort of resume of all of his reflexions up to then: the need of a more “scientific” approach to social sciences; the complementary and symmetrical schismogenesis. In particular, he understood that the phenomena he had called “schismogenesis” were cases of positive feedback. Even the teleology could finally find a scientific basis, imagining that the two kinds of schismogenetic processes he had described in the Iatmul society would form a negative feedback, so that they could reciprocally control each other. He will tell:

...the formal study of feedback systems immediately changed all this. Now, we had mechanical models of causal circuits which would (if the parameters of the system were appropriate) seek equilibria or steady states (Bateson, 1958, p. 287).

Very probably Wiener’s speech on Russellian paradoxes (and on Russellian solution of these paradoxes by means of the type theory) interacted with Bateson’s ideas on deuterio-learning, as it is well known, the theory he had elaborated on learning to learn.

In general, it was as though part of a puzzle had come to a solution, setting new questions. Bateson and Bateson (1987, p. 13) will explain:

I was off and running with paradoxes of purpose and final cause more than half-resolved, and aware that their resolution would require a step beyond the premises within which I had been trained.

Bateson’s reasoning about circular processes in society began to include also problems of communication and self-referentiality.

Problems with social sciences

In fact, from the very beginning, the March 1946 meeting focused on neurological discussions. Among other things, on the second day, Wiener explained that a brain – as a computer – had to be considered as a communication machine, that is a machine elaborating information and not energy. This was certainly another striking idea for Bateson.

The subtle ambiguity of the purposes of the conferences became almost imperceptible for psychologists or physiologists. As the discussion of the second day demonstrated, an interest in speaking about the neurophysiology of peripheral and central nervous system and its parallel in computers and in goal seeking devices prevailed. But, some dissatisfaction among some social scientists appeared because of their longing for a closer examination of circular causality in general and of circular causality in social systems in particular.

In addition, just after Bateson and Mead’s speech a discussion arose:

...whether – in McCulloch words – we were not unduly extending our theory of feedback, regenerative or inverse, into domains of which we were ignorant as to what the significant variables were.

“It was this challenge – McCulloch concluded – which ultimately led to the special meeting of those of us more closely related to the social sciences – of which more anon” (McCulloch, 1947, p. 3); another peroration in this sense for a special meeting came also on the following days by sociologist Paul Lazarsfeld (McCulloch, 1947, p. 4).

A special conference for the social scientists

The special conference took place on October 21 and 22, 1946, under the aegis of The New York Academy of Sciences, with the title “Teleological Mechanisms.” Curiously enough, the official proceedings (New York Academy of Sciences, 1948) did not include the papers of Bateson and Lazarsfeld, that is just the people who had looked forward to its realization. Also the speech of Wiener appears rewritten. Luckily *Preprinted abstracts* (1946) of all the papers exist, including the Bateson’s and Lazarsfeld’s. These documents, together with the official proceedings, contains a very interesting philosophical discussion of the circular causality concept.

The “Introductory statement” of *Preprinted abstracts* (1946) seems inspired by Bateson. It shows how the conference was specifically focused on circular causality. Set aside the well-known linear causality, they needed to study a type of system in which, e.g. variable A affects B, B affects C, and C affects A. Examples of circular causal phenomena are proposed: the study of the Watt’s *Governor* by Maxwell and that of postural reflexes by Claude Bernard; adding:

...the thermostat, the homoeostatic mechanisms of the body, the mechanisms underlying learning, the community in which government has sources of information public opinion, games involving two or more players, armaments races, etc.

and concluding with the recent “servo-mechanisms, computing machines and many other types of self-correcting and purposive mechanism.”

The actual introduction (New York Academy of Sciences, 1948) was made by Lawrence K. Frank, an Executive of the Macy Foundation, an eclectic intellectual very close to Mead and Bateson. Frank stressed the philosophical meaning of teleology studied by Wiener, who was considered the *primadonna* of the meeting. Wiener’s and Rosenblueth’s speeches followed, entitled “Self-correcting and goal-seeking devices and their breakdown,” (*Preprinted abstracts*, 1946) was more mathematical and including an historical introduction on “communication engineering” in Wiener’s sense, the latter on “The control of movements of animals organisms,” (*Preprinted abstracts*, 1946) was more of a physiological kind. Both proposed the earlier results of a joint experiment they had carried on in the summer at Mexico City (Wiener, 1948, pp. 28-9). Their general purpose was to formulate a rigorous theory of the animal movement, based on the hypothesis of the importance of feedback loops in this matter. For its supposed simplicity, they had chosen the *Clonus*, a type of physiological oscillation in muscles, speculating that it took origin by a breakdown of a feedback system.

The choice of an experiment to deal with feedback confirms the experimental rigor of the Wiener and Rosenblueth’s approach. At least, in two occasions, Bateson will

speak very positively of this research on Clonus (Bateson and Bateson, 1987, p. 122; Bateson, 1991, Chapter 17). However, Wiener did not want to publish the results, that will appear only posthumous (Wiener, 1985a). In place of them, the official proceedings contain a long and very interesting introduction to Wiener's "communication theory" (New York Academy of Sciences, 1948, pp. 197-220). It seems almost as if Wiener wanted to stress out what the new field meant for him. In any case, he completely skipped the theme of circular causality which was dealt with instead in the others papers. In the official proceedings, the remaining are more or less the same of those in the *Preprinted abstracts* (1946). The neuro-surgeon William Livingston, spoke on "The vicious circle in Causalgia" (*Preprinted abstracts*, 1946), a burning pain that seemed to take origin by a feedback loop in damaged nerves. George Hutchinson, Bateson's old friend, spoke instead about "Circular causal mechanisms in ecology" (*Preprinted abstracts*, 1946).

The sociologist Paul Lazarsfeld spoke about "Circular processes in public opinion," (*Preprinted abstracts*, 1946) showing mutual effects emerging from market research. Lazarsfeld, champion of the quantitative sociology, wanted to learn how to use the techniques of automatic control in social fields, Wiener's prediction theory included.

To the reader accustomed with the works of Bateson – largely subsequent to the period of Macy Conferences – could appear very strange to attribute to him claims for an application of the mathematical tools of automatic controls to social sciences. In fact, Bateson did not have a very deep mathematical education. His scientific ideal had been in the past and would have been in the future more naturalistic than analytical, more "Baconian" than "Newtonian." Actually Bateson's paper, entitled "Circular causal systems in society" (*Preprinted Abstracts*, 1946), did not consist in a presentation of results. It appears essentially as a research program, very aware of the difficulties "to argue from physical mechanisms to organisms and from organisms to societies" (*Preprinted abstracts*, 1946). The method he used in it was typically Baconian, that is beginning with a classification of the different cases. But, he concluded demanding for social sciences "more complex, more flexible, and more precise conceptual tools," compared with mathematics and physics. "We need – Bateson stated – not less but rather more rigorous thinking than is usual among the physicists" (*Preprinted abstracts*, 1946).

The objections of Norbert Wiener

It is very probable that the omission of the publications of Bateson and Lazarsfeld's papers in the proceedings is to be ascribed to the position assumed by Wiener towards their claims for a mathematization in social sciences. The book *Cybernetics* is a sort of research program where Wiener tried to tell what cybernetics was and what it was not about. In this program, he includes the social sciences suggesting that they could study society as a system integrated by communication. But, he excludes categorically the possibility to use mathematics in studying it. Just referring to Bateson and the other social scientists, he closed the book on *Cybernetics* with these words:

In short, whether our investigations in the social sciences be statistical or dynamic . . . There is much which we must leave, whether we like it or not, to the un-"scientific" narrative method of the profes-sional historian (Wiener, 1948, p. 191).

There are lots of reasons to explain Wiener’s attitude. As far back as the 1930s, Wiener was very sceptical in using mathematics in sociology (Wiener, 1935). A series of objections we find in *Cybernetics* are identical to those expressed in 1935. But, during the meeting on “Purpose Systems” it seemed that they could have been somehow bypassed (Heims, 1991).

There is another very delicate point. In December 1946, Wiener wrote the article Wiener (1947), that meant for him the beginning of his commitment in a strong critical reflexion about the responsibility of scientists working both in military and in pacific researches. That could explain in particular some of the criticism against the manipulation of public opinion, that could imply a criticism toward Lazarsfeld.

But, I think that Wiener did not fully grasp, at the time, the theoretic claims on circular causality coming from social scientists. For him, feedback was an old, maybe a very good, tool of one’s trade; for Bateson and other social scientists it was the key to disclose buried truths. In addition, neither Wiener nor von Neumann, and most of the exponents of “hard sciences” did not participate to the holistic background.

Actually referring to the two standpoints subtended at the conferences there were almost two kinds of “cybernetics.” The meaning of cybernetics for Wiener emerges clearly in the title of his 1948s book: *Cybernetics, or Control and Communication in the animal and the machines* (Wiener, 1948). On the contrary, the needs of social scientists were well expressed in the title chosen for the proceedings of the Macy Conferences: *Cybernetics. Circular causal, and feedback mechanisms in biological and social systems* (Von Förster, 1953).

Conclusion

For most “soft scientists” the mark had been completely overstepped when one of the father of the Gestalt psychology, Wolfgang Köhler, was mistreated, and after the fifth meeting they quit the conferences (Heims, 1991). Bateson, on the contrary, held out. He gave up his claims for mathematical rigor, without renouncing to his deeply rooted holistic ideas, that had been reinforced by the conferences. He searched for a dialogue with the mathematicians, with Wiener first of all, starting to combine his holistic claims with the new cybernetics views, beginning with communication.

He now had understood better circular causality, and how this concept was not only compatible but necessary with a teleological approach. He had discovered the relation between circular causality and deuterio-learning, by the theory of type, arriving at the paradoxes of self-referentiality. Finally, he had understood the lesson about the study of society as a communication system.

All this is very consistent with his first step after Macy Conferences, that is the collaboration with Ruesch on communication between patients and psychiatrists (Bateson and Ruesch, 1951). Writing to Frank, Wiener appraised the results “as a valiant work attempting to bring psychoanalytic processes under the heading of cybernetics.” But did not miss the opportunity to remind his usual methodological advice: “it is and must be sketchy,” because of the incompleteness of our knowledge in psychology (Wiener to Frank, October 26, 1951, quoted in Heims, 1980, p. 150).

Notes

1. Wiener’s life and intellectual itinerary are now well known. See mainly Wiener (1964), Heims (1980), Masani (1990), Segal (2003) and Montagnini (2005).

2. On Macy Conferences, see mainly Heims (1991) and Dupuy (1999). Heims (1977) deals with the relations among Bateson, Wiener and von Neumann. Geyer and Van Der Zowen (1994) studied the Wiener's reactions towards social scientists claims during the Macy Meetings. The main sources are *Preprinted abstract* (1946), McCulloch (1947), New York Academy of Sciences (1948) and Von Förster (1953).

References

- Bateson, G. (1958), *Naven*, 2nd ed., Stanford University Press, Stanford, Epilogue.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY, 1975.
- Bateson, G. (1991), *A Sacred Unity*, Harper Collins, San Francisco, CA.
- Bateson, G. and Bateson, M.C. (1987), *Angels Fear*, Macmillan, New York, NY.
- Bateson, G. and Ruesch, J. (1951), *Communication: The Social Matrix of Psychiatry*, Norton, New York, NY.
- Dupuy, J-P. (1999), *Aux origines des sciences cognitives*, La Découverte, Paris.
- Geyer, F. and Van Der Zowen, J. (1994), "Norbert Wiener and the social sciences", *Kybernetes*, Vol. 23 Nos 6/7, pp. 46-61.
- Heims, S.J. (1977), "Gregory Bateson and the mathematicians: from interdisciplinary interaction to societal functions", *Journal of the History of the Behavioral Sciences*, Vol. 13, pp. 141-59.
- Heims, S.J. (1980), *John von Neumann and Norbert Wiener*, MIT Press, Cambridge, MA, 1984.
- Heims, S.J. (1991), *The Cybernetics Group*, MIT Press, Cambridge, MA.
- Lipset, D. (1980), *Gregory Bateson: The Legacy of a Scientist*, Beacon Press, Boston, MA.
- McCulloch, W.S. (1947), "To the members of the conference on teleological mechanisms – October 23 & 24, 1947", Typescript, in McCulloch's Archive, Library of the American Philosophical Society of Philadelphia. Box No. 19. I thank the curator Mr. Robert S. Kox for sending me the photocopies.
- Masani, P.R. (1990), *Norbert Wiener, 1894-1964*, Birkhäuser Verlag, Basel-Boston-Berlin.
- Montagnini, L. (2005), *Le Armonie del Disordine: Norbert Wiener Matematico-Filosofo del Novecento*, Istituto Veneto di Scienze, Lettere ed Arti, Venezia.
- New York Academy of Sciences (1948), "Conference on teleological mechanisms", *Annals of the New York Academy of Sciences*, Vol. 50, October 21 and 22, 1946, October 13, pp. 185-278.
- Preprinted abstract* (1946), "Preprinted abstracts. Conference on 'Teleological Mechanisms', Monday, October 21 and Tuesday, October 22, 1946", Typescript, in Box 0-14 of Margaret Mead's Archive, Library of Congress, Washington, DC. I'd like to thank the curator Mr. Bruce Kirby for sending me the photocopies.
- Segal, J. (2003), *Le Zéro et le Un*, Syllepse, Paris.
- Von Förster, H. (Ed.) (1953), *Cybernetics: Circular Causal, and Feedback Mechanisms in Biological and Social Systems*, Conferences from 6th to 10th, Josiah Macy Foundation, New York, NY.
- Wiener, N. (1935), "Limitations of science", in Wiener, N. (Ed.), *Wiener's Collected Works*, Vol. 4, MIT Press, Cambridge, MA, pp. 697-701.
- Wiener, N. (1947), "A scientist rebels", in Wiener, N. (Ed.), *Wiener's Collected Works*, Vol. 4, MIT Press, Cambridge, MA, p. 748.
- Wiener, N. (1948), *Cybernetics*, MIT Press, Cambridge, MA.
- Wiener, N. (1949), *Extrapolation, Interpolation, and Smoothing...*, Wiley, London.
- Wiener, N. (1964), *I am a Mathematician*, MIT Press, Cambridge, MA.
- Wiener, N. (1985a), *Wiener's Collected Works*, Vol. 4, MIT Press, Cambridge, MA.

Wiener, N. and Rosenblueth, A. (1946), “The mathematical formulation of the problem of conduction of impulses in a network of connected elements, specifically in cardiac muscle”, in Wiener, N. (Ed.), *Wiener’s Collected Works*, Vol. 4, MIT Press, Cambridge, MA, pp. 511-71.

Wiener, N., Rosenblueth, A. and Bigelow, J. (1943), “Behavior, purpose and teleology”, in Wiener, N. (Ed.), *Wiener’s Collected Works*, Vol. 4, MIT Press, Cambridge, MA, pp. 180-6.

Further reading

Bateson, G. (1980), *Mind and Nature*, Collins, Glasgow.

Wiener, N. (1985b), “Muscular clonus”, in Wiener, N. (Ed.), *Wiener’s Collected Works*, Vol. 4, MIT Press, Cambridge, MA, pp. 466-510.

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The two beginnings of communication theory

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Abstract

Purpose – To clarify the parallels and differences between the communication theories of Gregory Bateson and Paul Watzlawick.

Design/methodology/approach – To conduct an analysis by a comparison of central theses of both authors, by texts.

Findings – It was found that all five axioms of Watzlawick can be derived from theses of Bateson.

Research limitations/implications – The comparison was limited to the five axioms of Watzlawick. Further research could analyse his whole communication theory, compare it with Bateson and others and thereby clarify Watzlawick's own share.

Practical implications – The significance of Bateson's communication theory is strengthened.

Originality/value – Direct comparison of central statements of both authors.

Keywords Cybernetics, Communication

Paper type Conceptual paper

Sometimes, it takes a while until matters of course become matters of course. The case of Bateson's communication theory is one of these. The following essay attempts to explore two quite different beginnings of communication theory. This will be achieved by comparing the texts of Gregory Bateson and of Paul Watzlawick.

The beginning of Bateson's communication theory dates to 1951. In that year, Bateson published together with the psychiatrist Jurgen Ruesch, *Communication: The Social Matrix of Psychiatry* (Ruesch and Bateson, 1951). In this book, Bateson initiated the beginnings of a modern and today widely absorbed communication theory which until today still remains often unconnected with his name. He introduced several terms, such as "meta-communication" or "analogic and digital communication" which are now considered common currency. It was also the first time that modern cybernetics and information theory were extensively used in social science.

The success of his book was remarkably muted. It took as long as 17 years until a second edition was published in 1968. In the meantime, Bateson had become a well-known researcher, especially in the field of pathogenic communication. One year before this second edition of *Communication*, Paul Watzlawick published together with Janet B. Bavelas and Don D. Jackson (a former assistant of Bateson) his famous *Pragmatics of Human Communication* (Watzlawick *et al.*, 1967). The great achievement of *Pragmatics* was to present a formalized theory of communication, culminating in the five famous axioms of communication. Incidentally, this book was dedicated to Gregory Bateson. The publication of *Pragmatics* was the second, somehow different and much more successful beginning of communication theory.

The task of this essay is to present all of Watzlawick's five axioms as derived from insights already achieved by Bateson (or Ruesch). The similarities as well as the differences will be shown. This will be mainly done by quotations of crucial statements



from both of them. Hereby, I will limit my role to some hints instead of a broader discussion of this case (cf. Harries-Jones, 1995, pp. 27-9; Lutterer, 2000, pp. 276-81).

The range of communication

Watzlawick *et al.* (1967, p. 51) first axiom simply states: “one cannot not communicate”. This shows the inevitability of communication. As few people know a very similar thought had already been formulated by Bateson’s co-author, Jurgen Ruesch: “We can never abstain from communicating” to which Ruesch appended “. . .and as human beings and members of a society, we are biologically compelled to communicate” (Ruesch and Bateson, 1951, p. 7). I think the similarities of these statements are as remarkable as the differences. Whereas Watzlawick asserts something *objective*, a matter of fact, Ruesch’s formulation is *reflexive*, including the observer. So, it is small wonder, that Simon (1995, p. 315) finds in the epilogue of the German edition of Bateson’s and Ruesch’s *Communication*, that this book already introduces the idea of the observer as in second-order cybernetics. In fact, we here have also the core of latter debates about the concept of “power” in psychotherapy (Lipset, 1980, pp. 224-7).

Meta-communication

The second axiom of the *Pragmatics* is: “Every communication has a content and a relationship aspect such that the latter classifies the former and is therefore a meta-communication” (Watzlawick *et al.*, 1967, p. 54). Bateson’s definition of meta-communication in *Communication* is: “We shall describe as ‘meta-communication’ all exchanged cues and propositions about (a) codification and (b) relationship between the communicators” (Ruesch and Bateson, 1951, p. 209). Again, Watzlawick uses central statements of *Communication*. But, here both agree about the meaning of meta-communication with the sole difference being the accent on “content” in one and on “codification” in the other.

Sequences of interaction

Watzlawick *et al.* (1967, p. 59) third axiom stresses the punctuation of communication. “The nature of a relationship is contingent upon the punctuation of the communicational sequences between the communicants”. Bateson, on the other hand, analyses “sequences of interaction”: “. . .the persons concerned in the interaction actually have a curious freedom to impose their own interpretations upon the sequences of interaction” (Ruesch and Bateson, 1951, p. 219). One favouring “contingence” and the other “freedom” again both mean essentially the same. Bateson demonstrates this “freedom” with a comparison of dominance and dependence. Watzlawick elaborates on “contingence” with an example of relationship struggles: who started the struggle? Always the opponent.

Digital and analogic aspects of communication

The fourth axiom formulates the differentiation between digital and analogic aspects in communication (Watzlawick *et al.*, 1967, pp. 66-67):

Human beings communicate both digitally and analogically. Digital language has a highly complex and powerful logical syntax but lacks adequate semantics in the field of relationship, while analogic language possesses the semantics but has no adequate syntax for the unambiguous definition of the nature of relationships.

Instead of two “varieties of codification” Bateson even discusses a third – both “digital” and “analogic” and also “Gestalt” (Ruesch and Bateson, 1951, pp. 170-1). Later, however, he abandons the last one and simply distinguishes “analogic versus digital communication” (Bateson, 1966, p. 372). But, this distinction is not a simple one: “In the natural world, communication is rarely either purely digital or purely analogic” (Bateson, 1968, p. 291). Again, both assert essentially the same. But again, Watzlawick’s version is somehow diminished.

The symmetry of interaction

The fifth and final axiom is about the symmetry of interaction. Watzlawick *et al.* (1967, p. 70): “All communicational interchanges are either symmetrical or complementary, depending on whether they are based on equality or difference”. This differentiation is founded on an early theory of Bateson – his concept of *schismogenesis* which is essentially the same as later *positive feedback*. Bateson’s (1935, p. 67) concept dates back to 1935:

The possibilities of differentiation of groups are by no means infinite, but fall clearly into two categories (a) cases in which the relationship is chiefly symmetrical, e.g. in the differentiation of moieties, clans, villages and the nations of Europe; and (b) cases in which the relationship is *complementary*, e.g. in the differentiation of social strata, classes, castes, age grades, and, in some cases, the cultural differentiation between the sexes.

This assumption was the key to Bateson’s early study on the Iatmul, a tribe of former headhunters, in New Guinea analysed in *Naven* (Bateson, 1936). Later, Bateson also applied this theory to Hitler’s Germany. Again, all the same? No, not really. Bateson gives just categories of *description*, Watzlawick goes a step further and argues that all interchanges are “either symmetrical or complementary”. So, there is either competition or dominance/submission, at least for Watzlawick.

Conclusion

So, as you see, there really are two kinds of beginnings of communication theory. On the whole, Bateson and Watzlawick often seem to mean the same, but only from a distant view. Every axiom of Watzlawick’s *Pragmatics* is rooted in Bateson’s theory and to a certain extent in Ruesch’s theory. But, Bateson himself abstains from a formal connection of his insights. He delivers no theory as a whole. It is to Watzlawick’s credit that he brought all aspects together, conjoined and published them at the very moment when public perception was ready to absorb. I will leave it to you whether you understand Watzlawick’s assumptions actually also as “axioms”. At least in mathematics, axioms are *independent* from each other and they serve as a *necessary* starting point for further deducing.

So, there are also the differences. Maybe, the most significant one has its roots in the first “axiom”. The different treatment of the observation and the observer herein is also the core of later developments in communication theory. Watzlawick’s position is followed by directive family therapy (including Jay Haley and NLP) and basically, also by the social systems theory of Niklas Luhmann. Bateson’s position is followed by non-directive therapy (e.g. Paul F. Dell) and by Heinz von Foerster’s second-order cybernetics. However, both approaches are largely congruent. Owing to the success of second-order cybernetics Bateson’s older approach may sound more recent,

but Watzlawick's formulations are more familiar. And this also represents the main difference between them: the psychotherapist Paul Watzlawick usually remains in a position of first order cybernetics and this instead of his asserted constructivist view whereas Bateson is in second-order from the start. So, these two beginnings of communication theory really are two beginnings. The point of this essay was to demonstrate Bateson's involvement and to give him some credit.

References

- Bateson, G. (1935), "Culture contact and schismogenesis", quoted as in Bateson, G. (2000), *Steps to an Ecology of Mind*. University of Chicago Press, Chicago, IL, pp. 61-72.
- Bateson, G. (1936), *Naven, A Survey of the Problems Suggested by a Composite Picture of the Culture of a New Guinea Tribe Drawn from Three Points of View*, Cambridge University Press, Cambridge, MA.
- Bateson, G. (1966), "Problems in cetacean and other mammalian communication", quoted as in Bateson, G. (2000), *Steps to an Ecology of Mind*. University of Chicago Press, Chicago, IL, pp. 364-378.
- Bateson, G. (1968), "The logical categories of learning and communication", pp. 279-308, quoted as in Bateson, G. (2000), *Steps to an Ecology of Mind*. University of Chicago Press, Chicago, IL.
- Harries-Jones, P. (1995), *Ecological Understanding and Gregory Bateson*, University of Toronto Press, Toronto.
- Lipset, D. (1980), *Gregory Bateson: The Legacy of a Scientist*, Prentice-Hall, Englewood Cliffs, NJ.
- Lutterer, W. (2000), *Auf den Spuren ökologischen Bewusstseins. Eine Analyse des Gesamtwerks von Gregory Bateson*, Libri Books on Demand, Norderstedt.
- Ruesch, J. and Bateson, G. (1951), *Communication: The Social Matrix of Psychiatry*, W.W. Norton & Company, New York, NY.
- Simon, F.B. (1995), "Nachwort zur deutschen Ausgabe", in Ruesch, J. and Bateson, G. (Eds), *Kommunikation*, Carl-Auer-Systeme, Heidelberg, pp. 315-8.
- Watzlawick, P., Beavin, J.H. and Jackson, D.D. (1967), *Pragmatics of Human Communication*, W.W. Norton & Company, New York, NY.

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Legacy: lessons from the Bateson team meetings

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Abstract

Purpose – To provide direct access to historically significant, original raw data from research conducted by the Bateson Team.

Design/methodology/approach – The approach taken is hermeneutic textual analysis.

Findings – The communication/interactional theory emerged from the interaction between members of the Bateson Research Team that took place between 1952 and 1961.

Originality/value – Decisively relevant to the origins of communication/interactional theory.

Keywords Cybernetics, Learning, Communication, Language

Paper type Conceptual paper

One of, if not the most generative eras of Gregory Bateson's work took place between 1952 and 1961 when he led a team of researchers that came to be known as the Palo Alto Group in a series of four projects. During and subsequent to this decade long collaboration members of the team: Gregory Bateson, John Weakland, Jay Haley, William Fry, and Don D. Jackson created the foundation of the Communication/Interactional View (Bateson, 1972, 1979; Donaldson, 1991; Fry, 1968; Haley, 1963, 1974; Watzlawick *et al.*, 1967, 1974; Watzlawick and Weakland, 1977; Weakland and Ray, 1995).

With the passage of time the contributions of the Palo Alto Group has become the stuff of myth and legend. Unfortunately myth and legend, in combination with the pervasively individual view of things that dominates in western culture, all too often results in contributions of various team members being studied in isolation from one another, and in an inaccurate reification of the idea that the contributions of individual team members were products of innately brilliant individuals working in isolation. Each of these team members were extraordinarily gifted, but it is our contention that their contributions are best understood in light of the uncompromisingly interactional and emergent essence of the communicational/cybernetic/interactional view – what Bateson termed *mind*.

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The authors are working to publish all remaining transcripts. In the interim, interested scholars may obtain controlled access to the remaining transcripts by contacting Wendel A. Ray, PhD, at: waray@bellsouth.net

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Weakland described the contributions of the Bateson team this way:

The concepts that constitute Communication or Interactional Theory emerged **not from** any one individual, but, rather were the product of the **interaction between** the members of what has become known as the Palo Alto Group (Weakland, 1988).

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Don Jackson (1963) phrased it this way:

Our heritage of Judeo-Christian tradition, the Protestant ethic, colonial expansionism and affluence has helped to maintain the **fiction** that man is the master of his fate and the captain of his soul. And so bravely we take the good with the bad, placing the blame as well as the medals on *individuals* while skillfully, even prudishly ignoring the most intimately relevant mitigations to our charges or qualifications to our eulogies. With our proclivity for the individual view of things, it runs against the grain to see ourselves as participants in a system, the nature of which we little understand. Yet I am convinced that we can make such dire appraisals (and such undeserved praises) only by translating a highly complex composite of people and contexts into a term which is then inappropriately applied to an individual. If we call someone sick or sad, savage or sane, we not only engage in very misleading reductionism of our referent, but we also base our analysis on notions of “normality” and “individuality” which are rarely enunciated and have never been thoroughly examined. Thus, I strongly question both the accuracy and the utility of individual analysis and labeling as presently conceived. I think we must move from the study of the individual *in vitro* to that of the small or larger group into which any particular individual’s behavior is **adaptive**, from individual assessment to examination of the contexts, or more precisely, the *systems* from which individual conduct is inseparable.

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Thanks to the foresight of John Weakland, numerous published and unpublished written, audio and film documents survive from the Bateson Team collaboration, and are available for direct analysis. One of the most historically significant set of surviving documents, perhaps the most revealing of the central importance of the emergent quality of the interaction between Bateson Team members in creating communication/interactional theory, is a set of 118 documents of the weekly team meetings. Each of these original documents, 107 transcripts and 11 audio recordings of different meetings of the Bateson Team, is dated and titled “Jackson Conference,” presumably due to a cost-based team decision to only record meetings that took place weekly during the first four years after Don D. Jackson, MD joined the team.

These team discussions, thick with original ideas often in embryonic form, emerge from the interaction between team members that ultimately jelled into the body of interrelated premises that constitute communication/interactional theory. The conversations documented in the Jackson Conference transcripts took place before the current lexicon of terms and concepts entered conventional vocabulary; thus such concepts at constructivism, social construction, simple cybernetics, cybernetics of cybernetics, the dichotomy between modern and post modern, etcetera, are not to be found in these discourses – but the ideas from which such terms derive permeate the team member’s interaction.

These 118 team meeting documents are housed in the collection, 107 transcripts, and 11 audio recordings, documenting meetings that took place from February 9, 1955 to May 1, 1958; along with numerous other written, audio, and film documents surviving in the collection preserved by John Weakland and now housed within the Don D. Jackson Archive collections. Efforts are underway to make all these materials, particularly the team conversations, more widely accessible.

Following is the earliest Jackson Conference transcript. The text is offered without commentary in order to provide readers direct and unfiltered access to the raw data. We chose to publish this particular transcription to allow readers to begin with the earliest original documentation of what became one of the most productive collaborations in the recent history of the behavioral sciences. A list of ideas expressed in this team meeting that would later set the stage for the communication/interactional approach will be highlighted in the closing section of this paper.

Jackson conference, February 9, 1955

GB: Gregory Bateson; JW – John Weakland; JH – Jay Haley; DJ – Don Jackson.

GB: We enter in the role with two sets of ideas, as it were. We were at the point where an animal learns something or other. Typewriting or language or deification, but what is important for the psychiatrist is the cortex of that learning, and you don't really care whether the child learned to typewrite, but you as a psychologist whether he learned to typewrite in a reward situation, a punishment situation or a fatalistic situation of some kind or all sorts of varieties of context. Therefore, that is a second sort of learning – the deutero-learning to typewrite which is learning to expect some sort of context. That his character is determined at the next level up so to speak and there is the rather primary learning of learning to typewrite and I equate that with the development of becoming test wise in experiments. That if you subject a human being or animal to experiments of a certain general sort, that subject becomes more skilled at dealing with contexts as it were.

DJ: He's learning about learning . . .

GB: Right . . . you have that general idea.

JW: He is not only more skilled to deal with those . . . but conversely less skilled to deal with others.

GB: Presumably points of that kind where there is no experimentation to support one or to guide one . . . which patterns conflict with which pattern . . . we don't know that. There must be conflict and there must be areas of congruence, but . . . God knows. And you can diagram this damned thing as they appear in the lab anyway, and when you have the Pavlovian experiment where we get fatalism in which the animal's behavior does not determine whether the reinforcement comes or doesn't come . . . then all the instrumental experiments where the animal has to do something in order to make the reward come, or do something to keep the punishment away . . . or not do something to keep the punishment away, but whatever the conditions are and so on. Anyone that waits there comes a sort of diagram, a paradigm for a characterological statement of a certain kind.

DJ: I don't know that I understand the use of the word characterological or not.

GB: If you say a man is the sort of man who might be supposed to experience a universe organized on Pavlovian lines, is to make a technical precise statement about a sort of fatalism, then from experience and the kind of experience of context selection . . . a pattern.

DJ: So you are saying something about his character . . .

GB: You're saying something about his character in the sense that fatalist is a characterological trait.

JH: As soon as a dog learns to be a fatalist to some extent . . . that there is nothing he can do to prevent what is coming, he is more comfortable.

GB: You can say the dog learns to be an instrumentalist or he learns to be an instrumental avoidance operator rather than an instrumental seeker and so on. We have that language available . . . then we have Wittgenstein (1953) and the phrase “language game” and by “language game,” Wittgenstein means an ongoing system of interaction between persons involving both messages and actions. He assumes that A wants to build a house and that A gives orders to B and then B then performs certain actions which have to be observed by A and so on. There is an understanding between A and B of what sort of an interaction this is . . . and there will be many sorts. Now “ritual,” “purposive,” “continued actions,” “operations,” “competitive operations” and so forth, and we have been assuming that metaphor versus literalness, “teasing,” “making myths,” all these various sorts of things are just a part of the language game,” are different sorts of language games. The play then becomes a subgroup of this general word game – the word “game” is unfortunate because . . . so we got rid of the words “language game” and about two weeks ago substituted the words “modes of communication,” “communicational modes” . . . to differentiate such differences as between “play” and “not play” . . . “fantasying,” ritualizing, and so forth. It now turns out, I think correctly, that the list of such modes is a list at the same level of abstraction as a list of the types of learning context . . . that is, the two lists came into a single list. A thing like teasing, which we handled as a generalized facet of the language game, can be considered a mode of communication. If you want to make a diagram of it, it becomes a diagram like the diagram of an animal experiment . . . like a Pavlovian or instrumental, it is one in which the reward is withheld when the conditioned response appears, the teaser is satisfied if the conditioned response diminishes, he starts repeating the stimulus to get it back again, or something of that type. Now insofar as people can recognize what sort of an action they are in at the moment, there must be signals of the next order up which say, this is this sort of interaction, this is a teasing interaction, that one is suffering interaction, another one will be developing hallucinations and so on. And the notion still stands that a schizophrenic is a guy who for one reason or another cannot identify these species.

JH: And this follows . . . some cases where it’s not identifying another specific signal, but of identifying “diagrams,” identifying the sequences – it is going to be in some cases inability to recognize a larger unit, sort of.

GB: Now this is not an inability to know that there are larger units . . . that he has fully developed, what he has not got developed is the ability to identify which unit is which. When the girl behind the counter says, “what can I do for you?” He attributes all alternatives to it . . .

DJ: I was going to say that I don’t think that last statement is correct if I heard it correctly . . . I think if he hears the girl behind the cigar counter say, “What can I do for you?” . . . it may mean that she is in love with him and will die unless he marries her. So that although he knows there is a larger picture, part of the problem is that he can’t distinguish between the microcosm and the macrocosm as it were.

GB: He can’t distinguish between the microcosm and macrocosm, and he does not know which macrocosm is appropriate at the given moment.

DJ: Well, then it might be any of these or several of them.

JH: It might be an inability to distinguish microcosm and macrocosm and it might be an inability to choose among the possible varieties.

DJ: Well, here's an example which pops into my mind and see if it fits what we are talking about . . . Suppose you had a group of people and you say, "I'm going to draw some pictures," and as soon as you think you know what I'm drawing, you tell me . . . but hold back until you are sure you know because the first cues may be misleading. So I draw two lines and you see any anxious persons who say "house" – there's already the roof and so on, whereupon you put the face on it and it's a gal with a hat on – it's this inability to . . . if it is anything like what you mean, that the uneasiness if you will, makes the cues . . . one can't simplify the cues.

GB: Well, the uneasiness, the problem of how compensatorily to handle that will then give you an ulterior difference in mode . . . one possible way of handling it is to say that nothing has any meaning at all . . . to hell with it. Another is to go on the premise that the other guy is a tricky one and can build up a series of paranoid interpretations, paranoid ideas.

JH: In other words . . . this looks like a house, but it can't be a house. And that guy might wait and wait and wait.

DJ: And not believe you even when you do draw the house. That has the inference again that is almost the same as the man who sees it immediately as a house because they are both regressing.

GB: They both jumped the gun.

DJ: They both are regressing to the earliest perception of these lines . . . before they learned that they could mean other things. It's an earlier form of learning.

GB: Therefore, when you say you wanted a list, it looks to me very much as though what you wanted a list of is:

- the identifiable interaction sequences which could be the basis of characteriological adjectives;
- or of deuterio-learning; or
- of specification of the language game.

That is about it, isn't it? With this difficulty, then if you want that list apropos of schizophrenic patients, you are asking for the list of what they do not discriminate and not for the list of what they do discriminate . . . in a sense.

DJ: I think that's making it a little bit of all or nothing . . . so therefore, we had on Wednesday a schizophrenic girl of 22 . . . she is right now as crazy as hell . . . she has had a couple of periods of hospitalization in the past. She comes in sort of dragged in by her stepfather, and when I indicate to her when she is in the waiting room that we will go ahead and leave them here, I can tell by the way they are handling her that there is quite a bit of feeling, so she comes in and sits down and kind of grins and says, "Well, my mother had to get married and so now I'm here." And now to me, it takes a tremendous amount of cleverness, almost, to say which, as it later turned out and which I found immediately, that her mother had been illegitimately pregnant and hated this girl and so on . . .

JH: She is simplifying an enormous range in one short . . .

DJ: But she did it with a cuteness that also takes an interpersonal line-up into account. If you simply give me a blank statement that she is a schizophrenic and has a weak ego, you see, or some kind of nonsense, then I don't think it takes into account her ability to do this kind of thing. On the other hand, in a lot of her talking she did with me, she did a lot of odd things that were very hard to follow, so while I've been thinking about such a list as what does she do all

right and what not all right, and what has that got to do about the way I'm treating her too? I think she made this initial statement partly on the basis of mother hating her in the waiting room – she kind of sized up “Okay” maybe this time you are right . . . I can go this far with it. Now the reason I think that is partly because yesterday when I saw her again, and talked to her about her own problems – I got more of the strange business and all kinds of difficulties than I had previously, that I wasn't on Mamma's side, etc. then the language behavior was different and I kept wishing while I was talking to her that I wish I had a recording . . .

GB: Well, the gist of the whole business I think is that these guys are on one hand unable to get straight at that level.

DJ: To get it in one statement . . . they would still be misunderstood and out of place with the ordinary person. A statement like that which showed a great deal in a nutshell, if she does it to most people, what will they think of her? I'm pretty sure that is partly why she says it because if you don't get it, you've lost nothing in effect . . . she can feel that she has lost nothing in effect. If you do get it, that's all to the good because it means maybe you are somebody she can deal with. What I was thinking of, for example, is that there is a difference, say, between playing on words and like the meaning of words, say in puns, and the difference between using words that have different meanings at the same time, multiple-meaning words than there is to have a word in an antithetical sense because of the feeling you might say, “Go fuck yourself” it's not a word of endearment in relation to human intercourse . . . sexual intercourse . . . I mean that's the second thing and the third thing is where I say, Oh, I am glad to see you, meaning, “I wish you'd drop dead,” which is putting the words into the feeling . . . these are all different communication mechanisms if you will, or communication devices. There must be some pattern as to when you use what when you are anxious.

JW: You want to relate the style or the mode of the device with how does a person feel in a situation, inside herself, and what is the situation.

DJ: Some of them are more serious than others . . . the most serious being in effect, this intense dependency situation in therapy where the patient feels, “I want to love you and you want to kill me” . . . so that whatever you say, there is underlying feeling which is put off in the words. Sometimes you can tell that they are not listening really . . . you can say, “What happened just then,” and they may say, “You got up and came at me with a knife” and you may have just said, “I like you.” This is roughly the kind of thing I'm talking about when I mention a list.

JW: I think what you are thinking of is a dual list or two parallel lists; one list on the level of communication style or device and the other list describing the accompanying situation between the people and we are faced with a necessity for developing a better terminology for both of those at the time.

DJ: And the third thing which would follow would be the effect on the ear which is troublesome . . . how does the message get lost? You almost have to say, “yes” for “no” sometimes in some types of situations in order to be on the right track – to keep saying the opposite, almost. Why doesn't the hearer get the message? . . . the imperfect message anyhow? I know one reason why – and take this one patient. When we finished the first session we had together, we came out of the waiting room and the mother and father started to descend on me and I stopped them . . . it was 12:30 and I had had enough and said I would see them again, they wanted to get at me, you know. So I go over to the appointment book and I didn't want to get involved in the situation anyway because I really don't have the time to see this girl, but I kind of am in it for another reason – I found that the next time I could see her was Tuesday – this was Friday,” so I said, “I can see you Tuesday at 2:00 to her,” deliberately again talking to her, and she said, “Oh,” I like Mondays and Thursdays and was going to go on with it, and the mother immediately, “The doctor is a busy man, you ought to be thankful that he can . . .”

So I said then to the girl, "If this won't work out," let me know and I am sure I can do some changing around." She says, "Oh, no," and inadvertently I had also made it clear to her that she was to come alone . . . and so this was between her and me. Right after they left . . . as soon as they left, it suddenly dawned on me what she was saying. Not that I know for sure, but I think I know. She was saying, "I don't want to wait until Tuesday – if you don't want to see me on Monday," you might as well wait until Thursday. I can't wait that long . . . might as well never have it." You see, I didn't choose to get that at that moment although I must have known it or I wouldn't have gotten it just a minute later and I did partly get it, because of my saying, "I could change it," and she rejected me in saying that she didn't like it, but I didn't take it as rejection. Yet I didn't meet it squarely and say, "I know it's a long time to wait which I would have preferred to have done.

So that somehow in any of this communication business, there will also be with this anxiety that keeps us temporarily from hearing. Protection . . . and I think in this case, it had something to do with feeling that I had to protect myself from being demanded more of. That was enough. Of course, by putting it that way, she gives me the out . . . which is, I think, part of what isn't recognized. Suppose for example, that I, instead of the mother, if I had been the mother, I would have said, "Why you ungrateful so and so," you know, how it would relieve me from feeling the demand . . . It would have released her from feeling or having to ask and therefore exposing herself because she would feel righteously indignant so that the misunderstanding is in effect restituted her defenses.

JH: You were speaking of a patient a little while ago who accused your colleagues of a hidden microphone.

DJ: Part of the clue with her was that she just said it was in the close . . . patient "S" used to like it . . . now I think I know something about the Flores business. It has to do with the fact that if this fluorescent patent in 1932 had been successful, he might have developed a real business and gotten away from home and Flores is a traveler you see . . . he moves around and gets away from San Jose just as if he had built the ten homes that he had in mind if he had gotten some money from it. It had to do with an easy get away . . . and it also means for less – that he was away less time than he had been here. I would say about him though that he is not a run of the mill schizophrenic in that his language patterns are interesting and his playing games with you is of high order. I have seen people somewhat like him, but normal. I think he has developed language as a weapon and screened out more than most of them and he uses dropping of the voice and any kind of caricature or facial expression to supplement this which gives him quite a gamut of things to hide behind. He said, in effect, that he felt that Gregory wasn't catching on to some things and I asked him if he felt or considered that he had to put things so obscurely to get them across and whether he didn't have some notion really that he did talk in this way; he was completely unaware that he was obscure, taking it for granted that he was this way and from time to time, I think he is somewhat aware of his obscurity.

JH: Did you put it up to him because you felt that he did have some awareness of it, or because you felt he was not aware of it at all?

DJ: One reason that I treated him the way I did, was that he said very early that he'd been getting something out of his talks, indicated that he felt hopeful and what not.

JH: He had a patient who – especially at the beginning of his occupational which pulled him out very briefly a week or two ago. He is very different now than he was when we first saw him. There wasn't a word in which he said something rational . . .

DJ: He certainly says plenty now which is rational . . . he did say also that he thought or he agrees with me that part of his taking off has to do with his feeling that Gregory and Kringle

[a physician on the hospital staff] are too close and that if Gregory wanted to, in effect, he could do more about getting him privileges and so on. The thing he kept mentioning over and over again was that he had been locked up against his will.

JW: Has he always been this meek?

DJ: We haven't really seen much of weakness around . . . that's all we have seen of it.

JH: He was really hiding behind a big beard there for a while . . . and he wouldn't particularly need it any longer.

GB: He was crapping on the floor . . .

DJ: Was he really?

GB: Oh yes, weren't you around in them days?

DJ: That was an accident, wasn't it?

GB: I don't know, but he crapped out on the ground a couple of times, deliberately. More than once he didn't quite make it. You know how bad the period in the Navy was?

JH: I don't know anything about that part, no?

DJ: Was he in the Navy?

GB: Let me see . . . something about working in aircraft . . . that was before he went in the service. I had the impression that he was a technician in the service.

DJ: One thing in relation to the concreteness of the schizophrenic-language and talk? I was wondering if it doesn't have some connection with a child's literalness – and the use of rote learning as one of the main mechanisms for a certain period, say 18 months to 3 years, especially where a child literally learns by rote memory and trial and error. I mean they pick up a word without the remotest notion of what the word means . . . most interesting. It went reasonably well.

GB: Yes, his voice had quite a bit more timbre also than it did before.

DJ: He is like a master chess player when he uses words and gestures and so on to block you, but I was really delighted and couldn't help showing it – and he joined me in laughter – I wondered what Flores had to do with it – and that is something about this fluorescent invention – is there anything to that actually as far as you know?

GB: You mean did he ever have such an invention? Not that I know of . . . I know that he spent a period of time working around with inventions.

DJ: He mentions 1932 in particular in connection with this.

GB: In 1932, he was 12.

DJ: But the idea is that if he had invented something and it had worked . . . he could have patented it and could have gone to different states establishing some companies which would have given him the excuse you see to get out of the home . . . The thing I can't be sure of but he seemed to indicate was he may have some feeling that you and Dr X are too close together and that either one or two of you could have done more about his privileges . . . it's a point and he didn't give me any clear idea so then I said that well, maybe it got more and more hard to indicate to him what it was . . . At the same time, he pointed out how he has gotten something

out of the conversation. I have the idea he has been able to talk better with you than with anybody he had ever known and that he thinks it may be true . . .

Conclusion

Beginning with this transcript and continuing throughout subsequent team discussions, Gregory Bateson offers the most salient theoretical contributions to these conversations, while Don Jackson contributes numerous clinical examples that clarify and directly render the behavior of patients more comprehensible when understood within the contexts and relationships of which they are a part. Jackson regularly offers comments about the reciprocal and recursive part interaction with the therapist in the real time moment of the interview, see for example Jackson's comment above about his own attitude and anxiety making it impossible for him to grasp, in the real time moment of the interview, that how the patient was speaking implied she wanted to talk to him sooner, but that she could not do so explicitly without risking upsetting her mother. This is an excellent and typical early example of 2nd order cybernetics years before conventional language used such concepts. Haley and Weakland each play important parts in the interactions, with Haley often serving to provoke discourse into meaningful directions, while Weakland persistently serving to clarify and orient the group to the task at hand.

A few other ideas explicitly evident to us in this transcript, all of which became themes that later emerge as basic tenets of communication/interactional theory include:

- Importance of complex but comprehensible context(s) of learning and contingencies of reinforcement relevant to behavior.
- Application of Bateson's concepts of learning and Deutro-learning (i.e. learning to expect certain kinds of contexts).
- Placing primary focus on the nature of interaction among significant family members, and between interviewer and patient, as setting in play reinforcement contingencies for learning the expectations and experiences which shape, bring forth, and perpetuate characteristic patterns of behavior.
- Exploring the use of Ludwig Wittgenstein's language games as a conceptual tool to comprehend the nature of interaction.
- Expressions of discomfort regarding the implications carried by the word "game," and introducing the concept of "communicational modes" to differentiate between such different transactions as "play" and "not play" to avoid over-simplistic reification of complex interaction.
- Jackson brings in concepts from Sullivan's (1945) "Interpersonal theory" as a way of making interpersonal sense of behavior, for example mentioning the experience of anxiety as having a protective quality, and as a way of handling situations in such a way that tests the reactions of others as safely as possible with least risk of negative personal and interpersonal consequences.
- Mention of a need to develop an alternative terminology or language distinct from individual oriented language to describe interactional and contextual phenomenology.
- Thematic focus on contexts and nature of relationships as setting the parameters for learning, learning how to learn, establishment of preducing patterns of behavior.

- Discussion of the use of unlabeled metaphor in interaction where explicitly clear statements are too dangerous, in part because of what they imply about the nature of relationships.
- Discussion about how messages, or more specifically what they imply, get lost in translation in ways so subtle that they often escape the notice of even the most awake and astute participant. We see this as a precursor to the fundamental ideas of non-pathological, non-normative, and the foundation for the vital importance of adhering to non-judgmental approach to others.
- The function of anxiety on all participants, and on the interface of theoretical and interpersonal experience. Jackson's comments about his own anxiety as manifesting in response to a client and preventing him from grasping her meaning until after she left is an early example of acute awareness of the importance of being aware of one's own part in interactional dynamics with others – a sensitivity to intricacies inherent in the nature of interaction and the impossibility of not defining the nature of the relationship between participants, again, including the observer, are themes prevalent in Jackson's (1955), early writings more than a decade before the common use of cybernetics of cybernetics, observer imposed punctuation, and the modern – post modern distinction arose.
- We see in this and subsequent transcripts themes which serve as forerunners to such fundamental theoretical constructs as observer imposed punctuation, cybernetics of cybernetics, constructivist and social constructivist, the later emphasis on epistemology and ontology – again the terms themselves are never used, but the essential ideas are implied throughout these early transcripts of the Bateson Team conversations.

The conversation presented in this essentially unedited transcript is representative of the interaction captured in the 117 other surviving Jackson Conference transcripts and audio recordings of the Bateson Team meetings. Themes present in this first transcript are fleshed out and broadened in subsequent meetings. The transcripts reveal a continuous interplay of theoretical concepts interspersed with numerous examples from interactions with hospitalized patients and their families. Examples of this may be found in portions of two other Jackson Conference transcripts already available in the literature (Weakland, 1981; Ray, 2001).

Intellectually stimulating and of enormous pragmatic utility – the study of these original transcripts offer depth of meaning, texture and nuance to the published writings of the team members – a kind of Dead Sea Scrolls or Rosetta Stone of the communication/interactional paradigm in the sense that they represent some of the earliest unpublished and unedited versions of the founders of what Bateson later called a more correct epistemology.

References

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY.
- Bateson, G. (1979), *Mind and Nature – A Necessary Unity*, Bantam Books, New York, NY.
- Donaldson, R. (1991), *A Sacred Unity – Further Steps to an Ecology of Mind*, Harper Collins, New York, NY.
- Fry, W. (1968), *Sweet Madness: A Study of Humor*, Pacific Books, Oceanside, CA.

-
- Haley, J. (1963), *Strategies of Psychotherapy*, Grune and Stratton, New York, NY.
- Haley, J. (1974), *Problem Solving Therapy*, Harper and Row, New York, NY.
- Jackson, D. (1955), "The therapist's personality in the therapy of schizophrenics", in Ray, W. (Ed.), *Don D. Jackson: Selected Essays at the Dawn of an Era, Volume I*, Zeig, Tucker, Theisen, Inc., Redding, MA.
- Jackson, D. (1963), "The sick, the sad, the savage, and the sane", in Ray, W. (Ed.), *Don D. Jackson: Selected Essays at the Dawn of an Era, Volume II*, Zeig, Tucker, Theisen, Inc., Redding, MA, (In press).
- Ray, W. (2001), "'Rabid' and 'rapid' psychotherapy on the jet propelled couch – pivotal moments in the evolution of paradoxical prescription", in Zeig, J. (Ed.), *Changing Directives: The Strategic Psychotherapy of Jay Haley*, Zeig, Tucker and Theisen, Inc., Phoenix, AZ, pp. 29-41.
- Sullivan, H.S. (1945), *Conceptions of Modern Psychiatry*, William Alanson White Foundation, Washington, DC.
- Watzlawick, P. and Weakland, J. (1977), *The Interactional View – Studies at the Mental Research Institute 1965-1974*, W.W. Norton, New York, NY.
- Watzlawick, P., Beavin-Bavelas, J. and Jackson, D. (1967), *Pragmatics of Human Communication – A Study of Interactional Patterns, Pathologies, and Paradoxes*, W.W. Norton, New York, NY.
- Watzlawick, P., Weakland, J. and Fisch, R. (1974), *Change: Principals of Problem Formation and Problem Resolution*, W.W. Norton, New York, NY.
- Weakland, J. (1981), "One thing leads to another", in Wilder-Mott, C. and Weakland, J. (Eds), *Rigor and Imagination: Essays from the Legacy of Gregory Bateson*, Praeger, New York, NY.
- Weakland, J. (1988) Interview with Wendel A. Ray. Unpublished audio recording with transcript, Don D. Jackson Archive, The University of Louisiana at Monroe, Monroe, LA.
- Weakland, J. and Ray, W. (1995), *Propagations – Thirty Years of Influence from the Mental Research Institute*, Haworth, New York, NY.
- Wittgenstein, L. (1953), *Philosophical Investigations*, Albert Lange – Georg Müller, New York, NY.

Further reading

- Ray, W. (Ed.) (2005), *Don D. Jackson: Selected Essays at the Dawn of an Era, Volume II*, Zeig, Tucker, Theisen, Inc., Redding, MA.
- Ruesch, J. and Bateson, G. (1951), *Communication, the Social Matrix of Psychiatry*, W.W. Norton, New York, NY, pp. 168-211.

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Language games and (hi)stories: Wittgenstein, Bateson and Schapp on the role of language in therapy

Language games
and (hi)stories

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Abstract

Purpose – In Bateson’s theory of mind, the adaptation of Russell’s theory of logical types is of key importance. Korzybski represented the type-logical difference between language and reality as the metaphorical distinction between map and territory. The confounding of logical types generates cognitive, and logical problems, which Bateson reflected in his theory of schizophrenia. In Wittgenstein’s philosophy, this type-logical distinction is of equal significance.

Design/methodology/approach – The present paper, through the elucidation of the concept of language-game and its relationship with grammar, demonstrates the proximity of Wittgenstein’s and Bateson’s understanding of language, which allows for a productive improvement of possible therapies of insanity.

Findings – For Bateson, schizophrenia is the attempt to escape from a pathogenic learning context, within which the map of thought has become malformed. Insanity can thus be understood as transformed grammar and can additionally be illuminated by both Wittgenstein’s and Kant’s conception of insanity. Wittgenstein’s idea that in madness the lock is not destroyed, only altered is further reflected in connection with Bateson’s theory of schizophrenia. On the basis of this conception of language, we develop an understanding of language that allows us to interpret “insanity” as deviating cognition originating in a family’s system of communication.

Originality/value – On account of the “reality-constitutive” character of language, it can be shown that “insane” thinking is based on a change of grammar. Therefore, the aim of therapy must be the change of pathological language-games and the creation of bridges between inconsistent self-interpretations of the patient by means of inventing new language-games (stories).

Keywords Grammar, Cybernetics, Language, Cognition

Paper type Viewpoint

Introduction

All sorts of variations of Korzybski’s (2000) slogan “A map is not the territory it represents” have been created by constructivist thinkers like Bateson, von Foerster *et al.*, in order to express metaphorically the logical difference between thinking and being. As a constructivist one must – in apparent contrast to Korzybski – also assert the contrary thesis: the map is the territory, in order to emphasise that we can never escape from the constructing of maps because the *difference* between map and territory can itself only be worked out on the basis of a map that, consequently, *is* the territory. For Korzybski’s attempt to overcome Aristotelian logic it is essential that all linguistic expressions are part of the map. In this fundamental premise, the self-reflexivity of thinking, as critically articulated in language, is therefore irreducible. The premises of “General Semantic” of Korzybski’s map, are:



The map *is not* the territory, no map represents *all* of “its” presumed territory, maps are self-reflexive, i.e. we can map our maps indefinitely. Also, every map is *at least*, whatever else it may claim to map, a map of the map-maker: her/his assumptions, skills, world-view, etc. (Korzybski, 2000).

Within language we have to imagine another map (structure), namely the map of our thought, which, with reference to language, belongs to a meta-level. In this respect, Bateson’s reflections on schizophrenia and the role of grammar and logic appear surprisingly similar to Wittgenstein’s, who claimed that the confounding of logical types was the cause of philosophical “diseases of thought”.

In what follows, I should like to sketch out, by relating the ideas of language and game-playing, a conception of language that I have developed from Wittgenstein’s and Bateson’s philosophy and that will enable us to view and understand insanity as a kind of deviant cognition emerging from communication within the family. In this way I shall attempt to make clear that language incorporates a worldview that shapes cognitive “access” to the world. Insanity thus becomes comprehensible as a different way of constituting reality. Here, I shall draw attention to a tradition connecting Kant, Wittgenstein and Bateson. Finally, I shall formulate some consequences for therapy and characterise it as a procedure of changing old language games and inventing new (hi)stories.

Language as game-playing – an illuminating analogy

One of the problems which directed the reflection of language and knowledge right at the beginning of occidental philosophy was the question of the relation between language and world. Is there a mapping relation between a statement and what it describes, similar to the relation between an image and its original? And if so, how is the relation between the elements making up the statement, i.e. the signs, and the world to be conceived of? The common-sense view is that signs refer to something independent, certain “objects” “properties”, etc. “out there” in the world. Accordingly, words denote “objects” in the widest sense of the word. Applied to statements this means that statements, as syntactically ordered groups of signs, represent states of affairs, i.e. real facts. One may call this position “naive realism”.

With regard to the context of discussion, the decisive flaws of this model of language are the following:

- the idea that language represents the world like an image, which implies that language and world (reality) are two separate domains of being;
- the suppression of the constitutive role of the human subject in the use of signs; and
- the context-dependence of all sign use.

Wittgenstein suggests a constructive analogy between language and game-playing and coins the concept of the “language game” which is of decisive importance in his late philosophy. What does comparing language and game-playing bring to light? It is, in particular, the analogy between language and chess that Wittgenstein often uses. Some of the points demonstrated by this example are of the greatest relevance to our understanding of language. The idea that language functions like a game implies:

- The words of a language function like the playing figures in a game of chess. A realist semantics is, therefore, not tenable any more. What does the term “knight” mean?

According to realist semantics we would have to say: the playing figure (the object) on the chessboard. Whereas, this figure exists in countless varieties and cannot even be identified by a constant shape or a special kind of material, and yet we call all the diverse figures “knight”. We can play chess on the computer now, and the computer uses the word “knight” without referring to an object, it works with the logical substrate of “knight”. What, then, is the meaning of the word “knight” or “king” or “queen”, etc. in chess? It is not an object or a playing figure, but it is the rules governing the use of the word “knight”. These rules determine the logical position of the word in the game, and they may be digitalised for a computer so that a material playing figure is no longer necessary.

- The movements of the playing figures, i.e. the words, are constrained by specific rules. These rules exclude certain playing moves from the game, i.e. they constrain the set of possible, meaningful playing moves in the same way that the rules of language constrain the space of meaningful statements (propositions). Think of well-worn examples of rule-violation: there is, for instance, no penalty in halma, and this quite simply means that the word “penalty” cannot be meaningfully used in the language game “halma”.
- The rules of the game or the language do *not mirror* some reality beyond the game or the language but a human *social praxis*. Using a language is a human activity like playing a game. In short: using language is rule-governed activity.
- The rules of a game decree what is allowed when playing the game and what is forbidden. Still, the game is not constrained in all directions. There will always be situations when it becomes necessary to renegotiate the rules (completeness). Thus, rules cannot completely define a game once and for all. Take tennis, for instance. Its rules precisely specify the playing courts but not the playing space. There is, therefore, no boundary that would restrict the ball’s trajectory above the court.
- The rules of a game embody the game’s logic, and this *local logic* Wittgenstein – like Bateson – calls “grammar”. It contains all the possible playing moves and thus the *constraints of the game*. Applied to language this means that the grammar says what is meaningful and what not.
- In its application to the use of language this means that the use of words is not fixed once and for all. Their meaning cannot, therefore, be laid down in such a way as to prevent them from being transformed through new kinds of usage.

The meaning of a word is its *use in the language*. According to this semantics of use, one understands a word if one knows *how to use* it. This includes knowing in what situations and what contexts it can be used and how it is involved in our lives. To understand a word or a statement thus means to know its purpose and its role in the appropriate language game, and the purpose is, consequently, the role it plays in human life. Language is not meaningful and comprehensible as such, it only becomes meaningful and comprehensible in principle within and through the framework provided by the extra-linguistic context, the flow of life, and so we reach the horizon without which there can be no understanding of language, i.e. the forms of life underlying language. The connection between speech and action is, consequently, a *logical* one, and language-internal. The meaning of my utterance “I am furious” includes a certain behaviour and certain activities. If this utterance could not, in principle, be linked to a

certain kind of activity, it would be merely meaningless “waffle”. The behavioural patterns connected with language secure the feedback between language games and cultural forms of life and would remain incomprehensible in isolation.

Language games are *systems of linguistic communication*, contextual units of meaning, within which the use of signs is *negotiated*.

Grammar: the cognitively relevant foundation of language use

Grammar, in this sense, is for Wittgenstein as for Bateson (1972, 1979, 1991) the form through which we look at reality, the *form* of the linguistic representation of reality. Grammar incorporates the rules of language use. At first glance this may appear confusing because language is commonly understood to serve the description of an independent reality. The grammatical rules of our language games manifest the connections that we consider to be stable, but we turn our eyes away from these grammatical connections because they are behind our backs, or: they make up our ground, “we lean on them” (Wittgenstein, 1978). Such rules determine a way of looking at things which we have acquired through socialisation. They are part of our system of coordinates, the scaffolding we need to make judgments. Grammar in this sense is the decisive cognitive factor in the *specification of meaning* and the *constitution of reality*. As a grammar is arbitrary in the sense that it cannot be justified by recourse to experience, it forms an epistemic system which has the character of a system of beliefs. We acquire this system of beliefs in the process of acquiring our language through the internalisation of grammatical rules. These grammatical rules constitute the logical framework *within* which meaningful statements can be formulated. These rules are not true or false in themselves. “True” and “false” are valid only, if at all, for statements *within* a specific language game. Consequently, the statements within a language game must be located on the logically primary level, and the grammatical rules on the meta-level. This is what Wittgenstein means when he says that every grammar is a theory of logical types (Wittgenstein, 1980). Wittgenstein’s focus on grammar, as the *local logic* of a given language game, makes possible a *change* of the second order, an evolution, a development of linguistic logic itself, something Bateson had discovered in schizophrenic patients and called Learning III. Wittgenstein remarks with regard to such rules:

But our interest does not attach to the fact that such-and-such (or all) human beings have been led this way by these rules (or have gone this way); we take it as a matter of course, that people – “if they can think correctly” – go *this* way. We have now been given a *road*, as it were by means of the footsteps of those who have gone this way (Wittgenstein, 1978).

Let us note here that the internalisation of grammatical norms also conveys a *world-view* which has the character of a *system of beliefs*. As such it cannot be completely reconstructed and accounted for by reflection, and that is why, in the final reckoning, all our well-reasoned beliefs are found to rest on unfounded faith. In other words, our knowledge rests on propositions we can only believe in, propositions that are themselves not part of “*objective*” knowledge. Now we are in a position to clarify the relation between the *cognitive* role of grammar and forms of life, which is of particular importance in our context. The domain of experience of the individuals integrated in this system is (under normal circumstances) kept in equilibrium because the system determines both the linguistically conceptualised and the ordinary experiences of its members. If we focus on the system’s heuristically separable *cognitive domain*, then we

construct our reality through the cognitive perspective of a particular grammar and stabilise this reality through forms of life. We can, therefore, say that we “literally” generate the world in which we live by living it. Our task is then to apply this idea to deviant communication and how such communication can arise in the process of socialisation.

In the early stages of language acquisition rules are not explicitly taught but rather demonstrated by example. The rule that is demonstrated by a specific learning situation thus becomes the path on which one learns how to walk. It is in this stage of socialisation that the decisive directions are fixed by the language acquisition process with regard to the use of language in thought and action and the handling of our emotions through language. Wittgenstein uses the example of an arithmetical series to make clear how a rule is learnt (Wittgenstein, 1983). At the beginning the pupil learns to follow the example of the teacher, i.e. he/she learns to react to the teacher’s instructions in a specific way. It is, in addition, essential for the pupil to realise what kind of reaction is right or wrong, i.e. the pupil must develop the ability to use a rule *as a criterion*. The acquisition of the generative rule underlying an arithmetical series is, therefore, not achieved when the pupil is merely able to follow the teacher’s example and reproduce a given series of numbers, but only when the pupil is capable of continuing the series by generating further numbers not presented by the teacher. The pupil, furthermore, not only learns to produce *something new* but also that what he produces remains subjected to the rule which generates the correct continuation of the series. As, however, following such a rule is not controlled by another rule, the learning situation plays the decisive role in making the learner master correct, i.e. intersubjectively and socially accepted, rule-following.

Naturally, a learning situation of this kind would, in principle, allow the internalisation of *socially deviant* rules. There are various experimental psychological studies upon which Wittgenstein’s analysis casts an interesting light. I should like to mention a study by the psychologist A. Bavelas (Watzlawick, 1981) which is based on so-called “non-contingent reward experiments”, i.e. tests where the experimenter’s evaluation of the experimental subjects’ behaviour is in now way connected with the actual behaviour of the subjects. In the experiment the subjects were read long lists of paired numbers and asked to decide whether the numbers making up each pair “fitted”. To the question how they ought to “fit” the experimenter’s answer simply was that it was precisely the task of the subjects *to discover* the rule according to which the numbers fitted together. This was meant to create the impression that the experiment was about trial and error. Each subject, whatever their reaction, was given the evaluations “right” and “wrong” at random according to a Gaussian normal distribution curve. The results are: each subject had formed a hypothesis during the experiment to which they kept holding on even after the experimenter had told them that his evaluations were “non-contingent”, i.e. had nothing whatsoever to do with their reactions. I should now like to describe this experiment in terms of the rule concept. The roles of the experimental situation must be matched by those of a learning situation: the experimenter’s role corresponds to the role of the teacher, the subjects’ role to the role of the pupils. The pupil starts working on his problem by trying to discover a rule-like connection between the presented pairs of numbers, i.e. he tries to “reconstruct” a rule for the evaluation of the number pairs. At the beginning the experimenter passes the final judgment on the correctness of the answers. In the course

of the experiment the number of correct answers increases – because the experimenter adapts his judgments to the Gaussian curve, and the formulation of a rule, its rejection or modification, are entirely dependent upon the judgment of the teacher as referee. The increasing number of “correct” answers makes the learners adopt the rule and follow it because it seems to be the correct rule of the game. We may consider the answers of the teacher as positive or negative reinforcement, and the learning situation as an act of socially bound, instrumental learning which includes occasional creative learning. In a similar way we must conceive of the situations of language acquisition where the selective reinforcement of what is judged to be correct rule-following is of prime importance. The increasing “correctness” of the rule as used by the pupils in the course of the experiment stabilises their belief in the functionality of their design. When the frequency of correct judgments starts to decline, they hold on to their belief and defend it against the judgments of the teacher who had after all been confirming the “correctness” of the rule by his evaluations. The teacher is seen to be “suddenly” attempting to persuade the pupils to accept that a rule which has already pragmatically proved its mettle is incorrect. This experiment shows in an exemplary way how a rule is established intersubjectively, and how the internalised rule generates a *perspective of observing* and organising reality. An essential factor in the shaping of a rule is the systematic reinforcement of what is held to be correct. If the experimenter had simply alternated between “correct” and “incorrect” the pupils would never have been able to establish a rule. They might rather have seen through the experiment and thus destroyed it. A rule requires repeated application which would have been excluded by the modified experiment, so that there would have been no opportunity of pragmatically confirming an assumed rule. In the context of the actual experiment the pupil’s performance consists in the reconstruction of a rule which constitutes the use, and therefore the meaning, of the expressions “fit” and “does not fit” in the given language game. In case of conflict the pupil will appeal to this rule in order to justify his evaluation because the rule is the basis of his orientation in the experimental situation. The rule is the *paradigm* by means of which reality and experience are compared and organised. The pupil cannot justify this rule theoretically but only pragmatically: it has been proved effective in getting the “reward” from the teacher, i.e. the teacher’s approving judgment, which in itself is experienced as a positive reinforcement and in turn reinforces the belief in the rule. And then irritation arises in the very situation in which the rule increasingly proved to be viable, the rule which the pupil was taught, without being aware of it, by the non-contingent behaviour of the experimenter. All of a sudden the teacher does not accept the game of the pupil any more. The pupil has, in the course of the learning process, worked out a perspective which has constantly been confirmed recursively by the “correctness” of his/her behaviour. So the perspective must appear to be sensible not only subjectively but also intersubjectively because the judgment of the teacher seems to guarantee the intersubjective acceptance of the rule. If the teacher now practically revokes the rule the pupil is confronted with an explicit contradiction, and he will defend his system of beliefs until the teacher breaks up the situation. The contradiction between teacher and pupil in this experiment consists in that the pupil suddenly realises that a grammatical rule which had provided *subjective orientation* during a certain phase of the experiment, is not valid any longer and even in opposition to the apparently “objective” rules of the experimenter. The irritation arises when the pupil realises that he can no longer act adequately in the language

game in accordance with the acquired rule. When I now compare the experiment with the learning situation of a child, then the analogy is not sustainable any more with regard to a decisive aspect: the power structure of the learning situation. The standard-setting authorities for children in the early stages of their socialisation are as a rule the educators, the families, and they decide what conception of rule-following is “correct” just like the experimenter in the experiment just described. Right and wrong for a child is always what the parents declare “right” and “wrong”. But, in contradistinction to the reported experiment, children cannot “opt out” of their situation or break it up because they are totally at the mercy of the asymmetric power structure of such learning situations. A “contradiction” (conflict) arises only (as in the experiment) when learners have mastered the grammar of game-playing and when the teacher challenges the self-confidence of the learner. Situations of this kind (Bateson’s double bind) come about when parents, at some stage of development, begin to devalue systematically the grammatically correct utterances of their children and thus fundamentally upset the linguistic organisation of their perception of self and other. It is to be emphasised that the game as such is *not* at all *disturbed* for someone moving *within* such a deviant system of rules: the game is functioning and not disrupted from within, so there can also be no question of “erring” because there is no possibility of insight. The conception of derangement/disorder/insanity that I consider productive can, therefore, be elucidated with the help of the concept of de-rangement/dis-order. I should like to fall back on I. Kant’s treatment of the “diseases of the head” – as he termed mental diseases – in his Anthropology. There Kant provides an extensive nosography of all the diverse sorts of insanity. He says that the only general feature of insanity is the loss of common sense (*sensus communis*) and its replacement by logical wilfulness. Kant draws his distinctions in relation to the affected cognitive abilities. He distinguishes between tumultuous, methodical, and systematic insanity. The last form of “de-rangement” is of particular interest to us because Kant bases it on the idea that there is a “system” in insanity. The view explicated by Wittgenstein that there can be no “erring” if “reality” is categorised from a systematically differing perspective, is analogously expressed by Kant. The class of psychoses which he terms folly (*vesania*) corresponds to the idea which I have developed in accordance with Wittgenstein, and which is also *mutatis mutandis* part of Bateson’s understanding of schizophrenia as a *transformation of the interpretation system* of reality. Kant bases his analysis on the literal meaning of de-rangement/dis-order/dis-placement and thus nicely foregrounds the idea of another *perspective*. According to Kant’s doctrine of different cognitive abilities, folly shows a systematic transformation of the highest cognitive faculty, reason, which, therefore, operates according to different rules. If we abstract from Kant’s differentiation of diverse cognitive abilities, we can recognise in his conception of systematic de-rangement the theses under which Bateson describes insanity both as a “change of character” and as a change in the “ways of punctuating” reality.

Contexts, language games and (hi)stories – the possibilities of therapy

For Wittgenstein as Bateson are not only words and sentences but also language itself *contextual phenomena*. Inasmuch as Wittgenstein himself applies his contextualism not only to *linguistic* actions, but also to actions, modes of behaviour and psychological phenomena, this principle must rank as an *a priori condition* of meaning for all forms of human behaviour and understanding, – an *a priori condition* of meaning in the sense that

the context is a necessary condition of the understanding of what we call the meaning of a language game, of an action, etc. Using a language, performing an action, etc. thus appear to be context-bound in principle, and speech and action as forms of human praxis can, therefore, only function as elements of a gestalt-like horizon making up the permanent framework of meaning constitution. The same holds for the understanding of all psychological phenomena, and this is of central importance for psychology and psychopathology. So the contextual principle is for Wittgenstein and Bateson the basic principle of a general *semantics of behaviour*. The term language game can therefore be read as “context marking” in Bateson’s sense. Here, a parallel suggests itself to (Schapp’ (1953, 1959) “philosophy of (hi)stories” which might be a bridge between Wittgenstein and Bateson. Just like the language games to Wittgenstein, so *(hi)stories* are ur-phenomena to Schapp (1959), i.e. phenomena not amenable to explanation because they define the very frame(work) of an explanation. The language game indicates the ultimate uniform context in which human beings actively *deal* with themselves and the world in thought and action. For Schapp, too, (hi)stories designate that ultimate context, mark that absolutely minimal horizon of meaning, against which language and action – and thus human beings – become comprehensible. In accordance with ordinary language use (“to tell a story” “life story”, etc.) Schapp calls (hi)stories the *context* of experience, comprehension, knowledge and narration, which is, as a gestaltlike whole – from the subject’s point of view – secured only by the fact that some human being is entangled in it. The subject is, therefore, not confronted by a given, objective world in which the “(hi)stories” are located, it is the other way round, i.e. the world is accessible only through the narrative unity and the wholeness of (hi)stories. For Schapp (hi)stories are the elixir of life for words, sentences and meaningful signs in general:

The sentence, or perhaps better the words, attain stability only in the course of a (hi)story; the moment we remove them from the (hi)story with a pair of pincers they lose their essential being, they expire (Schapp, 1959).

We are, therefore, as human beings, immersed in a multitude of (hi)stories simultaneously existing about and around us. We are, therefore, not only the authors and the heroes of our own (hi)stories but also the characters in the stories by others about ourselves. The idea of a “true (hi)story” is, of course, itself part of a meta-(hi)story which cannot be “true”. There is no escape into ultimately “true” (hi)stories. Language games as well as (hi)stories may, also be interpreted as *context markers*, Bateson’s version of contextualism. It is in this connection rather surprising to find that Bateson, in his last book, deals with the context-dependence of linguistic utterances and introduces the notion of (hi)story in the very same sense as I have just explained it with reference to Schapp’s philosophy. But we can be quite sure that Bateson never encountered Schapp’s philosophy which is practically forgotten in Germany, and we can therefore rule out any direct influence. Bateson himself introduces the concept through a story. A man asks a computer if it expects to be able to think like a human being one day, and the computer analyses its own computational processes and finally produces the print-out “This reminds me of a story . . .”. Bateson’s thinking, just like Schapp’s, takes place in stories. The more Bateson conceives of the “mental/spiritual process” as a cosmic, not uniquely human, principle of organisation, the more thinking in and through (hi)stories for him becomes the characteristic of all mental/spiritual processes. Bateson’s use of the concept of “(hi)story” is closely connected with the concepts of context and of relevance. Only in the context of a

(hi)story can there be relevance, and this shows that “(hi)story” itself is used as a *context marker*. For Bateson the terms “(hi)story” and “context” are interlaced. As Bateson sees communicative processes of information gathering and information processing at work throughout the biosphere, the principle of contextuality becomes one of the cornerstones of the ecology of mind. One of the essential qualities of language is the creation of meaning, the poesis of sense, as Giambattista Vico once named this fundamental function of language. The task and the possibility of therapy are, in my view, that therapy becomes effective poetically, that it creates sense where there was non-sense, and that it makes possible new and meaningful thought and action. I shall use a fairytale to explain how this may be achieved. In the fairytale of the “wise country girl” recorded by the Brothers Grimm a girl finds herself landed in a situation which is logically contradictory and undecidable. The girl’s father was imprisoned on the order of the king. The girl must, in order to free her father, solve a “riddle”, i.e. find a way out of a contradictory language game (a double bind). The king demands that she come to him “neither naked nor clothed”. As the girl must obey the king’s command in order to free her father it is psychologically impossible for her to run away or withdraw from the task. We are faced by a communication pattern defined as double bind by Bateson and described as the specific learning context. The girl reacts to the paradoxical situation that presents itself as a contradictory or indeterminate language game by going to the king “naked” and “clothed” with a fishnet. The king in the tale accepts the solution of the “riddle” marries the girl and releases her father. So much for the story and the solution of a paradoxical situation. The context of interaction, the language game, initially offers no rule for the interpretation of “neither naked nor clothed”. The girl escapes from the paradoxical trap by transcending the logical “tertium non datur” and creating a new “tertium” which the king accepts as a solution. Thus, she achieves a local, paralogical solution of the incommensurate, paradoxical situation, i.e. a solution outside conventional logic and grammar. This is comparable to the reaction of a Zen monk to the solution of a koan, or to the reaction of a schizophrenic who creates a *transcontextual syndrome* – as Bateson (1979) called it – in order to escape intra-familial paradoxical communication structures. With the solution found by the girl a new language game emerges out of the intersubjective consensus between two individuals. A *new grammatical rule* arises which defines what “neither naked nor clothed” means, and thus a new pattern is introduced to the language for future cases. Although this behaviour has now become comprehensible through its genesis, it is not yet meaningful. It will become meaningful only when it is integrated into a new language game, a new (hi)story. The fishnet solution of the girl can then be understood. Her behaviour was trans-contextual – outside the game – neither meaningful nor meaningless, i.e. beyond the bounds of established rationality. Through the king’s recognition it becomes a solution, a new paradigm, a new language game for future situations. The language game played by the king and the wise country girl is no longer paradoxical, i.e. contains no paradoxical rules, and is therefore playable. Furthermore, the originally “de-ranged” (transcontextual) behaviour is now part of the grammar of a *new* game. There is now a consensual congruence between language and action so that the game may be played. The girl’s behaviour corresponds precisely to what Bateson calls “transcontextual” and what he compares with “de-ranged” symptoms. One might also say that the girl invents a story together with the king and so attributes a new meaning (also a new purpose) to the fishnet which is not essential to it but a product of its use. Thus, the paradox is an expression of a blocked language game, a fragmented (hi)story. Concerning

paradoxes, Wittgenstein (1978) offers some therapeutic advice: "Something surprising, a paradox, is a paradox only in a particular, as it were defective, surrounding. One needs to complete this surrounding in such way that what looked like a paradox no longer seems one." I take this to be a sort of supplementary rule, meaning: Look at the context in which insanity arises and is produced. Consequently, a therapist had to work as an archaeologist of knowledge in Foucault's sense, had to analyse the long established certainties, believed to be immutable, of familial language games, the grammatical rules governing familial thought and action. As soon as they are made manifest, he can participate as player in the discourse of the family, weave new semantic nets, find and invent new (hi)stories and thus design possible worlds, possible realities, create new options which may help the family to generate meaning and meaningful action. The problem of the truth of therapeutic interpretation will, therefore, be eliminated once and for all as soon as therapy is conceived of as the design of a new paradigmatic (hi)story (or several such (hi)stories) of a patient, a (hi)story that integrates all the previously incomprehensible patterns of behaviour (dreams, neuroses, psychoses, etc.) into a new (hi)story which the patient learns to accept as his own. The new (hi)story of the patient should function as the semantic horizon for all that has hitherto been incomprehensible, and it should help the patient to meaningfully integrate what was once irrational, suppressed and excommunicated, into a transformed personal identity. The question of the truth of the new (hi)story must, therefore, be dealt with pragmatically, and it will have to be decided with the patient as the pivotal measure of all things, i.e. on the basis of the fact whether he/she keeps the symptoms or not.

References

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Chandler Publishing Company, New York, NY.
- Bateson, G. (1979), *Mind and Nature*, E.P. Dutton, New York, NY.
- Bateson, G. (1991) in Donaldson, R.E. (Ed.), *A Sacred Unity. Further Steps to an Ecology of Mind*, Harper, New York, NY.
- Korzybski, A. (2000), *Science and Sanity. An Introduction to Non-Aristotelian Systems and General Semantics*, 5th ed., Institute of General Semantics, New York, NY.
- Schapp, W. (1953), *Philosophie der Geschichten. Zum Sein von Mensch und Ding*, Klostermann, Frankfurt/M.
- Schapp, W. (1959), *In Geschichten verstrickt*, Klostermann, Frankfurt/M.
- Watzlawick, P. (1981), *Die erfundene Wirklichkeit*, Piper, München/Zürich.
- Wittgenstein, L. (1978), *Remarks on the Foundations of Mathematics*, Basil Blackwell, Oxford.
- Wittgenstein, L. (1980), *Lectures, Cambridge 1930-32 and 1932-35*, Vol. I + II, Basil Blackwell, Oxford.
- Wittgenstein, L. (1983), *Philosophical Investigations*, Basil Blackwell, Oxford.

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Second thoughts on Gregory Bateson and Alfred Korzybski

Second thoughts

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1047

Abstract

Purpose – The paper is intended to show, that Bateson and Korzybski have a strong common ground for their “ecological”, respectively, “anti-aristotelian” critique of modern mentality insofar, as *both* reject the metaphysical doctrine of identity, identified by *both* as “Aristotelianism”. Instead of this, they postulate a concept of the mind based on differences (like the map-territory-relation) and patterns or mathematical structures.

Design/methodology/approach – By analysing the various facets of Aristotelian tradition, including the critical impact of logic, the paralysing effect of dogmatic scholasticism and the explosive force of negation, the text demonstrate that the identity of substance can, depending on *context*, promote the adventure of knowledge or forestall it.

Findings – The reflection of context implies, also to reflect the context of context and so forth. After all, there is no justification for postulating substitutes of the absolute such as Korzybski’s “Alpha-Object” oder Bateson’s “MindGod”.

Originality/value – Original in the paper is the revision of Korzybski’s map-territory-relation. As both, map and territory, are abstractions, a map can promise the territory as a score promises the music. So, Korzybski’s famous reminder should read: “A map is *not yet* the territory”.

Keywords Cybernetics, Identification, Logic

Paper type Research paper

The common ground

Bateson’s (1972) *Steps to an Ecology of Mind* a collection of essays written over a period of almost 40 years, seems recently to have returned to the status of an insider tip – while Korzybski’s *Science and Sanity* (Korzybski, 2000) had never departed from it[1]. Moreover, there are close programmatic parallels between the two works: both emphasize a speculative anticipation (by “Steps to . . .”, respectively, “An Introduction to . . .”), and both strongly favour the cause of clarity in terms of “hygiene”. Both, that is, plead for a catharsis of incarnate modes of thought by uncovering and correcting ingrained basic errors. Bateson found the roots of the ecological crisis of modernity not primarily in the ruthless practice of exploiting nature, but in a fundamentally fallacious conception the mind itself – which is why he named his project “Ecology of Mind”. Korzybski (2000, p. 404), in general accordance with Bateson, considered the habit of conceptual identification, of over-concretely presupposing “the ‘is’ of identity” as a kind of mental illness. This is the reason why he campaigned so passionately for “sanity”[2].

The “Aristotelian” mindset

Both protagonists agree in refusing the classical metaphysics of substances. This doctrine implies, to put it rather simply, that every true proposition envisages a



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self-consistent and permanently self-identical core of essence, to which it attributes properties and qualities. In this manner, the proposition makes the individual thing participate in the universal and subsumes it by means of the syllogism to general laws and rules. “The stone is a body” and consequently subject to the law of gravitation, “Socrates is a man” and therefore mortal[3]. This figure of thought entailed right from the beginning – not only with the contemporary critique of it, motivated by aspects of quantum theory – two hardly soluble fundamental problems: How is it possible to conceive of a vacuous substance, that is to say a “pure” core of essence[4]? And how to explain the enduring identity of substance in the flow of time?

Of course, for the stone, the situation presents itself in quite a different way than for Socrates. But, even if one assumes that the identity of the body dissolves, with closer inspection, into a multitude of subatomic processes, whereas the identity of the person (read: the “mind” or the “soul”) survives, still in both cases the endeavour, to seize the substantiality and individuality of the particular must fail completely, as it brings to the fore nothing other than abstract and general concepts. Here, Korzybski makes his claim in castigating our “forgetfulness of abstraction”[5] or, in his own words, “the lack of consciousness of abstracting”: in a kind of aristotelian blindness we always neglect the degree of abstractness, which our reference to reality necessarily involves. So, in this respect, we behave naïvely and primitively, and that is what Korzybski diagnoses as the main symptom of the “un-sanity” of our habitual attitude, that he derides as “an advanced form of mental illness” (Korzybski, 2000, p. 407 f).

To be sure, Aristotle himself does not think as innocently as Korzybski arranges for him to do. One must assume that he knew Aristotle’s doctrine of categoreal notions only from hearsay[6]. In matchless clear-sightedness, the “Stagirite” had not only founded the metaphysics of substances, but in the same breath demonstrated its innate paradox:

Substance, in the truest and primary and most definite sense of the word, is that which is neither predicable of a subject nor present in a subject; for instance, the individual man or horse. But in a secondary sense those things are called substances within which, as species, the primary substances are included; also those which, as genera, include the species (Aristotle, 350 B.C., Section 5).

The “negativity” claimed by Korzybski (2000, esp. pp. 389 and 404) as an essential feature of a consciousness which is constitutively conscious of itself too, is obviously reflected in Aristotle’s highly sophisticated reasoning. Without any illusions, he recognizes that scientific propositions are systematically unable to reach the level of the particular individual. Certainly, and in this respect, Korzybski’s critique appears justified if rather random – Aristotle postulates *ontological* first principles, that is, he insinuates the enduring unity of the substance as fundamental to being. In this way he wanted, it seems, to avoid the sceptical conclusion of Plato, who had analysed the briefest possible ontological premise, “one is” only to prove it to be untenable and to derive from this insight, that:

... whether one is or is not, one and the others in relation to themselves and one another, all of them, in every way, are and are not, and appear to be and appear not to be (Plato, 370 B.C., Section 166b).

Intricacies of “Aristotelianism”

After all, Aristotle himself presents us a truly complex and ambiguous picture. If Korzybski, in spite of this, *identifies* “the aristotelian mentality” with a thoughtless habit of *identification* then he is making exactly the same mistake, that his tough treatise denounces. Peter Watson has shown, in an impressive scenario, that the historical impact of Aristotle’s writings was at least as Janus-faced as their inner structure: In the seething atmosphere of departure, we find in the eleventh and twelfth centuries Aristotle’s *Logic* evolved into a huge explosive force: it helped to question old dogmas, authorities and revealed truths. Whereas the fossilised, severe scholasticism of the fourteenth century placed the same *Logic* in the service of affirmation[7].

Pipes and windmills

Apparently, Korzybski believed in the advent of a new stultifying late scholasticism and saw his mission as to fight the vicious spirit of the age. For this campaign, he wrote two slogans on his banner, which have made him as famous as Don Quixote became for his lance: “A map *is not* the territory” and “Words *are not* the things they represent” (Korzybski, 2000, p. 749 f). On first sight, one could be astonished and wonder, why for God’s sake we have to be reminded of something self-evident like this: are we really all the time confounding words with things and maps with territories? But, still a little amazed, we maybe remember that roughly contemporaneously with *Science and Sanity*, René Magritte published several versions of a picture that deals in a very similar manner with the problem of determinate negation. These tableaux show a pipe – sometimes only casually sketched, sometimes elaborately painted to the point of *trompe l’œil* – always with the subtitle: “Ceci n’est pas une pipe” (Foucault, 1973; Prange, 2001). In his accompanying reflections, Magritte coined guidelines very similar to those of Korzybski, for example “Le mot ‘chien’ ne mord pas”. It would appear that the overall theme was in the air.

The malice of negations like these results from their inevitable self-reference, forcing upon us the insight that, in a kind of vicious recursive circle, they apply also to themselves. What now, if Magritte had gone one step further, had taken a classical Sherlock-Holmes-pipe, displayed it in a showcase and put a plate in front of it with the inscription: “Ceci n’est pas une pipe”? In this constellation, we could not content ourselves with the simple diagnosis that an image evidently is *not* the thing itself. Rather, we would confront ourselves with a whole array of confusing questions, not least concerning the nature of true propositions[8]. Would such a proposition be true if nobody articulated it? Does one have to conceive it merely, so to speak, as a marker for an objectively existing fact? Take for example Korzybski’s second warning: “Words *are not* the things they represent”. It seems not to be unconditionally true because, related to the context of semantics, this negation is limited by its inner self-reference: where words are concerned – words may indeed be the things they represent[9].

Context and biting images

Now, we have finally introduced the magic word, by means of which Bateson approaches the problem of proposition and meaning – context. If nothing can be understood in isolation from the circumstances, if meaning is necessarily dependent on context so, for communication it is all-important and decisive, *who or what defines the particular context in question*. Consider in this respect, the striking passage from

Through the Looking-Glass, wherein Carroll (1992, p. 159) characterises the definition of context mainly as a matter of power:

“When *I* use a word,” Humpty Dumpty said in rather a scornful tone, “it means just what I choose it to mean – neither more nor less.” – “The question is,” said Alice, “whether you *can* make words mean different things.” – “The question is,” said Humpty Dumpty, “which is to be master – that’s all.

Let me illustrate the importance of context with two rather amusing examples. Wittgenstein seems to have suspected a park-bench discussion over the statement “This is a tree” to be a borderline-phenomenon which disposed him to explain to a passer-by: “This fellow isn’t insane. We are only doing philosophy” (Wittgenstein, 1969, No. 467). In the late 1960s, Bazon Brock tacked little plates to road signs of the city of Frankfurt am Main: “God is dead. Nietzsche” – “Nietzsche is dead. God”. But, quite a while before Albert Camus had bitterly complained about God’s persistent silence. . .

My diagnosis presented above, “that the overall theme was in the air” contained an almost picturesque, and therefore probably inadmissible, rendering of context as an atmospheric influence. To justify it, nonetheless, I profess to a rather adventurous hypothesis of the reasons why it became more and more plausible from the 1920s on, to criticize the habit of reifying primitive identification in terms of plain provocations like “this is no pipe”. Where isms blossom, there is an ideal environment also for nominalism to flourish. To be more precise: when empty phrases of the sort “Capitalism causes exploitation and poverty”; “The proletariat, in its role as revolutionary subject, determines the course of history”; are widely accepted as sound and solid, scornful sneerers will speak out to remind the public of an ambitious programme, namely to reverse idealism, to put a “headstanding” philosophy on its feet. In 1925, Alfred North Whitehead, one of the sneerers, mocked about the custom to explain facts by abstract principles, which he referred to as “the error of misplaced concreteness” (Whitehead, 1926, p. 64, repeatedly quoted in Korzybski, 2000, *passim*). This persistent confusion, typical not only for Marxism, he commented slightly sardonically:

The appeal to a class to perform the services of a proper entity is exactly analogous to an appeal to an imaginary terrier to kill a real rat (Whitehead, 1929, p. 228).

Whiteheads terrier is not a far cry from Magritte’s image of a dog, that does not bite.

Pattern versus alpha-object

That, after all, was the intellectual context for Magritte to paint his pipes, for Korzybski to protest against reification and, subsequently, for Bateson to introduce his conceptual device of “context”. Bateson discusses the influence of Korzybski’s doctrines on him – in the main his “map-territory-relation”: more he did evidently not take up from him – particularly in his key essay “Form, Substance and Difference”[10]. Unlike him, the Polish emigrant who postulated a sphere of objects existing independently of sense-perception[11] prayed, quasi as an antidote against the poison of agnosticism, to the god of mathematics:

The present work – namely, the building of a *non-aristotelian system*, and an introduction to a theory of sanity and general semantics – depends, fundamentally, for its success on the recognition of mathematics as a language similar in structure to the world in which we live (Korzybski, 2000, p. 247).

Compare this, for example, with Einstein (1936, p. 317), who did not pray, but revelled in amazement:

The eternally incomprehensible of the world is its comprehensibility [*Das ewig Unbegreifliche an der Welt ist ihre Begreiflichkeit*]. It is one of the great insights of Immanuel Kant that the postulation of a real external world would be senseless without that comprehensibility.

Yet, Bateson did not trust in mathematics. He drew from the inevitable contextuality of all knowledge, a rather vertiginous consequence: because, every context opens up towards a meta-context and so forth, *ad infinitum*, it is impossible to establish any ultimate entities in a certain and valid way. So, instead of the classical substances Bateson posed as fundamental a multilayered model of differences – for example, the relation between map and territory – and, within this, a *connecting pattern* referred to as “mind”. To illustrate that the mind of the individual does not end at the skin, but is embedded in the whole, Bateson (1972, p. 465) imagines himself feeling his way:

But what about “me”? Suppose I am a blind man, and I use a stick. I go tap, tap, tap. Where do I start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? . . . These are nonsense questions. . . The way to delineate the system is to draw the limiting line in such a way that you do not cut any of these pathways in ways which leave things inexplicable. If what you are trying to explain is a given piece of behavior, such as the locomotion of the blind man, then, for this purpose, you will need the street, the stick, the man; the street, the stick, and so on, round and round.

Now, if Bateson transforms the classical ontology of substances into an esoteric of the mind, he not only sacrifices the critical edge of contextuality, but also propagates a diffuse religion. This is testified by his frequent comparisons of “Mind” with “God”[12] as well as by the work of his old age, *Angels Fear*, on the nature of the sacred (Bateson, 1987, completed by his daughter Mary Catherine. Bateson himself had even intended the title *Where Angels Fear to Tread*).

“Aristotelianism” revisited

In the philosophy of Aristotle, substance had served the purpose to fix identity in the flux and change of time. God, seen as unmoved mover, constituted the logically necessary primary cause of the world. Descartes found himself compelled, to differentiate between two kinds of ultimate entities: the cogitating and the extended substance (*res cogitans* and *res extensa*). In his eyes both of them existed *causa sui*, independent of everything else with the exception of God, who additionally bridged the abyss between their realms. Those were, measured by the faith of the elder Bateson, rather detached, sober and technical terms of philosophy.

However, contemporaneous with Magritte’s and Korzybski’s speculations, quantum mechanics has discovered a mysterious pervasive connection of everything with everything else[13]. A finding like this was alarming enough to sound the death knell both for the concept of “self-sufficient” substances and the naïve assumption of an objectively “given” realm of things-in-themselves. So the question arises, whether such a strange context leaves us with a course we can steer between the Scylla of Korzybski’s alpha-object and the Charybdis of Bateson’s MindGod?

Alfred North Whitehead faced the changed situation with a radicalised ontology. Certainly, he adhered to the traditional concept of substance, namely his category of the *actual entity*. However, Whitehead’s substances are dissolved into elements of

process: they are “events” or “occasions” and their being and becoming is constituted by an influx of the whole universe. In an organismic cosmology of this layout, it is pointless to dwell upon the difference between material and spiritual “objects”: both could, in any case, only be perceived as physical or mental aspects, as the physical or mental pole, of events. A process philosophy such as this, fragments “the reality” into a myriad of perspectives, as we know them from the Monadology of Leibniz (1714, p. 57):

And as the same town, looked at from various sides, appears quite different and becomes as it were numerous in aspects [*perspectivement*]; even so, as a result of the infinite number of simple substances, it is as if there were so many different universes, which, nevertheless are nothing but aspects [*perspectives*] of a single universe, according to the special point of view of each Monad.

Certainly, it must be emphasized that, in an ontology devoid of enduring Monads, in a cosmology of transient, perpetually perishing events such as Whitehead chose to create, “the same town” or “a single universe” cannot reclaim the status of a substance or an entity. They have to be considered as mere abstractions[14].

Summary

This essay is not meant to add one more to the many hagiographic portraits already in print of Bateson (including my own, see Holl, 1985) and, for that matter, of Korzybski. Rather, it intends to open up new, admittedly strange and unorthodox perspectives.

To put it in a nutshell, the paper deals with a second order phenomenon – the context of a context, namely of a cultural assimilation. In this respect cultural truly derives from “cult” because in their exceptional position as clairvoyant prophets, both Bateson and Korzybski, have for a long time acquired a real “cult status” which tends to forestall a critical reflection of their main doctrines.

Korzybski condemned the “Aristotelian” habit of plain identification. But, in the first place, he himself identified a crude prejudice about Aristotle, with the target he chose to attack. One could say that he was exercising a kind of phantom-hunting. Following him up, Bateson assimilated Korzybski’s concept of the “map-territory-relation” which fitted neatly enough into his theory of the mind, to be adopted by him, and remained the only piece Bateson ever quoted from all of Korzybski’s writings.

However, in 1933, when Korzybski’s work appeared, the meaning of a twofold emphasized alert, warning that “a map *is not* the territory” was (not least in the face of Korzybski’s own military background) gravely determined by the fact, that mentally ill-dictators already set about turning their maps into territories by brute force.

After the war, Bateson as it were “repacified” the map-territory-relation and made use of it to explain bewildering forms of behaviour, such as play, or schizophrenic communication. The infinity of logical levels involved, led him at the end to transcend the contextually defined and limited sphere of knowledge, and to identify Mind with God.

Almost one generation younger, bon vivant Paul Watzlawick changed, not the paradigm itself, but the imagery within it. In place of warning to confuse maps with territories, he strongly recommended not “to eat the menu instead of the meal” (Watzlawick *et al.*, 1974). Bearing in mind, that for some a menu promises the meal, as for others a map promises the territory, we have to revise Korzybski’s proviso as to claim: a map is not yet the territory.

Notes

1. My offer, to translate Korzybski's work into German, was in 2004 strictly repudiated by the Institute of General Semantics, that presumes to act in the interest of Alfred Korzybski.
2. Certainly, one should not overlook, that the nearly thousand pages of *Science and Sanity*, in the essence easily reducible to ten, with their endless redundancies and their (likewise endlessly repeated) epistemologic-didactic model of "the structural differential" for "non-aristotelian training" remembering more of a scurrilous modern work of art than of scientific method, appear in their turn slightly mad. Ironically, Korzybski on his part laments: "Philosophers, . . . , etc. are somehow unable to comprehend that their work is the product of the working of their own nervous systems. For most of them, it is only detached verbalism such as we often find in hospitals for 'mentally' ill" (Korzybski, 2000, p. xxxix f). "Dissidents" of a sort, it seems. . .
3. Very impressively, Tolstoy (1886) even probes one level deeper and demonstrates that the individual not only has to understand the force of rational reasoning, but to experience it as inevitable: "He could not understand it, and tried to drive this false, incorrect, morbid thought away and to replace it by other proper and healthy thoughts. But that thought, and not the thought only but the reality itself, seemed to come and confront him" (Chapter VI).
4. If you take, for example, the human as substance, man would be a neuter who owns masculine and woman would be a neuter who owns feminine private parts.
5. "Abstraktionsvergessenheit" is evidently an allusion to Heidegger's "Seinsvergessenheit" and surely, as an acute philosophical analogy, not beside the point considering that *Being and Time* appeared only a few years prior to *Science and Sanity* (quotation on Korzybski, 2000, p. 407).
6. In his stout volume on "non-aristotelian systems" Korzybski quotes much and many, but in the bibliography there is curiously not a single reference to primary sources of Aristotle himself.
7. "For us today, logic is an arid, desiccated word and has lost much of its interest. But in the eleventh and twelfth centuries it was far more colourful and contentious, a stage in the advent of doubt, with the questioning of authority, and offering the chance to approach God in a new way." And: "It was also the case that, by now, getting on for two hundred years after Aquinas, scholasticism was ossifying, becoming stultified and rigid in the universities, as scholars fought over the minutiae of what he and the other medieval masters had really meant." (Watson, 2005, pp. 367 and 397).
8. Let me mention here only in passing the ban of totalitarian (or post-totalitarian) systems on calling a spade a spade, that Ian Buruma describes in Buruma, 2001, chapter "A Deer Is a Deer" p. 316 ff.
9. As Magritte wrote: "Un mot ne sert parfois qu'à se désigner soi-même."
10. This essay grounded in a lecture, Bateson gave 1970 at the Nineteenth Annual Korzybski Memorial (Bateson, 1972, p. 454 ff).
11. See in this respect Korzybski's model of the "structural differential" (e.g. on p. 393 of Korzybski, 2000, or in www.esgs.org/uk/sd.htm), wherein the thing-in-itself – to put it in the Kantian terminology – appears as the alpha-object (O α).
12. For example, on p. 467 of Bateson, 1972: "This larger Mind is comparable to God and is perhaps what some people mean by 'God'."
13. See the intriguing account of the EPR-paradox and its development in Fölsing, 1997, pp. 327 ff.
14. Peter Watson, who presents himself in other respects as a truly bold thinker, explicitly shuns this particular consequence. He prefers, in spite of all the earthquakes of modernity, to cling to aristotelic modes of thought: "Plato has misled us, and Whitehead was wrong: the

great success stories in the history of ideas have been in the main the fulfilment of Aristotle's legacy, not Plato's" (Watson, 2005, p. 743).

References

- Bateson, G. (1972), *Steps to an Ecology of Mind. Collected Essays in Anthropology, Psychiatry, Evolution and Epistemology*, Chandler Publishing Company, London.
- Bateson, G. (1987), *Angels Fear. An Investigation into the Nature and Meaning of the Sacred*, Rider, London.
- Buruma, I. (2001), *Bad Elements. Chinese Rebels from Los Angeles to Beijing*, Random House, New York, NY.
- Carroll, L. (1992), *Through the Looking-Glass*, Wordsworth Classics, Hertfordshire.
- Einstein, A. (1936), "Physik und Realität", *The Journal of the Franklin Institute*, No. 221, pp. 313-47.
- Foucault, M. (1973), *Ceci n'est pas une pipe*, Fata Morgana, Paris.
- Fölsing, A. (1997), *Albert Einstein: A Biography*, Viking, New York, NY.
- Holl, H.G. (1985), *Das lockere und das strenge Denken. Essays über Gregory Bateson*, Beltz, Weinheim.
- Korzybski, A. (2000), *Science and Sanity, An Introduction to Non-Aristotelian Systems and General Semantics*, 1st ed., Second Printing by the Institute of General Semantics, New York, NY, 1933.
- Leibniz, G.W. (1714), "The Monadology", translation Robert Latta, quoted from <http://philosophy.eserver.org/leibniz-monadology.txt>
- Prange, R. (2001), *Der Verrat der Bilder. Foucault über Magritte*, Freiburg im Breisgau, Rombach.
- Tolstoy, L. (1886), "The death of Ivan Ilych", available at: www.online-literature.com/tolstoy/death-of-ivan-ilych
- Watson, P. (2005), *Ideas. A History of Thought and Invention from Fire to Freud*, Harper Perennial, London.
- Watzlawick, P., Weakland, J. and Fisch, R. (1974), *Change. Principles of Problem Formation and Resolution*, W.W. Norton and Co, New York, NY.
- Whitehead, A.N. (1926), *Science and the Modern World*, University Press, Cambridge.
- Whitehead, A.N. (1929), *Process and Reality. An Essay in Cosmology*, rev. ed. 1978, Macmillan Company, New York, NY.
- Wittgenstein, L. (1969), *Über Gewißheit. On Certainty*, Basil Blackwell, Oxford.

Further reading

- Aristotle, O. II (350 BC), Section 5 (translation E.M. Edghill), available at: <http://classics.mit.edu/Aristotle/categories.1.1.html>
- Marc, E. (1984), *L'école de Palo Alto*, Editions Retz, Paris.
- Plato, P. (370 B.C.), available at: <http://philosophy.eserver.org/plato/parmenides.txt> (translation Benjamin Jowett).

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Primary natural relationship: Bateson, Rosen, and the Vedas

Natural
relationship

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Abstract

Purpose – To propose a conceptual paradigm for unifying concepts of material, living and spiritual nature, based on the natural philosophy of Gregory Bateson and the more formal relational theories of Robert Rosen.

Design/methodology/approach – The paper combines Bateson’s natural philosophy with the relational meta-theory of Robert Rosen to develop the world view we believe Bateson argued for. It shows that the assumptions of this view correspond with Vedic philosophy. An integral view of nature that can underlie mechanistic and relational science is provided.

Findings – Bateson’s natural philosophy can be interpreted in terms of Rosen’s relational concepts to provide a unifying view of nature based on information entailments. This is described in terms of an irreducible complementarity between abstract and material aspects of nature (corresponding to Bateson’s “mind and nature”) that forms a causally effective, or “necessary” unity. Encoding and decoding relations correspond with Bateson’s ideas of patterns and information. The general application of this view suggests a reality not unlike the “immortal luminous being” described in the Vedas and Upanishads of India.

Originality/value – The paper shows why the dualistic/mechanistic view of nature is inadequate for understanding living systems and natural complexity. It describes a more general foundation from which living and generative aspects of nature can be studied. This corresponds with the Vedic concept of intrinsic value (divinity) in nature, and lends support to deep ecology ethics. As Bateson argued, the relational view can be an ethical instrument, leading away from conflict as to understand better the roots of interconnectedness.

Keywords Complexity theory, Cybernetics, Communication

Paper type Conceptual paper

Introduction

If I am right, the whole of our thinking about what we are and what other people are has got to be restructured . . . The most important task today is . . . to learn to think in the new way (Bateson, 1972).

Gregory Bateson professed that there is more to nature than can be described from the traditional mechanistic view; that to understand living nature we must think differently and escape the machine metaphor. Many times his writings emphasize that the Newtonian world view, and its scientific dualism, must give way to a high order systems or cybernetic understanding of how nature works, at least with regard to living systems. He argued for a relational perspective on nature, which we might



understand as information relationships communicating through patterns. The unity of mind and nature he spoke of suggests an integral philosophy. Another great theorist of his time, Robert Rosen[1], similarly argued that a relational view uniting nature and aspects of mind is the appropriate way to think of complex nature.

We begin with a quote that Bateson employed from Alfred Korzybski: “The map is not the territory.” This truism underlies what we will discuss, for in dealing with a complex reality we must consider not only how territories inform maps, but also how maps inform and change territories. Our traditional mechanistic view of nature divides this two-way relationship, presuming that what nature does, and will do, can be described by general laws (the “map”) that are independent of the territory they describe. Bateson referred to such laws, perhaps a little unkindly, as “tautologies” because their truth is established by logic and computation rather than experiment.

One of Bateson’s strongest points was that there is no reason why the ability to describe precise events in mechanistic science should be taken to infer that nature itself comprises such distinct events. Observed states and boundaries, in his view, are part of a system of description; whereas nature itself has a seamless quality that is capable of spawning many ways of seeing such differences. Bateson expressed this as a distinction between different conceptual types, “amount” and “quantity” (quantity labels amount). He insisted that the “differences” we see exist in the perception and measure of nature, which itself is not differentiated aside from such concepts. Rosen expressed the same idea in terms of “modeling relations.” Both scientists sought a new world view in systemics and cybernetics, to replace the one in which “material” nature is explained in terms of material objects. Instead, they saw that material nature is somehow drawn out of a more complex and less defined reality – a concept that is more typical of Far Eastern views of nature.

A theoretical foundation for these ideas can be derived by combining Bateson’s and Rosen’s philosophies. Where Bateson provided eloquent description and example of relational thinking, Rosen created a formal mathematical treatment of it. In particular, Rosen’s *modeling relation* (Figure 1) may be interpreted as a natural philosophy and a foundation for relational complexity (Kineman and Kineman, 1999; Kineman, 2002). The modeling relation comprises two-way information relations between nature and symbolic representations of nature (e.g. our mental pictures and models). Applying this idea as a natural philosophy means that natural systems are themselves to be seen as interconnected by such relations; that nature in essence “models” itself. Rosen showed that all natural systems can be analyzed in terms of relational mappings. From that we

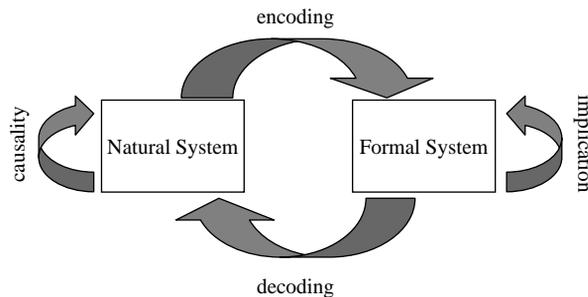


Figure 1.
Rosen’s “modeling
relation”

infer that the most fundamental of these in nature is the equivalent of a modeling relation. Relational analysis is performed in category theory (Louie, 1985), in terms of constructible mappings[2], of which modeling relations are composed. This is a new way of thinking about how nature may be causally related, or “entailed”; which we believe can be applied to both living and non-living systems.

Our objective is to show how Rosen’s modeling relation applies as an explanation of the causal structure of nature (its “entailment”). By this approach we can capture the relational qualities of nature that Bateson spoke of, at a fundamental level. We will also see that this allows for the mechanistic view as a special case. We present this in the Kuhnian sense of a new world view and foundation for advancing relational theory. We discuss this view from three theoretical perspectives, represented by Bateson, Rosen, and Vedic philosophy.

An irreducible relationship

Both Bateson and Rosen argued that relational thinking could transcend “Cartesian dualism,” as Bateson called it, which separates the symbolic from the natural. They both claimed that this could be made fully compatible with scientific thinking. Rosen’s approach was to propose an entailment structure that relates a “Natural System” and a “Formal System” (Figure 1) through intrinsic information relations (“encoding” and “decoding”). This is a modeling relation, which actually specifies a “complementarity”[3] relation between symbolic and natural aspects of an otherwise unified reality.

Rosen initially described this relation as a picture of science, that is, an epistemological model (Rosen, 1985). He also described how two natural systems can act as “models of each other” (Rosen, 1991, pp. 62-3) in the sense of analogs. He wrote: “Analogy is like a modeling relation except that it relates two natural systems” (Rosen, 1991, p. 119). But modeling relations are not limited to epistemology. Natural instantiation of modeling relations is implicit in this theory. In his introduction to anticipatory systems, Rosen (1985, p. v.) refers to organisms as having and using “internal predictive models of themselves and their environments”. Much of his work was about the realization of such relations in living systems. Natural models need not be thought of as specific identifiable components of a system, but rather as systemic, or intrinsic, to the overall organization, and implicit in the analysis. The case we are personally familiar with, where symbols can be experienced and manipulated as mental concepts, is thus a more evolved example of this fundamental principle. Rosen claimed that, through relational analysis, biology can “inform physics”; that the relational view is the general view explaining complexity[4] and mechanism. We must then suppose that natural modeling relations can be seen in the very fabric of nature, at every level: the new “building blocks” that the atomic model did not find.

If the modeling relation pictures reality, it suggests that nature is similarly entailed; that interacting systems, in a sense, measure and inform each other. We will see that this corresponds with Bateson’s definition of information as “a difference that makes a difference”, for it is a process whereby one system induces change in the other, corresponding to the attributes (patterns) that are mutually encoded. Rosen describes this process as an “act of abstraction”[5] (Rosen, 1985, p. 128), which is imparted to the “Formal System”. This is a picture of complexity because such relations involve causal loops that equate to mathematical “impredicativities” (Rosen, 1991, p. 86-90). These loops are highly problematic in the mechanistic view, and generally excluded from it, because they do not have closed form mathematical solutions. It is clear that the

modeling relation itself defines an impredicativity – the very thing that mechanism excludes and that Rosen claims is most characteristic of life.

Systems that are partially closed by virtue of internal causal loops are less constrained than mechanisms. It appears that such partial closure prevents relational entailments from being reduced by the sum of outside entailments (this bears similarly on the “measurement problem” or “observership” discussed in quantum physics). Erwin Schroedinger’s great insight in his famous book, *What is Life* (Schroedinger, 1943), was just this: living systems somehow “internalize” some of their own causes (part of their ontology). But the idea was never fully developed (Rosen, 1991, Chapter 1). Internalizing causality produces internal order and greater freedom from the external environment.

Perhaps, surprisingly, the information entailments specified in modeling relations lie outside the specific systems being related. This means they exist in the context of those relations, and that context can have an effect on the information relation. It is just this contextual relationship that distinguishes a complex system from a mechanism. Rosen points out that a mechanism is implied as soon as there is a largest complete system model that is computable. Consequently, for complex systems, an infinite contextual series of modeling relations is implied (Figure 2). This shows that the modeling relation is logically irreducible, and accordingly it implicates a holarchy, where every system can be related to larger and smaller compositions. Such holarchies are often inferred in ecology. For example, the relationship between an organism and its habitat also has larger system relations with the ecosystem, the physical environment, human exploitation or management, and so on.

The infinite series that is implied should not be disturbing. It is an important and desired property of the analysis. It is a cost of defining this analytical way of viewing relationships, just as the mechanistic view has its singularities and infinities of a different kind in order to achieve its purpose. By allowing the holism of nature to be represented as an infinite series, we gain the ability to explore complexity and to

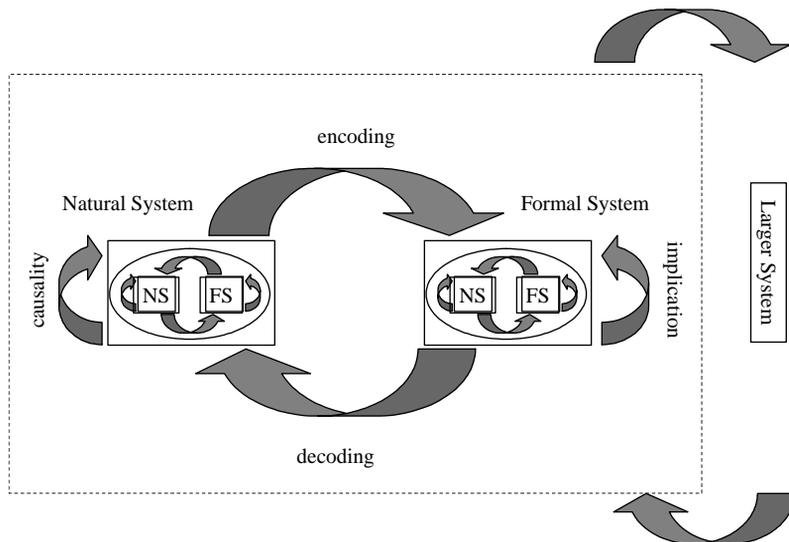


Figure 2.
Infinite context of
modeling relations

examine any proximal relationship of interest without reducing it to a mechanism. We will see that it also implies a very different ultimate reality than the mechanistic view.

The entailment structure we are thus concerned with in nature consists of analogous *encoding* and *decoding* relations between observed and symbolic natural systems, and with contextual systems. This means that abstractions of one system (encodings) are actualized[6] (decoded naturally) in related or contextualized systems. There can be an unlimited number of such relations. Figure 1 shows the singular case which can be constructed indefinitely by matching natural and formal systems. Figure 2 shows contextual embedding which is also unbounded. These influences may have synchronous and/or asynchronous effects. The system is thus informed by aspects of many other systems and its own models, and the result is to create a suit of potentials, or system attractors. We must think of these as simultaneous possibilities that feed forward and resolve as present events to form history.

The effect of external relations thus depends on how they affect the internal models of a semi-autonomous system. This can make a big difference in behavior where external entailments involve similar content to internal processing, and thus can be modified by it. For example, organisms are certainly subject to physical laws that they are unable to modify internally. But where information, for example from climate patterns, can be used for internal regulation (Rosen and Kineman, 2004), the resulting behavior can be dependent on both external and internal relations. In summary, there are many possible encoding relations and therefore many possible ways they may be actualized in such an exchange, giving rise to the uncertainties we observe in complex systems.

Pattern and potential

Modeling relations thus allow us to think about aspects of living nature that cannot be represented as mechanisms. These have to do with the system organization. But the theory must also connect with observables. While we cannot measure or represent natural systems or natural models without reducing them, it turns out that the encodings have a direct meaning that can be tracked. Specifically, they represent abstraction and inferences in terms of structure (encoding) and function (decoding), respectively. Biological and ecological functions are thus given complementary status with material structures (Rosen, 1991, p. xvii; Rosen, 1973). These functions are as important to know as system states (structures). Neither can be fully accounted for, but this form of analysis allows one to look at the proximal relations of interest or dominance.

We can now address the question of where functions exist as potential effects, before one or more is actualized and others foreclosed. Also we can look at the role of pattern. Rosen (1973) defines function as *what a system does in another system*. Hence, functions are associated with the effect of a model (what it does) in relation to a natural system. The effect can be captured in the idea of a pattern that induces the natural system. It is not just the material aspect of a pattern that is meant here, such as the shape of a house, but the information value of that shape in a contextual or otherwise related system, say the environment, the reaction of wildlife, the mind of occupants, the economic system, the shaping of childhood and adult experiences, and so forth. The function and context decode and realize a pattern that, as a result, has ontological meaning (the natural system). This is the inverse of abstraction which encodes a pattern that has epistemological meaning (a model). Thus, the information entailments of a modeling relation basically communicate pattern, which induces

change in the system it is imparted to. This explicitly represents Bateson's idea of *patterns that connect*. While we can say that pattern is quite measurable in a material sense, its semantic relations must also be retained.

In contrast to this rich picture, mechanism essentially involves fully commuting, or reduced, modeling relations, making model and system synonymous and implying computability. This makes influences summable, and response reactive rather than anticipatory – a great simplification of the entailment structure, but one that is irreversible. Rosen found it axiomatic that there can be no finite set of such reduced relations that will yield the same result as complex entailment. In the relational view, the mechanical condition thus appears as a very special case. Only an infinite set of hypothetical mechanisms might be said to converge on the complex condition. Interestingly, the reverse may also be true in the case where there are no causal closures internalized within system boundaries, for example as the classical world is defined and appears to our senses. An infinite set of fully interacting modeling relations, without other causal boundaries, might be shown to imply a mechanistic system. It appears that the two views of nature, relational and mechanistic, may be treated as practical alternatives, each suited for representing the aspect of nature it was designed for. The relational theory, being the more general, can allow us to relate both forms of analyses, whereas the mechanistic view cannot.

Mind and Nature: A Necessary Unity (Bateson, 1979)

As we have seen, each interaction in the relational theory involves a *necessary unity* of information entailments represented by a modeling relation. We can now see that Rosen's diagram can also be understood as an explicit representation of Bateson's unity between *Mind and nature*. Bateson defined "mind" in terms of the presence of six natural conditions (Bateson, 1972):

- (1) an aggregate of interacting components;
- (2) interaction triggered by difference;
- (3) collateral energy;
- (4) circular (or more complex) chains of determination;
- (5) effects of difference acting as transforms (coded versions) of the difference which preceded them; and
- (6) an implicit hierarchy of logical types immanent in the phenomena.

Rosen's concept of mind, like life itself, was as a phenotypic phenomenon that cannot be represented or explained by physical reduction or statistical correlation, the two dominant modes of modern science. Its explanation, he argued, requires the broader entailments of relational theory, which neither of those views can generate (Rosen, 1991, Chapter 6 "Mind as phenotype"). It is easy to see that Bateson's six conditions of mind correspond precisely to a natural instance of Rosen's modeling relation. Respectively:

- (1) "Components" are interrelated, through interaction and context, as modeling relations.
- (2) Interaction defines and is defined by natural modeling relations. It is thus "triggered" by the natural dynamic between system and model (a complementarity principle).

-
- (3) Natural instances of modeling relations reduce entropy (increase system organization) and dissipate energy – central characteristics of organisms.
 - (4) Causal loops are characteristic. Actualization involves (in organisms) complex chains of “Metabolism and repair” functions (Rosen, 1991, pp. 261-5).
 - (5) The effects of difference (i.e. information), are precisely the transformations (encoding/decoding entailments) between models and system.
 - (6) Extension of the contextual relation reveals a hierarchy (probably a holarchy) of logical types (Figure 2).

Bateson’s definition of mind is thus synonymous with Rosen’s modeling relation. Bateson’s definition of information as effective differences can also be clearly seen in this relation. As both people said, information is that which is required for effects to be known (a difference in the symbolic or cognitive system) and for effects to occur (a difference in nature). Obviously, the idea of excluding concepts of mind or information from this analysis is tantamount to excluding the analysis.

From this perspective, information is the application of a function – a living system function in this case – that transforms (or defines) states. Bateson’s definition implies, like Rosen’s model, that there is always a third system in any connection between observable systems, which comprises the information entailments themselves[7]. Information can be accordingly presented as comprising all that we traditionally call “causation,” precisely in the sense of a modeling relation. A complex world built on such relations could truly be described as a “necessary unity” between mind and nature.

It is difficult for modern Western scientists to comprehend this “necessary unity.” Bateson attributes this difficulty to the mechanistic epistemology of recent centuries, which sharply separates knower from known, Man (and scientist) from nature, and necessarily Man from our concept of God (Watts, 1960). As a result of this separation, “God” became associated with the mathematics of Platonic laws, imagined to be external to the universe, or handed down from before the big bang; and according to which all action has proceeded since (Jeans, 1930, p. 140). Bateson refers to this separation as “Cartesian dualism” and “the premises that were fashionable in the precybernetic era.”

We saw that information relations are implicitly associated with change as the effect (or product) of interaction between natural systems. This may resolve the dilemma of social constructivism that Bateson seemed to wrestle with – that his classifications as an ethnographer might be entirely self-created – by allowing that perceived boundaries (on which we might base classifications) may be at once both constructed and natural. When such constructivism is re-imported or attributed to nature itself, it becomes both objective and subjective simultaneously (in other words we can see subjective actualization in systems we might study, and our seeing is itself actualizing additional subjectivities). One must thus accept being a participant. Information entailment in this view is accordingly fundamental to any given system in the same degree that space-time geometry is taken as fundamental to dynamics.

The modeling relation allows us to represent duality while retaining non-dual properties in the information entailment relations. This constitutes a new form of analysis in terms of relational wholes. We cannot escape dualism for epistemological purposes, that is, to have a scientific means of knowing about nature conceptually, and

there is consequently a well-known limit to knowability. However, it appears possible to gain more information about a complex system by looking at it relationally, because this mode of analysis preserves complex relations in any decomposition – relations that a mechanistic analysis must destroy irretrievably. Rosen (1991, p. 169) wrote:

... if we try to fractionate a modeling diagram [mechanistically], with all the referents apparently left to one side and all the encodings/decodings put on the other, we lose the commutativity that is the essential feature of the diagram as a whole. I argue if one wants to fractionate [i.e. analyze a complex system] one must do so at another level, at the level of such diagrams, or modeling relations. If one tries to fractionate the diagrams themselves, their basic properties are irretrievably lost.

Exploring nature through introspection

If mind, expressed generally in these terms, can be said to exist in nature, and we are natural, then aside from the epistemological dualism needed to think, introspection should be a valid way to experience nature and to obtain natural information, even if we consider that information only to be an analogy and call it anthropomorphic. As a result of his experience with native cultures, Bateson certainly did not think that “anthropomorphic” necessarily means uninformed about nature, if introspection is not casual and if it is closely tied to natural experience.

Given that introspection, or perhaps intuition, might be (perhaps must be) one of the tools in this new science, then we should be interested in introspective wisdom passed down throughout the ages, and we might even hope for some consistency in what was inferred. The “perennial philosophy” (Huxley, 1946) represents what is believed to be a common core of deep intuitive/introspective experience throughout history, most originally recorded in the scriptures of ancient India (the Vedas, Upanishads, and other derivations). These came from a long period of widespread, intense and rigorous meditation involving many methods. At the root of these experiences was indeed a consistent experience, which was reported as a common ground of existence, an eternal, creative principle or “Beingness” that seems to pervade all nature. The non-living is also seen to emerge from this principle. In the Vedic philosophy and most of its derivatives, this term “Beingness” is to be understood more in the sense of an active verb (to be) than a passive noun (“a being” as we would more likely interpret it in the West). As a passive object it implies a separate entity, which is not the meaning. As an action or experience, it is a vital[8] essence that pervades all and is at our own core. It is also called “Atman,” or true Self.

The relational view cannot tell us what the true source of such experience is – it is only a theory structure. But in seeing nature through information entailments linking “mind” and material systems, it provides a scientific view of unity and connectedness that may be compatible with this derived wisdom. We have already seen that it is compatible with mechanistic science as a special case. We can perhaps imagine some sense of beingness in the modeling relation as a complementarity between subject and object, or mind and body, which is retained through all levels. We, of course, cannot cite spiritual scripture to support science, nor vice versa; but if the relational view is consistent with both, it has considerable value as an integral philosophy. Such integration may have profound implications for society, as dreamed of not just by Bateson, but also countless naturalists, humanists, theologians, and philosophers who sought the unity of existence. It was certainly one of Bateson’s hopes to change the

thinking of the industrial world toward a more integral scientific philosophy in which we may better manage ourselves and our resources through an understanding of unity and connectedness. Perhaps, we should not assume out of hand that nature should be like us, but when there is so much evidence that we came “out of nature,” and not “into it” (Watts, 1995), perhaps we should not reject the idea either. Bateson was not much impressed with the arguments against anthropomorphism, our own experience being the one thing we know of directly.

The play of nature

Bateson demonstrated that the vital aspect of relational thinking might be described best in terms of stories, because stories can include both pattern and meaning. The story was to Bateson what the modeling relation was to Rosen – the way mind and nature connect.

Like Bateson’s stories, in Vedantic mythology everything that happens is part of a divine play, or “leela.” Leelas describe the interplay between spirit and natural existence. They are enacted, and thus stories told, by archetypes incarnated in the material world to play various parts, and thus to communicate meaningful principles. Divine nature is partially or wholly forgotten on entering the play, or the world of “Maya” (commonly translated as illusion or form, but also as the world of measurement). In Vedanta, actors on the world’s stage communicate eternal principles through their actions. Inanimate matter also contains the divine essence, temporarily lost due to “the veil of Maya,” but always capable of re-awakening into a living condition. Human consciousness likewise retains the ability to reawaken to a fully divine condition. The relational view analogously represents natural systems as intrinsically complex even if reduced by material interactions.

Complexity and life are the antithesis of mechanism in relational theory, just as divinity, or spiritual life, is the antithesis of Maya in Vedanta. Leelas come from a universal mind that is infinite and unfathomable. This is analogous to the relational concept of an infinite largest system that is not computable. Everything in form, or Maya, is created by the relationship between belief and that which manifests – as in a modeling relation. This is true even for an avatar, who directly represents divinity but “takes form” in answer to the plea and belief of humanity. The guru (teacher), who knows the story and establishes belief among devotees, is thus sometimes said to be greater than the avatar, for without belief the avatar himself could not exist. This describes a complementarity between thought and manifestation.

Bateson and the Vedas

We know that Bateson had direct contact with the ancient ideas of the Far East, particularly the Vedas and Upanishads of India, through one or more of its gurus. A colleague of Bateson’s David Bandy (Bandy, 2006) recalled visits they made together to see Sri Sathya Sai Baba at his ashram (Prashanthi Nilayam) in Puttaparthi, India, in the early 1970s when Sathya Sai Baba was actively granting interviews with Western scientists. Bateson returned with his daughter, Nora, in the early 1980s (Bateson, 2006). Nora recalls that her father and Sathya Sai Baba had conversations of several hours nearly every day for a month. Sathya Sai Baba’s professed mission is to re-introduce the original wisdom of the Vedas, as communicated through the Upanishads and related stories (including the great epics of India such as the Ramayana, Mahabharata,

and others that relate the life stories and teachings of avatars and sages). The extent to which these ideas influenced Bateson's thinking is not well-known. Bandy described him as open and accepting of Sathya Sai Baba's message, while trying to bring it firmly into rational explanation. However, deep mysticism has always defied such attempts. Bateson expressed some frustration in trying to pin it down scientifically. Nora Bateson quotes him as saying after one of these meetings, "You just can't talk to these Holy men." Nevertheless, it is clear that information was exchanged. Bateson occasionally referred to the Vedas and Upanishads in his writings and it is clear that the very idea of mind and meaning in nature is a Vedic concept.

The Vedas speak of a single interconnected reality, which we see through the veil of Maya, but which emerges from a single creative principle that exists in all parts of the universe and the whole itself. The 5th Chapter of the Brihad Aranyaka Upanishad, called the *Madhu Vidya*, or *Honey Doctrine*, refers to one animating principle that is universal and reflected in every natural system of the universe. The same principle in each part is in the whole and vice versa. This was translated by the theological scholar, Muller (1884) as a "bright, immortal person," and more recently by a Hindu guru, Swami Krishnananda (2006), who is perhaps more familiar with the cultural meaning, as an "immortal luminous being". Muller translates "Madhu" literally as "honey" and figuratively as "the effect." It would again be closer to the cultural meaning to translate it in more essential terms, such as "sweet product."

The Madhu Vidya states (combining the first 14 verses, which give exhaustive examples of what we will call for the sake of expedience, "all existence"):

This [and all existence][9] is the honey (madhu, the [sweet product]) of all beings, and all beings are the honey of this [and all existence]. Likewise, this bright, immortal person [Luminous Being] in this [and all existence], and that bright immortal person [Luminous Being] incorporated in the body (both are madhu); He indeed is the same as that Self [Atman] that Immortal, that Brahman [universal source], that All[10].

In verse 15 it states:

And verily this Self is the lord of all beings, the king of all beings. And as all spokes are contained in the axle and in the felly of a wheel, all beings, and all those selves [existences, referred to above] are contained in that Self.

After referencing similar statements from the *Rig Veda* (the Upanishads are based on the Vedas and are to explain them), it states in the 19th verse:

... This is the Brahman, without cause and without effect, without anything inside or outside; this Self is Brahman, omnipresent and omniscient. This is the teaching (of the Vedas) (Muller, 1884).

We see in these writings a philosophy where the whole is immanent in the part and the part is constituted in the whole. This is analogous to functional interrelations, for example in the human body. A limb is a part of the whole body – it functions in harmony. The limb supports the existence of the body and the body supports the existence of the limb. We do not think this way of machines because they are "constructed" from external functions and require an external creator. The relational systemic view, like Vedanta, places ontology inside the system, and in this sense, nature is pregnant with life and divinity.

The ancient message from the Vedas and Upanishads can also be seen in what David Bohm called the “implicate order,” based on his study of “non-locality” in physics[11]. Non-local phenomena were confirmed by the famous experiments of Alain Aspect and others testing Bell’s theorem. Present science interprets these results as meaning that, at some level, everything in the Universe is indeed connected with everything else. Madhu Vidya, considered a central statement of the Upanishads, tells us that everything is intimately related to everything and imbued with an internal divine luminosity (meaning the source of creation). Hence, when we touch anything, we are touching everything – we are touching it not just from the outside as a thing but also from the inside as an essence. If we touch a table, we are touching the sun at once. This is considered a mystical view; however the Vedas’ meaning is that everything is vitally and ontologically connected. It is the very existence that is related, not just resulting dynamics, so that when we see anything, that seeing involves everything and in a sense is everything. This idea shares the depth of interconnection that Bateson was writing of and Rosen modeled, which also became known in the West through Deep Ecology (Kineman, 2005). In this way, Vedanta is about the moral and ethical relations that Bateson was so concerned about. It can also be said that, in Vedanta, the concept of communication is at the core of every interaction. When we speak to anyone, we are in some way communicating to everybody, and when we interact with others, we are in some way interacting with ourselves.

Modern Hinduism tends to anthropomorphize the Vedic idea of a “Luminous Being,” giving rise to the many Gods of modern Hindu culture that have quite human characteristics. Most popular religions find this necessary. But some derivatives of this philosophy, such as Mahayana Buddhism, insist that one must see beyond the more familiar concepts of physical form, which are limited tools, and recognize this vital essence as a subtle principle of the universe and all that exists in nature or mind. Even modern teachers of Vedanta in the Hindu culture, such as Sathya Sai Baba, emphasize this as the ultimate understanding, while nevertheless recognizing the human need for images.

In science we also attempt to formalize our concepts of reality and make them more tangible to human perception. Just as the spiritual imagery must point to something beyond it – a shared essence – the scientific imagery, or description, must also point to something beyond it. In the case of relational theory it can be the same shared essence. In the limit of relational theory (its unbounded extension), the holarchy of contexts contains the source of all existence and a pervasive principle of abstraction and actualization. It is an implicit creative reality at the root of all systems and especially magnified in life. Except for the limits of language, and taken in an active sense, is this not an “immortal luminous being?”

Conclusion

It is perhaps easier to achieve eloquence in anything systemic or introspective than it is to get a precise map of it, and in many ways the arts do a better job than science. But for the purposes of an integral science, the entailment structure presented here in Rosennean and Batesonian terms, can be a rigorous means for knowing about complex and living systems, including ourselves. Bateson believed that such an expanded perspective is absolutely essential for human progress, for, if we cannot gain a better picture of who and what we are, we will damage ourselves and much of nature.

Bateson applied his relational perspective not only to an external nature, but also to how we live and interact as a culture. He wrote:

If we continue to operate in terms of a Cartesian dualism of mind versus matter, we shall probably also come to see the world in terms of God versus man; élite versus people; chosen race versus others; nation versus nation and man versus environment. It is doubtful whether a species having both an advanced technology and this strange way of looking at the world can endure . . . If you put God outside and set him *vis-à-vis* his creation and if you have the idea that you are created in his image, you will logically and naturally see yourself as outside and against the things around you. And as you arrogate all mind to yourself, you will see the world around you as mindless and therefore not entitled to moral or ethical consideration (Bateson, 1972).

He minced no words in criticizing the Western contemporary education system for encouraging this myopia. He cites, especially in American students, a “lack of knowledge of the presuppositions not only of science but also of everyday life.” By this he meant that we have cultivated a “deafness” to the assumptions we are making in our views of nature, and thus a “child-like resistance” to discussing them or considering improvements in them. He found our entire education system, including “students of both sexes” and “humanists as well as scientists,” suspect for not recognizing alternative modes of explanation that are more appropriate for questions about life.

The Western derived view of nature may be referred to as “instrumental,” that is, nature as merely an instrument for human use and values (Kineman, 2005). In this view our connectedness is de-emphasized and our individual existence emphasized. Allan Watts traced the roots of this idea to Judeo, Christian, and Islamic beliefs that emerged in the Middle East, altering the ancient concepts to interpret man as separate from nature (Watts, 1960). They began to view the world, including man, as artifacts manufactured by an external God. Prior to this, the philosophies of the Far East, from Vedanta in India to Buddhism and Taoism in China, retained various forms of intrinsic divinity and holism. In later and more contemplative Christianity, interconnectedness with nature returned, for example in the theology of St Francis and Teilhard de Chardin. Western science in an industrial age, however, seized upon this duality to establish what Watts called the “fully automatic myth,” that nature is a machine, and once created, it runs itself. It was this reification of extreme dualism and external law that has been credited with scientific advance, but also blamed for producing a destructive philosophy and culture based on domination[12].

We began with an implicit question from Bateson on how we might think differently about whom and what we are. We can end with a tentative answer. We saw, through the medium of relational theory, a single active principle inherent to the organization of nature, which, in agreement with ancient wisdom, can be said to animate us, our origin, and everything we know of. It is thus possible to achieve an integral world view in which we are indeed the “star stuff” that Carl Sagan said we are; but also in which we and the ‘star stuff’ are much more than we have imagined that to be. These views suggest that we are part of an eternal creative Beingness that produces stars and life.

Notes

1. Indeed, they once met (Rosen, 2006).
2. Rosen focused especially on mappings involved in Metabolism-Repair (M-R) systems.
3. *Complementarity* was defined in early quantum physics. It means a relationship between two irreducible aspects of nature that depend on each other; both of which are required for a

complete description. Physical dualities have been described as such complementarities. Complementarity is sometimes explained by analogy to the weave and artistry of a Persian rug, i.e. considering all possible weaves that could achieve a given pattern and all possible patterns that could be produced by a given weave.

4. Rosen makes the distinction between true complexity and “complicated” systems composed of many mechanisms. The later seem complex, but can only simulate naturally complex systems.
5. Rosen explains that to “abstract” is to “take out of” a system. It is not something more than is there, but something less. Measurements are abstractions as are models built on them.
6. Rosen used the term “realized” but since all components of the modeling relation are *real* in some sense, we prefer to say *actualized*. The meaning here is that a model is imputed to the world of action. The word *act* also corresponds with the sense of a play or Maya as we discuss later.
7. In other work we develop this aspect of the theory to recommend new informatics based on state and function databases (Kineman and Kumar, 2006).
8. This is quite distinct from *vitalism*, which proposed physical metaphors for the cause of life that were generally discredited (Mayr, 2002). It is also distinct from *Creation Theory* and *Intelligent Design Theory* in that those ideas are based on an external God that is more characteristic of the mechanistic view (Kineman, 2002).
9. Verses 1-14 are the same, substituting earth, water, fire, air, sun, space, moon, lightning, thunder, ether, law of action, truth, mankind, and Self; in other words, everything that exists in form or principle.
10. Authors’ explanations in brackets [].
11. Bell’s Theorem that no theory of local variables can explain the strange quantum phenomena known as *entanglement*, which is an instantaneous relation at a distance.
12. One should note, however, that the seeds of this duality also arose in the local descendents of Vedic tradition, in an extreme form of worldly renunciation. Buddhism, especially Mahayana, generally rejects this interpretation, as do followers of the original Vedic teaching.

References

- Bandy, D. (2006), Personal communication, Hilo, HI.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY, Reprinted with a foreword by Mary Catherine Bateson, 2000, University of Chicago Press, Chicago, IL.
- Bateson, G. (1979), *Mind and Nature: A Necessary Unity*, Bantam, Toronto.
- Bateson, N. (2006), Personal communication, Sonoma State College, Sonoma, CA.
- Huxley, A. (1946), *The Perennial Philosophy*, Oxford University Press, Oxford.
- Jeans, J.H. (1930), *The Mysterious Universe*, Macmillan, New York, NY.
- Kineman, J.J. (2002), “Organization and evolution: a 21st century Baldwinian synthesis”, in Allen, J. and Wilby, J. (Eds), *Proceedings of the 46th Annual Conference of the International Society for the Systems Sciences, Special Integration Group on What is Life/Living?*, ISSS, Shanghai, paper presented at the annual ISSS meeting in 2001 under the title: Autevolution.
- Kineman, J.J. (2005), “Vedic ecology and the new eco-accounting”, in Allen, J. and Wilby, J. (Eds), *Proceedings of the 49th Annual Conference of the International Society for the Systems Sciences, Special Integration Group on What is Life/Living?*, ISSS, Cancun.

- Kineman, J.J. and Kineman, J.R. (1999), "Non-mechanical ontology in the origin of organism and evolution", in Allen, J. and Wilby, J. (Eds), *Proceedings of the 43rd Annual Meeting of the International Society for the Systems Sciences, Special Integration Group on What is Life/Living?*, ISSS, Pacific Grove, CA.
- Kineman, J.J. and Kumar, K.A. (2006), "Information as communication", in Allen, J. and Wilby, J. (Eds), *Proceedings of the 50th Annual Meeting of the International Society for the System Sciences, Special Integration Group on What is Life/Living?*, ISSS, Pacific Grove, CA, paper presented as a keynote on Symposium, National Biodiversity and Ecosystem Information Infrastructure: Challenges and Potentials, January 30 – February 2, 2006, National Chemical Laboratory, Pune, India.
- Krishnananda (2006), "Fifth Brahmana, Madhu-Vidya: the Honey Doctrine", *The Brihadaranyaka Upanishad*, Chapter II, The Divine Life Society, Sivananda Ashram, Rishikesh, available at: www.swami-krishnananda.org/brdup/brhad_II-05.html
- Louie, A.H. (1985), "Categorical systems theory", in Rosen, R. (Ed.), *Theoretical Biology and Complexity: Three Essays on the Natural Philosophy of Complex Systems*, Academic Press Inc., Orlando, FL.
- Mayr, E. (2002), *The Walter Arndt Lecture: The Autonomy of Biology*, Quoted in: Inagaki, K., Hatano G. (2004), "Vitalistic causality in young children's naive biology", *Trends in Cognitive Sciences*, Vol. 8, pp. 356-62.
- Müller, F.M. (1884), *Sacred Books of the East*, Vol. 14, Oxford University Press, Oxford, available at: <http://oaks.nvg.org/pv6bk6.html#bria>
- Rosen, R. (1973), "Structural and functional considerations in the modeling of biological organization", dialogue discussion paper, Center for the Study of Democratic Institutions, Box 77, Special Collections, Davidson Library. University of California, Santa Barbara, CA.
- Rosen, R. (1985), *Anticipatory Systems*, Pergamon Press, Oxford.
- Rosen, R. (1991), *Life Itself: A Comprehensive Inquiry into the Nature, Origin, and Fabrication of Life*, Columbia University Press, New York, NY.
- Rosen, J. (2006), Personal communication, Rochester.
- Rosen, J. and Kineman, J.J. (2004), "Anticipatory systems and time: a new look at Rosenmean complexity", *Proceedings of the 48th Annual Conference of the International Society for the Systems Sciences, Special Integration Group on What is Life/Living?*, ISSS, Pacific Grove, CA.
- Schrodinger, E. (1943), *What is Life?*, Cambridge University Press, Cambridge.
- Watts, A. (1960), "The nature of consciousness", Lecture originally broadcast on KSAN radio, San Francisco, CA, available at: http://deoxy.org/w_nature.htm
- Watts, A. (1995), "Philosophies of Asia. Public lectures", in Watts, M. (Ed.), *Electronic University, Mill Valley, 1968-1971*, Tuttle, Boston, MA.

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Toward a science of metapatterns: building upon Bateson's foundation

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Abstract

Purpose – Gregory Bateson defined a metapattern as a “pattern of patterns.” But, what did he mean by metapattern (which he used only once)? Can there be a meta-science, in which metapatterns are its objects or principles? The authors explore these issues.

Design/methodology/approach – The authors review examples of Bateson’s “great pattern” of “combination,” which the authors call the binary. Bateson showed that binary is the minimal solution to the problem of gaining new characteristics by combining parts into a larger whole. Thus, binary is clearly a metapattern, a discipline-transcending structural and functional principle. The authors select parts of Bateson’s writings to highlight his search for other great patterns, some of which correspond with those developed by T. Volk.

Findings – The authors suggest that the basis for a science of metapatterns is the following: functional patterns that confer advantages on the systems that possess those patterns can converge, in a meta-realm that includes all of what Bateson termed stochastic sequences, namely, in biological, cultural, and cognitive realms. The convergences are common solutions to the same functional problems that span a wide variety of systems. Other general principles in the organization of systems, such as borders, arrows, cycles, centers, and networks, constitute members of a system of metapatterns, the objects in a Batesonian metascience. The authors show that the metapatterns have implications for research in the humanities and social sciences, as well as for dynamic learning along the lines of Bateson’s broadly-extended concept of epistemology.

Originality/value – As nearly universal functional patterns, metapatterns could serve to create a scale-bridging form of descriptive scholarship and thus contribute to the quest for a unified body of knowledge, which E.O. Wilson termed *Consilience*.

Keywords Cybernetics, Sciences, Systems theory

Paper type Conceptual paper

Introduction

Gregory Bateson was one of the most innovative thinkers of the twentieth century. Born in 1904 to a prominent British family that included his father William Bateson, a renowned geneticist, he spent the majority of his most productive working life in the USA until his death in California in 1980. Bateson’s work is difficult to categorize because it ranged so widely, across anthropology, ethology, cybernetics, and philosophy.



In short, he was a systems thinker who simply refused to confine his investigations to disciplinary boundaries. Toward a science
of metapatterns

Bateson's final book for which he was solely responsible was *Mind and Nature* (Bateson, 1979). In the work's preface, he coined an enigmatic word: metapatterns. As far as we know, Bateson used the term in only a single written paragraph, in which, he (loosely) defined metapattern as a "pattern of patterns," which characterized a "vast generalization that, indeed, *it is patterns which connect.*" (Italics in original).

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Even though the term metapattern was used so sparingly by Bateson, it is clear from his writings that his central quest was very much related to metapatterns, because he explored large-ranging, overarching patterns exhibited by systems on a number of scales. He discussed, for instance, the non-evolutionary nature of physics and chemistry, in which information does not matter, in comparison to the evolutionary systems of biology and culture, in which "differences make a difference," to use a favorite phrase. In the pages leading up to his paragraph on metapatterns, Bateson described how one could compare, in turn, the right and left forelimbs of a crab, then the appendages of a crab to those of a lobster, and then the results from the crab-lobster comparison to those from a man-horse comparison. With interests thus spanning the essential nature of systems from physics to psychology, and by indicating how to sequentially expand the ranges of comparative generalizations, Bateson, according to our thesis, was seeking a science of pattern, in other words, a science of metapatterns.

At least once, Bateson explicitly indicated that a broad new science was possible. He wrote (Bateson, 1979, p. 93):

It is the Platonic thesis of [this] book that epistemology is an indivisible, integrated meta-science whose subject matter is the world of evolution, thought, adaptation, embryology, and genetics – the science of mind in the widest sense of the word.

His use of the word epistemology is non-standard, because it is usually restricted to the study of knowledge. As is well known by Bateson aficionados, Bateson saw "knowledge" as extending beyond its usual meaning, and perhaps, as the current field of systems biology increasingly becomes the study of biochemical signaling networks and transfers of information, Bateson's usage will prove prescient. But, here we wish only to focus on and support Bateson's general idea that there is an integrated meta-science worth investigating.

Bateson was in many ways an enigma. His writings were often unsupported by the usual academic references, and his logical leaps and out-of-the-blue assertions can leave a reader exasperated while at the same time in awe at the possibilities laid forth. Consider the use of the term metapattern in only a single paragraph from a man whose quest was obviously totally involved with metapatterns, and the idiosyncratic definition of epistemology as a meta-science that included genetics. Nevertheless, Bateson did, as we will suggest, lay down a foundation for a science of metapatterns.

In this paper, we employ the term metapattern, following Volk's (1995) expansion on Bateson's term, to refer to a pattern whose generality derives from a universal function that often applies to scales across biology, culture, and cognition. Metapatterns, we propose, are the "objects" or principles of a Batesonian meta-science. We will show how Bateson sought such a science, even when not actually using the term metapattern or without even directly referring to such a science, specifically by reviewing his work on

what we will call “binary systems.” We will then discuss the basis for metapatterns as convergences across biological and cultural evolution, and their application for studies in the humanities and for education. We will conclude by offering some directions for the future development of the science.

Bateson’s great pattern: two-part systems

One clear example in which to see how Bateson’s approach can serve as a foundation for a science of metapatterns comes from his book chapter called “Multiple versions of the world” (Bateson, 1979). That chapter looked at the metapattern of the minimal relationship necessary to form a higher order system, in other words, what we prefer to call a *binary*. Here is a brief summary of Bateson’s examples.

- (1) *The case of difference.* As the 0’s and 1’s in the electronic codes of computers show, “it takes at least two somethings to create a difference.” Thus, anywhere that difference could be useful to some system, in the most general sense, two is the minimal number of parts necessary to generate it.
- (2) *The case of binocular vision.* Two forward-aimed eyes of mammals can focus on the same object, but because they provide different angles of view upon that object, the two eyes function as a system to create depth perception for the animal.
- (3) *The case of the Pluto.* The discovery of the astronomical object Pluto (we dare not anymore call it a planet!) depended on at least two pictures from the same region of the night sky, which astronomers then compared to discern Pluto as the sole object that changed position relative to the other fixed stars.
- (4) *The case of synaptic summation.* A single nerve cell requires at least two other nerve cells feeding signals into it in order to make it fire.
- (5) *The case of the hallucinated dagger.* In Shakespeare’s play *Macbeth*, Macbeth questions the veracity of a dagger that he sees before him, because his hands cannot simultaneously grasp it. Macbeth not only required that at least two senses give the same result in order to believe his perception, but he was able to consciously ruminate on the fact that his two senses – sight and touch, in this case – contradicted each other.
- (6) *The case of synonymous languages.* A number of proofs in mathematics can be given algebraically or geometrically, for example, in the demonstration that $a^2 + b^2 = c^2$. The learner gains a more profound understanding by seeing a proof reached by two different modes of analysis, because the proof is then truly independent of the mode.
- (7) *The case of the two sexes.* Sexual reproduction using two sexes is the minimal way of mixing the genes to ensure genetic variation in the offspring of the parents. Most biologists now believe that this mixing confers a key advantage to sexual organisms, namely, that more variable offspring are better protected from fast-evolving parasites.
- (8) *The case of beats and moiré phenomena.* Musicians who manually tune a string instrument, such as a guitar, can use the slow oscillating beats generated by the difference between two nearly identical notes. Moiré patterns are a type of visual illusion generated when two similar patterns are juxtaposed, such as two

window screens. Bateson offered the intriguing suggestion that these binary phenomena might be analogous to a brain's creation of time through memory or an organism's testing of a new ecological niche by contrasting it to a former, known one.

- (9) *The case of "description," "tautology," and "explanation."* An explanation, according to Bateson, is achieved by mapping a mere description of a phenomenon onto a tautology, which is a set of rules about parts and relationships that have already been separately established to be a valid dynamical system of such parts and relationships. Thus, explanation is born from the combination of new description and old tautology.

Bateson claimed that these examples showed an overall theme of "combination," which he called a "great pattern" (Bateson, 1979, p. 71). Another word to describe this pattern is the binary system (Volk, 1995). Whatever word is used, it is clear that the binary as minimal system to generate a new level of organization does span across biological and cognitive contexts.

Bateson's examples 2 and 7, for instance, occur in biological systems, and presumably came into being through the process of evolution because of the fact that both binocular vision and sex gave survival advantages to the species that bore those patterns.

Depth perception requires a minimum of two eyes, and sexual mixing of genes requires a minimum of two sexes. In both these cases, the big leap in organization comes in going from one to two. More than two eyes would not add anything new to the depth perception. Yes, spiders do possess multiple eyes, but not for creating depth perception. Were mammals to add another forward-facing eye, there would be some improvement in depth perception from the additional viewpoint, but the big step that produced the new functional effect of depth perception came from having two rather than one. Going from two to three would only be an incremental improvement and not a qualitatively new level of function.

The general function of binary is similar with sex. Having three or more sexes rather than just two would provide some additional mixing of genes, but the big functional step came in the change from clonal reproduction with no mixing to two sexes with mixing. The complicated genetic dynamics of fungi that possess more than two mating types notwithstanding, it a pair of parents that creates a genetically new organism and that is what the vast majority of the world's sexual organisms use. In other words, the minimal number of parts – two – to achieve a new functional characteristic is the pattern that was fixed by biological evolution.

Example 5, with Macbeth, is both a biological and a metacognitive binary. Examples 1, 3, 6, and 9 are binary systems in human thinking, with number 1 being general enough to apply to computer machine language. (Though example 4, with synaptic summation, is logically true, we are not sure if it has relevance to the brain, because most nerve cells receive signals from tens to hundreds of other nerve cells.) After the examples, Bateson pointed out that:

The aggregate is greater than the sum of its parts because the combining of the parts is not a simple adding, but is of the nature of a multiplication or fractionation, or the creation of a logical product.

He was trying different words to get at the point that the binary combination is not a mere addition, not a mere linking of parts, but a new level of logical type (we suggest the term “functional type”) that is generated when the two parts work together to form a single system, which, in Bateson’s cases, generates depth perception, computer code, gene mixing, discovery of planets, verification of sensed reality, explanations, and various other forms of understanding.

Thus, in his analysis of the great pattern of combination, Bateson pointed out a pattern whose universal characteristics apply across various scales of phenomena. He did not specifically use the term metapattern in his examples of the binary combination, but clearly the pattern fits the term. Twoness as the minimal system that functionally combines parts to form a high-order entity with new characteristics is a very widespread pattern of patterns. The binary could be considered one elemental pattern in a meta-science of metapatterns. Space prevents us from reviewing other examples of binary, but see Volk (1995).

Further potential metapatterns from Bateson

The binary was not the only pattern pointed out by Bateson that could be called a metapattern. We here list a few of these without discussing their varying degrees of validity but only to demonstrate the common theme of the metapattern that coursed throughout much of Bateson’s own extensive analysis. In Bateson (1979), he offered the metapatterns of form-and-process, and calibration-and-feedback. Bateson and Bateson (1987) discussed a pattern they called the “syllogism in grass,” which used the following logic: grass dies, men die, therefore men are grass. They suggested that this type of syllogism could be the logic of religion, poetry, and the pre-linguistic biologic world. Continuing, Bateson in numerous places cited the concept of feedback in cybernetic systems, and Bateson (1972) explicitly noted three great cybernetic, homeostatic systems: the individual, society, and the ecosystem, an analysis that in many ways preceded similar attention to the metapattern of the complex adaptive system so dear to those involved in what, after Bateson’s death, became known as complexity science (Waldrop, 1992; Johnson, 2001).

Two metapatterns developed further by Volk (1995) were important to Bateson: the cycle as a pattern of both ecosystems and minds, and the arrow, which Bateson pointed out was cognitive pattern inherent in “conscious purpose,” and which was often in conflict with the true, cyclic nature of minds (Bateson, 1972, pp. 440-7). Bateson was also interested in the transfer of large-scale patterns from one realm to another. For instance, he wrote that “Consciousness and the ‘self’ are closely related ideas, but the ideas (possibly related to genotypically premises of territory) are crystallized by that more or less arbitrary line which delimits the individual and defines a logical difference between ‘reward’ and ‘punishment.’” (Bateson, 1972, p. 442). Here, Bateson indicated that the mental pattern of the self might be related to the more ancient biological pattern of animal territory, both examples of the metapattern of the border (described by Volk, 1995). This transference of pattern from the physical or biological realm to the more abstract realm of concepts is the key theme of cognitive linguists who work with the deep structure of metaphors (Lakoff and Johnson, 2003), another marvel of the mind to which Bateson paid significant attention.

How metapatterns come into being

Bateson emphasized the importance of stochastic systems, which he defined as a sequence of events that “combines a random component with a selective process so that only certain outcomes of the random are allowed to endure” (Bateson and Bateson, 1987, glossary). He saw that such a system was not confined to the example of biological evolution, but was itself a kind of metapattern that applies to other scales as well. For example, mental processes, such as thinking, can be stochastic (Bateson and Bateson, 1987, Chapter 2; Bickhard and Campbell, 2003).

Daniel Dennett (1995) noted that a general “algorithm” for evolution can apply to both the realms of biology and culture. This is certainly true. By means of the algorithm’s components of replication, variation, and selection, it generates great blue herons, mosquitoes, gorillas, and *Pseudomonas* bacteria in its biological manifestation, and automobiles, symphonies, and publishing genres in the cultural and cognitive manifestations of the algorithm. Blackmore (1999), among others, developed this second manifestation into a theory of cultural and mental “memes,” for comparison and contrast to biological genes. Thus, Gregory Bateson was a forerunner in this field of universal evolutionary analysis.

Though Bateson did not use, as far as we know, the term “convergence,” we submit that this concept will be crucial in providing the explanatory mechanism for the existence of metapatterns. Convergence in biological evolution occurs when two or more lineages of organisms arrive at the same solution through independent phylogenetic pathways. Thus, the wings of birds, bats, and butterflies are all flat not because these creatures shared a common ancestor that had flat wings, but because they independently evolved similar engineering solutions to the challenge of achieving airborne lift, which required large surfaces to be in contact with the air. Examples of biological convergences span from functional biochemical molecules used by organisms to their social behaviors. The number of examples is huge (Conway, 2004), with new instances constantly appearing in the literature.

Because the evolutionary algorithm (or Bateson’s metapattern of a stochastic system) appears on several levels, from biology to culture (following Bateson, one might want to include “thought” as a level to itself, and not just lump it into the category of “culture”), it seems reasonable that the great meta-realm made up of all stochastic systems could exhibit convergences within it. Thus, there will be functional patterns that are similar in biology, culture, and cognition – for example, the binary. Such convergences would be the objects of a science of metapatterns.

Metapatterns in the humanities and social sciences

Consequently, convergences that exhibit fundamental functional patterns that occur many times would be expected in the pattern-generating disciplines of the social sciences and the humanities, and evaluating their metapatterns could have serious implications for all fields within them. Binaries, for one, are particularly evident. From the classroom to the news, and to our daily experiences we are confronted with social, political, religious, and psychological binaries. Binary classifications such as majority/minority, rural/urban, rich/poor, young/elderly, straight/gay, traditional/modern, educated/undereducated, liberal/conservative, right-wing/left-wing, Christian/non-Christian, mainstream/fundamentalist, spiritual/material, nature/nurture,

anxiety/depression, conscious/unconscious, have become embedded in our language and greatly influence the ways we perceive the world and ourselves.

On the one hand, these binary classifications can be indispensable for celebrating human diversity and identity, while on the other, they can lead to the rigid mind that abhors ambiguity and result in stereotypes, prejudice, discrimination, and exclusion. As Zerubaval (1993) pointed out, people compartmentalize reality into discrete mental boxes, “islands of meaning,” in which they classify, categorize, and label themselves and each other. The fact that “two” is the minimal classification that generates a system of discourse is the likely reason why binary is so prevalent. Because the binary classification is often one of inclusion and exclusion, it is closely related to the metapattern of the border already noted. These “great patterns,” using Bateson’s term, not only reveal the ways that people relate to their large society, but they also have consequences for the ways that people think about themselves, as for example, in Bateson’s analysis of conflict between the arrow metapattern of conscious purpose and the cybernetic, cycle metapattern of ecological and cognitive systems.

When we examine some of the other major influences and forces which shape society, such as globalization, population and economic trends, social movements, environmental concerns, political and religious ideologies, and technological developments, we discover other great patterns that deserve recognition as metapatterns, which have relevance for our understanding of culture and society. One such pattern is the organizational center (Volk, 1995; Bloom, 2006). Interestingly, thinkers who have dealt with the great pattern of binary have also noted the center. Levi-Strauss (1973) and Derrida (1973), for example, stressed the roles of both binaries and centers in the cognitive aspect of pattern-making. Using mythology and philosophy, both Levi-Strauss and Derrida essentially argued that binaries and centers function in the way we perceive and organize the data of the universe. Likewise, Shils (1975) proposed the binary classification of “center-periphery” as being fundamental to understanding society. According to Greenfeld and Martin (1988), the center carries a twofold meaning when used as a concept. First, it is a synonym for “central value system,” referring to irreducible values and beliefs that establish the identity of individuals and bind them into a common universe. Secondly, the center refers to “central institutional system,” the authoritative institutions and persons who often express or embody the central value system. Both meanings imply a corresponding idea of “periphery,” referring both to the elements of society that need to be integrated and to institutions and persons who lack authority.

Aside from the metapatterns mentioned above, Simon (1973) and others (Chase, 1980; Gurrslin and Richards, 1988) examined the various structures and characteristics of social hierarchies, some of which have been analyzed mathematically to reveal a common pattern of power-law networks (Barabási, 2003). Gebser (1986) also identified a number of social and cultural patterns of space and time. Lamont and Molnár (2002) discussed how the concept of boundaries, already noted as the metapattern of borders, has been at the “center” of influential research agendas in anthropology, history, political science, social psychology, and sociology. Although there has been on-going research on patterns in the social sciences and humanities, the essential problem is that this research has been somewhat disjointed in that it lacks a shared theoretical and methodological approach, which can pull it together into a coherent body of knowledge. We propose that a science of metapatterns could offer such an approach.

Metapatterns in education

Bateson was interested in the application of his ideas to learning and education, as evidenced in his discussion of “deutero-learning” (learning to learn) and other educational issues (Bateson, 1972, 1979; Bateson and Donaldson, 1991). For Bateson, learning was grounded in cybernetic cycles of feedback (i.e. recursive feedback loops), as well as in his unique notion of epistemology and emphasis on “differences that make a difference.” In contrast to the standard philosophical notion of epistemology already noted, Bateson’s epistemology was dynamic (Harries-Jones, 1995). He was concerned with the processes of knowing and of decision-making about how we view the world, where “. . . epistemology is that science whose subject matter is itself” (Bateson and Donaldson, 1991, p. 231). From this point, Bateson contended that “epistemology is the great bridge between all branches of the world of experience – intellectual, emotion, observational, theoretical, verbal, and wordless. Knowledge, wisdom, art, religion, sport, and science are bridged from the stance of epistemology. . . . Epistemology is inductive and experimental, and like any true science, it is deductive and, above all, abductive, seeking to put side by side similar chunks of phenomena” (Bateson and Donaldson, 1991, p. 232). From this perspective, we can see that his concern for learning permeated much of his work, and that his definition of abduction is closely related to the quest for metapatterns.

Bateson’s view of epistemology as a dynamic process of knowing is key to applying a “science of metapatterns” to the field of education, which will involve an active process of inquiry and of making sense of phenomena. Whether conducting formal research as a scholar of education or practicing as a teacher, the same pattern of learning as epistemological inquiry and sense-making is central. This view of learning begins by examining some topic or phenomenon in recursively greater detail and depth. At the same time, the student, teacher, or researcher can begin to develop abstractions (e.g. explanatory models and principles, etc.), while recursively “testing” these explanatory models and principles to other contexts, along the lines of Bateson’s concept of abduction. Such a model of learning results in more complex and interconnected understandings across science, mathematics, art, literature, social sciences, and all aspects of culture that even include craft skills and sports.

We propose that the “subject matter” focus of such a model of learning could be greatly enhanced by a science of metapatterns and related concepts that share with metapatterns the sense of applicability and meaning across contexts. In other words, if a researcher or child were inquiring into some specific cycle, whether biological, cultural, or cognitive, that person may uncover specific functional characteristics of the cycle. At the same time, this information can be used to begin to develop explanatory models of this cycle, while recursively testing this model on cycles in other contexts. As this testing proceeds, differences among cycles are found, along with certain functional similarities. The recursive process continues with further investigations of cycles in other contexts and the development of additional explanatory models. As the process progresses, two basic types of explanatory models are developed:

- (1) context specific models; and
- (2) generalized models.

It is at the most generalized scale where one would expect to find metapatterns-based explanations, and these can interact with the more context-specific models in a

situation of dynamical learning, which seeks to foster the active inquiry across a range of nested contexts.

A focus on metapatterns as subject matter provides opportunities for complex learning. The major concepts in most, if not all, subject matter disciplines involve one of the metapatterns or an interactive set of metapatterns (Bloom, 2006). Because metapatterns share fundamental functional meanings across contexts and subject matter disciplines, the learning that results in a Batesonian, dynamic epistemology is one with inherent connectedness across contexts. Not only is learning more complexly interconnected, but the entire process of learning as a recursive process of inquiring into depth, abducting across contexts, and generating abstractions is one that could better facilitate the transfer of learning. At this point in time, little or no evidence for “transfer of learning” exists beyond the simplest levels. From an educational point of view, a science of metapatterns could provide for not only more complex learning, but also higher degrees of transfer across levels, contexts, and subject matter disciplines.

Conclusion: the future of the meta-science of metapatterns

Following the initial steps laid down by Gregory Bateson throughout his writings, and from the analysis above, the basis for a science of metapatterns might start with the following concept: functional patterns that confer advantages on the systems that possess them can converge, in a meta-realm that includes all of what Bateson called stochastic sequences, namely, in biological, cultural, and cognitive realms. The convergences are common solutions to the same functional problems that span a wide variety of systems. For example, as Bateson showed, binary is the minimal solution to the problem of gaining new characteristics by combining parts in a larger whole. Other general principles in the organization of systems, discussed here using the terms borders, arrows, cycles, centers, and networks constitute members of a set of metapatterns, which serve as the objects in a Batesonian metascience.

One future task for the science of metapatterns is to survey the realm of all evolutionary systems noted above for more patterns, for example, some of Bateson’s other patterns or the additional ones in Volk (1995) and Bloom (2006). There is also a need to formalize the means to identify new metapatterns. Furthermore, because mathematics is already a kind of meta-science that uses scale-independent patterns, we suggest that a complementary binary might someday be formed by combining the mathematics from such disciplines as complexity theory and classical control-theory cybernetics with the more qualitative, topological, and functional approach of metapatterns. We leave the issue for the future, having concentrated here on:

- what Gregory Bateson, no stranger to mathematics and himself a pioneer at the original conferences on cybernetics, wrote about several functional, descriptive metapatterns; and
- our views about additional metapatterns and some sense of the scope of their applications.

Wilson (1998), in his book *Consilience*, envisioned a unification of knowledge across disciplines by seamlessly joining the phenomena of one discipline, say organism biology, with those of others, say molecular biology below and ecology above. We suggest that *Consilience* will require even more than uniting disciplines at their boundaries. It is possible that the project to fill out Wilson’s vision will recognize

objects and processes akin to the metapatterns discussed here, which, as functional, scale-transcending principles seem to stand outside the specific disciplines. Metapatterns might be considered the discipline-independent rules of functional forms.

Toward a science
of metapatterns

Finally, one of Bateson's favorite concepts was the "ecology of mind." He envisioned mental activity as a kind of ecosystem, and an ecosystem as a kind of mental activity. Within these two "ecologies," parts exist in relationships that go beyond, to some extent, the specifics of each type of ecology. We hope that Bateson would have been agreeable to a suggestion that a science of metapatterns will be ecology-like, in consisting of complex relationships of functional patterns in a dynamic logic, still to be elucidated, in which patterns form the subsystems within the larger whole of all of epistemology. There is work to be done.

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References

- Barabási, A-L. (2003), *Linked*, Plume, Cambridge: MA.
- Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.
- Bateson, G. (1979), *Mind and Nature: A Necessary Unity*, Dutton, New York, NY.
- Bateson, G. and Bateson, M.C. (1987), *Angel's Fear: Towards an Epistemology of the Sacred*, Macmillan, New York, NY.
- Bateson, G. and Donaldson, R.E. (Eds) (1991), *Sacred Unity: Further Steps to an Ecology of Mind*, Harper San Francisco, San Francisco, CA.
- Bickhard, M. and Campbell, D.T. (2003), "Variations in variation and selection: the ubiquity of the variation-and-selective-retention ratchet in emergent organizational complexity", *Foundations of Science.*, Vol. 8, pp. 215-82.
- Blackmore, S. (1999), *The Meme Machine*, Oxford University Press, Oxford.
- Bloom, J. (2006), *Creating a Classroom Community of Young Scientists*, 2nd ed., Routledge, New York, NY.
- Chase, I. (1980), "Social process and hierarchy formation in small groups", *American Sociological Review*, Vol. 45, pp. 905-24.
- Conway, M.S. (2004), *Life's Solution*, Cambridge University Press, Cambridge.
- Dennett, D. (1995), *Darwin's Dangerous Idea: Evolution and the Meanings of Life*, Simon & Schuster, New York, NY.
- Derrida, J. (1973), *Sign and Phenomenon*, Northwestern University Press, Evanston, IL.
- Gebser, J. (1986), *The Ever-Present Origin*, Ohio University Press, Athens, OH.
- Greenfeld, L. and Martin, M. (Eds) (1988), *Center: Ideas and Institutions*, University of Chicago Press, Chicago, IL.
- Gurrslin, O. and Richards, J. (1988), "On the universality and necessity of social hierarchies", *Proceedings of the West Virginia Academy of Sciences, 62nd Annual Meeting*, Vol. 62, pp. 89-95.
- Harries-Jones, P. (1995), *A Recursive Vision: Ecological Understanding and Gregory Bateson*, University of Toronto Press, Toronto.
- Johnson, S. (2001), *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*, Scribner, New York, NY.
- Lakoff, G. and Johnson, M. (2003), *Metaphors We Live By*, 2nd ed., University of Chicago Press, Chicago, IL.

- Lamont, M. and Molnár, V. (2002), "The study of boundaries in the social sciences", *Annual Review of Sociology*, Vol. 28, pp. 167-95.
- Levi-Strauss, C. (1973), *The Raw and the Cooked*, Cape Books, London.
- Shils, E. (1975), *Center and Periphery: Essays in Macrosociology*, University of Chicago Press, Chicago, IL.
- Simon, H. (1973), "The organization of complex systems", in Porter, H. (Ed.), *Hierarchy Theory: The Challenge of Complex Systems*, George Braziller, New York, NY, pp. 1-28.
- Volk, T. (1995), *Metapatterns Across Space, Time, and Mind*, Columbia University Press, New York, NY.
- Waldrop, M. (1992), *Complexity: The Emerging Science at the Edge of Order and Chaos*, Simon & Schuster, New York, NY.
- Wilson, E.O. (1998), *Consilience: The Unity of Knowledge*, Knopf, New York, NY.
- Zerubaval, E. (1993), *The Fine Line: Making Distinctions in Everyday Life*, University of Chicago Press, Chicago, IL.

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Choreography: a pattern language

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Choreography:
a pattern
language

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Abstract

Purpose – This paper aims to outline recent developments in the field of choreography, especially focusing on the influence of Gregory Bateson’s ideas. Choreography is progressing towards a form of art that not only deals with the creation and manipulation of systems of rules, but does so in a non-deterministic, open way. The author argues that if the world is approached as a reality constructed of interactions, relationships, constellations and proportionalities and choreography is seen as the aesthetic, creative practice of setting those relations – or setting the conditions for those relations – to emerge.

Design/methodology/approach – Based on ten years practical research and artistic creations, the author introduces choreography as the creative act of ordering, outlining the shift and developments in this field by introducing ideas of system theory and cybernetics, especially as described by Gregory Bateson.

Findings – Choreography has become a metaphor for dynamic constellations of any kind, consciously choreographed or not, self-organising or artificially constructed. It has become a metaphor for order, embodied by self-organising systems as observed in the biological world or superimposed by a human creator. The choreographer deals with patterns and frameworks within the context of an existing, larger, ongoing choreography of physical, mental, and social structures. As an aesthetics of change, the discipline of choreography can be applied to enquire into the dance of life, merging observation, theoretical writing and philosophy with practical rigor and personal expression.

Practical implications – Choreographic knowledge gained in the field of dance or harvested from perceived patterns in nature should be transferable to other realms of human knowledge production, providing a new aesthetic sensibility in the act of creation.

Originality/value – This essay delineates choreography as a new aesthetics, the one of change.

Keywords Cybernetics, Arts, Psychology, Brain

Paper type Conceptual paper

Choreograph (v.): bodies in time and space

Choreograph (v.): act of arranging relations between bodies in time and space

Choreography (v.): act of framing relations between bodies . . . “a way of seeing the world”

Choreography (n.): result of any of these actions

Choreography (n.): a dynamic constellation of any kind, consciously created or not, self-organising or super-imposed.

Choreography (n.): order observed. . . exchange of forces. . . a process that has an observable or observed embodied order

Choreograph (v.): act of witnessing such an order

Choreography (v.): act of interfering with or negotiating such an order (Text: Jeffrey Gormly/Michael Klien).



Introduction

Introducing systems theory and cybernetic knowledge to the creative act of ordering, the process as well as the resulting work are transformed, shifting the notion of choreography towards a form of art that not only deals with the creation and manipulation of systems of rules, but does so in a non-deterministic, open way.

Choreography, as the arrangement of movement in time and space, is opening a discourse on order and movement. What is order? How is it achieved? What is movement? The (human) body as such is not necessarily the focus of such choreographic inquiry. System theory, cybernetics, information theory, energy flow and mind dynamics, such as outlined by Gregory Bateson, become relevant and indispensable fields for choreographic theory and practice. The term's open denotation has also led choreography to be considered as a metaphor for dynamic constellations of any kind, consciously created or not, self-organising or superimposed. It can become a metaphor for order observed in biological systems, for exchange of forces in the world of physics and the interaction of elements in the world of chemistry; a metaphor for a process with an observable or observed embodied order, no longer exclusively in need of a human creator, existing only for us to witness and/or interfere with. Choreography is emerging as a way of seeing the world; a world full of interaction, relationships, constellations, dependencies, arrangements and proportionalities.

At this order (. . .), conversations, human sexuality, family dinners, and international conflict are organized according to the rules of choreography that govern (i.e., pattern) their interactional themes (Keeney, 1983).

Choreographic practice

My work, as an artist, has focused on a paradigm shift in thinking about choreography by redefining it as an emerging aesthetics concerned with the workings and governance of patterns, dynamics and ecologies. Choreography has been proposed as a "pattern language" an emerging, autonomous aesthetic discipline, the findings of which can be applied to other spheres of human endeavours, such as the social realm. For the past ten years, fellow artists[1] and myself have been working towards the formulation of this "aesthetics of change". During this period, we have considerably redeveloped the conventional concepts of choreography, opening up the discipline to other fields of human knowledge. Integral to this development have been the writings of Gregory Bateson, or more over, his way of seeing the world. Bateson's ideas, coupled with developments in contemporary art, present a fundamental shift in thinking about choreography: away from the act of structuring and arranging information in time and space, superimposing order onto a seemingly inactive and passive world, towards a recognition of interconnectedness: the creative act of setting the conditions for things to happen, the choreographer as the navigator, negotiator and architect of a fluid environment that he/she himself/herself is part of. I suggest that Bateson's descriptions, insights and readings of nature form the basis for choreography to emerge as an aesthetics of change. It is difficult to trace or pinpoint Bateson's influence on this process, but his ideas have constantly been inspiring and challenging, providing long-lost bridges between the worlds of numbers, straight lines, cause-and-effect and the worlds of poetry, dreams, quantities and recursivity, thereby manifesting a more substantive and richer world of patterns. Reading Bateson harnesses a new way of thinking, and although the processes of research and development in our field will not always relate to Bateson's ideas directly, the underlying patterns of thought are very similar. Once absorbed his timeless and thorough interpretation of nature effortlessly destabilises established frameworks running throughout human civilisation. His observations expose exploitative

world-views, ignorance and compartmentalised linear thinking – much of which human creation is based upon. Once understanding Bateson, one can no longer speak of discreet realities, as reality is woven through and in between different speech and in between different modalities of presentation. Bateson's forms of double-description make apparent a reality that cannot be spoken about directly. His work lays bare a world of unfathomable complexity, a reality of relations not to be captured in the logic of language.

Traditional approaches to choreography are based on the idea of dance being “the use of energy in space and time” (Ellfeldt, 1974), suggesting that choreography is the arrangement of this energy in space and time. My work as a choreographer started out by subscribing to dominant ordering procedures, whereby A is followed by B, B by C, etc. Each work has a distinct beginning, middle and end, and all movement is (relatively) fixed within space and time. The way our society has choreographed dance has always been reflective of the larger phenomena of how we, as a society, deal with the unknown, the *unframeable*, the spiritual and the animal. Conventional choreography imposes rigid frames upon dance. It is the embodiment of cultural suppression of that what is not to be governed by subjective and collective will.

In the late 1990s, I became dissatisfied with the fixed nature of my work and I followed various leads, including Bateson's, to establish choreographic procedures of active ordering and steering that would be closer to the way nature works. “Duplex” – a *pas des deux* for Ballett Frankfurt[2] was created for dancers to play out a duet every time anew. A *pas de Deux*, that with the help of a computer software allowed to maintain its movement-proportionalities in terms of its compositional structure. I aimed to loosen up rigid compositional structures (such like a *Pas de Deux*), whilst maintaining a specific, overall Gestalt or form. The central question that arose was how to keep this overall Gestalt whilst keeping the substance, or the narrative of the piece – even in its abstract nature – quite fluid. “Duplex” tried to preserve immediacy and the moment of creation while at the same time providing a structural skeleton of relations for the whole piece not to fall apart. The dancers took instructions from screens around the stage that constantly provided them with information to be translated into movement. The script was running past them like a music score. It took about a year to get comfortable with this procedure but at the point of the premiere the reading-off and integration into performance was rather effortless. The complex and problematic elements were the lifts and physical contacts between the dancers because it required them to read it off and interpret the information the same way, otherwise it would cause confusion or create a certain conflict. It soon became apparent that these moments were actually the very interesting elements of *Duplex*. In this work, the dancers had to continuously *be* in the moment, forming strategies in regards to the other and in regards to exact timing and spacing; all of which required an active, present mind. Over and over situations arose that caused conflicts. These circumstances helped to developed little stories within the piece that were not preconceived and very much emerged in the moment. The work became most interesting when the dancers adapted the movement material to their own needs. “Duplex” allowed very personal elements to arise; the performers were not just “dancers” in a conventional sense but “real people” living their lives on stage, and because of the compositional methods applied, these elements became very vivid. Since, then, I am much more focused on collaborating with dancers as artists rather

than working with “bodies”. Conventional approaches to choreography often utilise dancers to create pattern that are not directly relevant to the individual (the dancer) forming the pattern. As I am aiming to work with the whole person, all the movement material within a work is generated out of his/her own processes such as his/her memory and his/her ability to learn and to forget. The final choreographies cannot be rehearsed because all processes of learning and creation are encoded within the choreographic (compositional) structure of the piece. Therefore, the piece, once it is set, can only be run once or twice a day, till it reaches a critical state through the various processes of individual learning and integration. At some stage, an overall compositional *Gestalt* arises that is stable enough to be performed as a *piece* in front of people. The challenge in such work is to work with the individuals as an artist, to bring their memories, experiences, physical knowledge, moods, etc into the creative process, giving space for such processes to be recalled and developed within the work. The choreographic framing has to happen for the whole individual – including their thoughts and memories. This leads to issues of “steering” and group-dynamics as the act of choreography takes political dimensions. The dancers are no longer “employed to perform” but they are taking part in “living on stage” negotiating their personal freedom and subjective reality within a larger group. The choreographer is no longer concerned with the creation of particular patterns or instances, but is providing conditions for things to happen. To remove the stage from this equation is really a small step from this particular approach, and choreography can be utilised as the creative act of composing fluid architectures of mental frames for living. The term “social choreography” has been emerging out of this work to replace the concept of “social engineering” moving the notion of steering and ordering a larger system away from mechanical thinking into the realm of creativity and aesthetics.

Perception and the subversive act of ordering

Creation and perception are tightly entangled. Coomaraswamy (1934) wrote that “art is to imitate nature in its manner of operation” suggesting that the artist utilises processes deductible from a reality as perceived by the subject to formulate structural methodologies, rather than simply imitating nature’s appearance. Compositional/creational tools are “learned” dynamics and processes, with some tools – such as repetition – having their basis in an observed biological world. The simple structural tool of “repetition” as commonly used by composers and choreographers, is deeply embodied in the repetitive cycles of day and night, ebb and flow and the calendar’s seasons. It is from our environment that we deduct our structural processes to employ them for our own means, whether to write music, choreograph dances or build nations. I am inclined to extend this statement to all forms of artificial human creation, hence from the construction of artefacts to the creations of tools, companies, contracts and conditions for the creators and their families to live-in. All perceived patterns that have been assimilated into our knowledge are recursively connected to all the patterns we have at our disposal for any conscious act of creation. It often seems that we are limited foremost not by imagination, but by perception and the lack of ability to integrate the perceived into our thought processes. Personally, I believe that the way we organise our pots and pans has a direct implication on the way we organise our children and our relationships in general. However, it is hardly

the pots that determine the order of our world directly, but a deeper, imprinted unconscious order, which governs humanity, society and the individual.

A crude reading of nature (hierarchical, compartmentalised-thinking, etc.) leads to a limited repertoire of patterns from which to create conditions for living, as people are set in, and by one another, in certain relations. The resulting creations, the artificial organisational constructs, are recursively validating each other, creating subtle balances – the very assumptions on which our collective reality is built upon. As long as in one’s perception of reality cause and effect is tightly linked and easily separable from its context, the only viable option for building physical and mental structures is to follow a linear path, whereby a substance of some sort is fixed within a compositional structure of beginning, middle and end. The resulting assumptions in turn form gaps and holes in the rhizome of relations, a kind of negative space that forms a mould for other structures to fill, thereby creating attractors or force fields in the fabric of relations. These, once over, cause ideas to develop into certain structural/relational patterns or shapes which recursively form the fluid matrix of life. Artificial constructs and creations are intertwined with organisational dynamics not part of conscious creation but bound into much wider processes of self-organisation, emergence, learning and evolution. To what degree human creation is no more than a myth subject to much larger forces at play remains unanswered. However, a notion of change subject to human consciousness clearly remains in one’s experience. To change the way things are done – the way things are – one must thrust a deeply subversive act into the existing language of patterning, introducing a new structural vocabulary to the fabric of relations. By utilising new compositional and organisational procedures, some of which might remain non-verbalised, the very assumption of reality is questioned in the larger system of artificial creation as the “idea-moulds” of *how things are* will change – and once more, a slightly re-configured reality might emerge through a recursive process carried through the larger system. Just like a virus can affect the whole system through the system’s ability to adjust to a newly found internal challenge, so new ways of patterning can and will generate major change in the overall system. However, newly discovered patterning procedures can only be found within the larger framework of which one is a part. This awareness should evoke a renaissance in the examination of the fundamental forces at work in nature, harnessing these forces by abstraction, adjusting and refining them, thereby introducing new elements, as well as changing the collective repertoire of ordering, structuring and hence creation.

Bateson’s manner

As outlined above, “(. . .) to imitate nature in its manner of operation” (Coomaraswamy, 1934), one has to cultivate a sensibility for exactly what this *manner* is. Gregory Bateson was able to harness a deeply developed sensibility for the interconnectedness and interdependence of living systems thereby enabling new ways of structuring, ordering and creating to emerge:

One of the interesting things that happens if you look at your hand and consider it not as a number of bananas at the end of a sort of a flexible stick but as a nest of relations out there (. . .) you will find that the object looks much prettier than you thought it looked. A part of the discovery of the beauty of the biological form is the discovery that in fact it is it put together of relations and not put together of parts. This means with a correction of our epistemology you might find the world was a great deal more beautiful than you thought that it was.

Or might let in that fact of its being beauty, in a way that you were able of keeping it out by thinking that the world was made up of parts and wholes. [...] Relations between relations and relations between relations' relations (sic.) (Bateson, 1979).

To live harmoniously within an ecological system, one must strive to perceive the deep structural processes from one's environment, harvest them, integrate and digest them, to make them part of one's mental processes and furthermore to apply them as structural tools in one's personal creations. Bateson's notion of "mind" provides a foundation for the perception of a world rich in patterns, of a choreographic fabric of life, of a world, which thinks and dances. Rather than looking at mind and matter as discreet substances, Bateson discusses "mind" according to a particular organisational process: the arrangement of matter. Patterns of organisation and relational symmetry evident in all living systems are indicative of this particular understanding of "mind". In Bateson's view, all of the following criteria have to be satisfied before a system can display phenomena like thought, evolution, life and learning; phenomena which are part of open or living systems:

- (1) A mind is an aggregate of interacting parts or components.
- (2) The interaction between parts of mind is triggered by difference, and difference is a non-substantial phenomenon not located in space or time; difference is related to negentropy and entropy rather than to energy.
- (3) Mental process requires collateral energy.
- (4) Mental process requires circular (or more complex) chains of determination.
- (5) In mental process, the effects of difference are to be regarded as transforms (i.e. coded versions) of events which preceded them. The rules of such transformation must be comparatively stable (i.e. more stable than the content) but are themselves subject to transformation.
- (6) The description and classification of the processes of transformation disclose a hierarchy of logical types immanent in the phenomena (Bateson, 2002).

These six points provide the foundation upon which an entirely new aesthetics can be built. They form a simple, but precise description, of how life holds together, forms bodies, ideas, even social systems. Bateson's thought manifests an awareness of a new reality, whereby a choreographer's act of creation can no longer blindly accept the boundaries of tradition and habit, but must instead, pursue patterns of thought in which relations form a mind. He or she must show a healthy disregard for distinctions generated by conventional modes of human thought and be prepared to re-organise reality around the manner in which nature works, in the form of "ecologies of mind". Bateson's world, once assimilated, shakes existing boundaries, distinctions, hierarchies, habits and ordering principles to the core. If we as human beings could manage to somehow integrate such sensitive knowledge into our work and life, new, more suitable patterns of living and consuming would emerge. Being closer to the way nature works, these new patterns would create less potential for conflict with the environment and most likely extend "the wave" called humanity.

Summary

Choreography has become a metaphor for dynamic constellations of any kind, consciously choreographed or not, self-organising or artificially constructed. It has become a metaphor for order, intrinsically embodied by self-organising systems as observed in the biological world or superimposed by a human creator. If the world is approached as a reality constructed of interactions, relationships, constellations and proportionalities and choreography is seen as the aesthetic practice of setting those relations – or setting the conditions for those relations to emerge – choreographic knowledge gained in the field of dance or harvested from perceived patterns in nature should be transferable to other realms of life. The choreographer, at the centre of his art, deals with patterns and frameworks within the context of an existing, larger, ongoing choreography of physical, mental, and social structures. As an aesthetics – a sensitive knowing – of change, the discipline of choreography can be applied to enquire into the dance of life, effortlessly merging observation, theoretical writing and philosophy with practical rigor and personal expression to create works of art. The stage becomes a laboratory, the laboratory a stage for the governing and steering of existing mind-dynamics and processes, whether physically expressed (such as the body or a flower) or not (such as evolution or learning). Applying the aesthetics of choreography as a purposeful, creative and proactive tool upon the surface of consciousness, proves a healthy disregard to virtual boundaries of human knowledge production which have arisen through habit or otherwise, transgressing through realms known as sociology, philosophy, psychology, religion, biology and history. This approach engages everyone's perception and knowledge of "how things move" inquiring if and how individuals can imaginatively order and re-order aspects of their personal, social, cultural and political life. It examines the role of the choreographer as possible agent of change within an ever-changing environment.

Afterthought

Last year, as I sat and prepared for a symposium on Choreography as an Aesthetics of Change, I tried to formulate a worldview that I had been thinking about. How everything is connected and organised according to certain patterns, patterns that constitute a mind . . . just as Bateson had described it. It became clear that to find sanity in this universal mind we first and foremost need to find an ecology within. Once we have developed a sensibility for all of that, we ought to find steps to such an ecology of mind – I was convinced, I had finally figured it all out whilst my eyes drifted to my left, focusing in on one of Bateson's books (*Steps to an Ecology of Mind*), recognising that I finally (might have) understood the title.

Notes

1. The core of this research has been taking place at Daghdha Dance Company (Limerick, from 2003 onwards), Ballett Frankfurt and Barriedale Operahouse (London, 1994-2000). Artists involved in the formulation of choreography as an aesthetics of change include Jeffrey Gormly, Michael Klien, Nicholas Mortimore, Davide Terlingo and Steve Valk amongst others.
2. "Duplex" has been produced by Ballett Frankfurt in 2001. Concept/Choreography: Michael Klien Music: Volkmar Klien; Programming: Nick Rothwell

References

- Bateson, G. (1979), *What is Epistemology?*, Audio Recording, Gregory Bateson Lecture, Big Sur Tapes, Esalen.
- Bateson, G. (2002), *Mind and Nature*, Hampton PR, Cresskill, NJ.
- Coomaraswamy, A. (1934), *The Transformation of Nature in Art*, Harvard University Press, Cambridge.
- Ellfeldt, L. (1974), *A Primer for Choreographers: An Introduction to Modern Dance Composition*, Dance Books, London.
- Keeney, B. (1983), *Aesthetics of Change*, Guildford Press, New York, NY.

Further reading

- Bateson, G. (2000), *Steps to an Ecology of Mind*, The University of Chicago Press, London.
- Bertalanffy, L. (1969), *General System Theory*, George Braziller Inc., New York, NY.

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How G. Bateson informs dogs

How G. Bateson
informs dogs

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Abstract

Purpose – To show how Bateson’s difference which makes a difference can be interpreted from a cybernetic view, i.e. in terms of control theory.

Design/methodology/approach – Depending on the observer’s choice of the system boundaries, communication or structural coupling may be recognized. With the help of Bateson’s example he uses to explain his term of information the paper demonstrates how the two perspectives can be related to each other and in which way his metalogical “hypothesis non fingo” reflects this refraction of perspectives.

Findings – Hypotheses describing structural coupling in the perspective of communication become explanations which then in circularity are verified by structural coupling. In his example Bateson describes a structural coupling between a dog owner and his dog in order to explain how he informs dogs.

Originality/value – Provides information on Bateson’s theory of explaining

Keywords Communication, Cybernetics, Structural analysis

Paper type Conceptual paper

A difference which makes a difference

Bateson defined the term information as a “difference which makes a difference”. But the meaning of this simple phrase is subject to as many interpretations as there are people who quote it. I would like to show that the phrase can be read in a cybernetic way, in a narrower sense of the word. I thereby presume that the phrase represents a linguistic shortcut, meaning that it is not a difference which makes a difference, but rather, that all differences are made by observers. And I shall show that “differences make a difference” is exactly what cyberneticists construct.

Bateson (1987, p. 126) uses the following example to illustrate his phrase: I can kick a dog – provided it is small enough – in such a way that I will send it flying through the air or I can kick it in such a way that it will run away. In both cases I will have kicked the dog and I will have got rid of it. If I kick the dog sending it flying through the air, it is my energy that moves the dog. If, on the other hand, I kick the dog only so that it runs away, the dog uses its own energy.

In the first case I am moving the dog, while in the second case I am “informing” the dog, i.e. I am activating or steering the dog’s energy with my own energy. If I kick the dog hard enough, the dog will not have to do anything to get away, it will fly through the air. If I do not kick the dog hard enough, the dog will still have to do something; it must use its own legs. The difference which makes the difference consists of whether I am kicking the dog hard or gently. This is a difference within my behaviour. And the difference I am making with this difference lies in whether the dog flies or runs away; but I can see a contingency in the second scenario which creates a lot of confusion: the dog could bite instead of running away.

The example of the dog being kicked is emotionally somewhat complicated. I could – in an initial emotional reaction – ask why Bateson kicks dogs. I could also come to realise that he does not kick dogs after all, but that he only discusses different ways



dogs can be kicked. The map is not the territory. Even if I do not get the map and the territory mixed up, I could ask why Bateson uses such a cruel example. I would, however, prefer to remain cool though, and only remind the reader that H. Manturana has described what frogs see when their view is distorted, in the real sense of the word, that is by invasive surgery to their eyes.

Bateson's story of the "informed dog" is only very rarely retold, although his difference theorem has become commonplace. I think there are not just dog-emotional reasons for that, but that it is rather because of Bateson is seldom being interpreted as a cybernetician. Although all the essential statements about cybernetics can be found in Bateson's writings, they are usually hidden in subordinate clauses or in footnotes. He normally elucidates his ideas with the help of illustrative examples. In the context of the story about the dog he also uses the image of billiard balls and guns, to explain this phenomenon, a "trick" which life apparently uses all the time, where one form of energy is used to regulate another form of energy.

In cybernetics this trick is described as a transistor or an amplifier. Cybernetic systems I generally call mechanisms with two energy circuits, whereby one form of energy is controlled by another one. The primary (regulated) energy equals functionally the purpose of the mechanism, and the regulating secondary energy serves in a regulatory unit. In a thermostat-controlled heating system for example, oil is transformed into heat in the primary energy circuit. In the secondary energy circuit, i.e. in the thermostat, there is an electricity flow regulating the primary energy circuit. A difference in the thermostat brings about a difference in the oil burner. The secondary energy does not produce any heat, just differences in the heating system. If Bateson kicks the dog gently enough, the dog will not be moved by the kick. In cybernetics the secondary energy is called "signal" and in everyday language we call it "information". A gentle kick "informs" the dog what Bateson would like him to do. In an intended case the dog then enables Bateson to reach his goal by providing its own (primary) energy. If it is big enough it can naturally bark or even bite instead of running away. In this case, in the colloquial sense, it will not have understood the information and in cybernetical terms it will not have reacted "trivially", i.e. like a machine. Cybernetic amplifiers make sense because they allow me to control strong energy by using weak energy and moreover, because I can with the help of little energy of my own make use of strong external energy. The expression amplifier, however, obscures the fact that the energy is not amplified but replaced by another one.

One could slightly "humanise" Bateson's example. If I tell my dog to leave my bed, thus informing him verbally, I will need a lot less energy – especially if it is big – than if I carry him from my bed to his own bed. In this scenario the example becomes more complicated of course, because I am replacing the ingeniously simple, binary distinction of kicking hard enough versus kicking not hard enough with complicated actions of behaviour like talking and carrying around.

Cybernetic systems

I will call cybernetic systems *mechanisms which are equipped with secondary energy circuits serving to control (feedback)*. Ashby described cybernetic mechanisms as immaterial, because they are only used to explain something. If I only want to explain why the room temperature remains the same, I do not actually have to construct the heating system itself maintaining this stability of room temperature. In this view

Bateson's dog which gets thrown through the air is immaterial too. However, the things I explain normally do take place in the physical world.

The book *Cybernetics* by N. Wiener has the subtitle *Control and Communication in the Animal and in the Machine*. I will, since H. Maturana has suggested this, speak of auto- and allopoietic machines instead of animals and machines. In allopoietic, i.e. constructed machines, the engineer will recognise a purpose. A heating system is made to heat. Autopoietic machines, i.e. living beings, on the other hand do not have a purpose. A dog is not made in order to be kicked in one way or another; a dog is not "made" at all. Because on a functional level no purpose can be observed in autopoietic systems, in everyday thinking the pseudo purpose of survival is often attributed to them. But of course, a living being does not live simply to survive. What is cybernetically regulated is not the survival but a primary energy. A heating system on the other hand will not "survive" if regulation of the heat is no longer possible.

According to W. Ashby cybernetic systems are closed with respect to information, i.e. information-proof, or in H. Maturana's words, operationally closed. "Control and communication" therefore, will always take place within the system. If I read Bateson from the cybernetical perspective I will have to consider the system boundaries of the communication processes he describes. With regards to the "informed" dog (by kicking), I can either observe Bateson as a system regulating his well-being or I can observe the system "Bateson and dog" regulating the optimum distance between its components. By doing this I am observing the same matter, but I am observing two different systems. As an observer I attribute different cybernetic goals to them in my projected introspection.

If I observe Bateson as the system, I will notice that he selects a way of behaviour in order to steer back to his goal state, which is disturbed by the presence of a dog.

A possible behaviour would be to get rid of the disturbance "dog" which in cybernetics would equal a change of the present state. Another possibility would be to learn to appreciate the dog, which would equal a change of the goal state. If Bateson wants to get rid of the dog, he can do that in either way he described. If the dog walks away, Bateson will revert back to his goal state of undisturbed well-being – until perhaps another dog or something even worse shows up. Therefore, this scenario is not about what the dog does and its reasons for doing it, but rather what is happening within the system Bateson; moreover, that Bateson as a system reacts to the perturbation in such a way that he can afterwards be undisturbed again. By his behaviour Bateson regulates his own perception. This is what W. Powers elaborated in his *Behaviour: The Control of Perceptions*. A difference in Bateson's behaviour will bring about a difference in his perception. If Bateson kicks the dog, he will afterwards no longer perceive it. In this view the dog exists only as a perception of Bateson because the real dog is situated outside the system Bateson and, therefore, is not perceived.

If I look at Bateson and the dog together as one system, I can conclude that Bateson regulates the dog's behaviour just like a thermostat controls the oil burner belonging to the same heating system. The equilibrium (dynamic balance) of this system can consist of the maintaining of a minimum distance being between Bateson and the dog, just a thermostat heating maintains a minimal temperature. This system is disturbed when the dog – for whatever reason, perhaps because it wants to be stroked or because it wants to bite – steps over the "minimum distance" line, which in turn causes Bateson

to “signal” to the dog to move away again. In this conceptualisation the focus is not on Bateson’s well-being but on the goal state of the system “Bateson and dog” where Bateson represents merely an active component. In a thermostat-controlled heating system it is not about whether the thermostat reaches its set point but whether the heating as a whole reaches its set point. The system “Bateson and dog” reacts in such a way that a minimum distance is ensured. As an observer I can interpret the goal state of the system as a cybernetic goal which the system strives to arrive at. Relatively early, in “Behaviour, purpose and teleology” N. Wiener made it explicit that cybernetic goals have nothing to do with teleology. In order to avoid confusions between intended and cybernetic goals I will use the word eigenvalue of a system when I mean its cybernetic goal.

Communication

From the cybernetic perspective I am speaking of communication specifically when a system uses its own signals to maintain its own equilibrium. With allopoietic machines this equilibrium is determined by the purpose of the machine, whereas in autopoietic machines it will depend on the various interpretations of the story and the situation. Therefore, it is difficult to tell whether a dog which has been kicked will bite or whether it will run away, unless one knows it very well.

As a cybernetician Bateson reasons – tautologically – exactly according to C. Shannon’s cybernetic theory of communication. He uses a sender-receiver-model. A difference within the sender will create a difference in the receiver, whereas the sender and the receiver according to cybernetics always and exclusively are signal modulators of the same system. In a thermostat-controlled heating system the thermostat sends a signal, while the oil burner is the receiver of the signal. And in certain respects the oil burner sends a signal in the form of warmth, which is picked up by the thermostat. I will call this mutual circular process communication, because it steers the system towards its eigenvalue. In the example of Bateson the kick represents the sending of a signal. By leaving, the dog in return changes the feedback signal, which then flows back into Bateson’s perception. Bateson and the dog are both senders and receivers of signals. The sender-receiver-model of C. Shannon describes the quantitative aspects of the communication process within a system. It focuses on the signal capacities and the probabilities of their distributions which can be mathematically calculated. Communication forms the constitutive process in cybernetic systems. It always stands for secondary differences which create primary differences.

If I observe the system “Bateson and dog” I am observing neither Bateson nor the dog as a system of their own, they are both part of the same system. As a result, from this perspective, even when the dog is the receiver of the signal sent by Bateson, there is no communication taking place between systems. Regulation and communication take place within the same system.

Following H. von Foerster I will refer to a mechanism of communication as trivial, if on the basis of a signal I am able to predict what is going to happen in a system.

Allopoietic machines are intended to function trivially, but by no means do they do that all the time, as technical problems show. Leaving technical problems aside, I am basically able to predict how an engineered machine will react to a certain signal, since the machine was constructed for exactly this purpose. The oil burner in my heating

system will start to heat every time it receives the corresponding signal from the thermostat. Sufficiently complicated systems such as computers for example very often surprise me, even when they do not have any technical problems, because I only understand in principle, how they function. The “triviality” of a system depends on my ability to predict its reactions, not on the mechanism of the observed system itself. Autopoietic systems surprise me more often, which is hardly surprising, because I might reasonably expect surprises. Very often though they too act in a trivial way, otherwise Bateson could not just kick the dog, if he wanted to get rid of him. In the concept of trivial reaction Bateson could view it as a technical problem if the dog bites him instead of running away; he could be surprised by the unpredictability of the dog, although autopoietic machines are in principle not predictable.

C. Shannon says that information (itself) does not have any meaning. The meaning of a signal lies in the interpretation assigned to the system. With allopoietic machines the constructor of the machine defines what the user will want to achieve with a certain signal. The engineer of an anti-blocking-system ABS, for example, interprets the signal which is triggered by stepping on the brake pedal as a wish to stop the vehicle as quickly as possible. But rally drivers sometimes press the brake pedal in order to block the wheels to make it easier getting round certain bends. In this case the intended meaning is not attributed to the signal, which is equivalent to the user not realising the purpose of the system. In an allopoietic sense the meaning of a signal is constructed, even in a case where I, as an outside observer, do not understand the machine. A computer acts exactly according to how it is constructed to act, naturally also in a case where it – in relation to the intended purpose – displays constructional faults. This is why Windows operated computers regularly collapse, something which cannot be distinguished from real technical breakdowns, because they do follow the program, as it is.

Autopoietic systems by contrast are not determined in this functional sense, because they do not have a purpose the determination could be directed to. On the structural level – as mechanisms – they too are determined, of course. The nervous system, for example, cannot change infinitely from any one condition to another.

Structural coupling

Of course I may also look at a dog as an autopoietic system. In this case I will observe him in a similar way as I observe Bateson. The dog controls his own perception by means of its behaviour. It will for example run away if it experiences kicks, which will result in it no longer experiencing any kicks. As an autopoietic system the dog has a contingent number of options of behaviour possibilities. It too will have to evaluate or learn which behaviour will help it to compensate perturbations.

If I observe Bateson and the dog simultaneously as two individual autopoietic systems, I may notice that their behaviour is structurally coupled to each other.

Every time Bateson seeks to re-establish his equilibrium with a kick, the dog tries to establish its equilibrium by running away. The structural coupling manifests itself in that both of them are only able to be successful with their behaviour if the other system acts accordingly. The structural coupling can only be observed from the outside. The operationally closed system itself is unaware of any structural coupling, because it can only perceive itself, but not its environment, or in other words, expressed in more cybernetical terms, because it only reacts to its own conditions, for example to different

conditions of their own retina. Therefore, both systems are unaware of this coupling; they are only aware of what is working.

I would like to explain the structural coupling using an ecological example. Plants for example, produce oxygen as a waste product of the metabolism of their autopoiesis, which in return is used by humans for their autopoiesis. Reversely, human beings produce nitrogen which is used by plants. But I do not produce nitrogen as an article of trade for plants, and plants already produced oxygen before there were any breathing beings able to use it. The system “human being” and the system “plant” are in this context indispensable for each other. But the reverse system is simply an existing environmental property which has not developed as a result of intention or coordination.

By structural coupling I therefore refer to processes I am locating in a space amongst systems and which, in a differently chosen system, could be described as communication. Structural coupling is an expression for individually observed systems; communication on the other hand, is – also etymologically – an expression of the mutual, or, of a unity of the difference within a system. Bateson and the dog can be seen as either part of the same system or as two different systems being structurally coupled.

The term “structural coupling” is part of the system theory of H. Maturana, who elaborates the necessity of a logical book-keeping with regards to the chosen perspectives (Maturana and Varela, 1992, p. 147). From the cybernetical perspective I will have to register whether I am talking about one system or about various systems. Doubling the perspectives makes me aware of each of the chosen perspectives. However, here we are not concerned with a question of a particular point of view, but rather with a systems theory-based method, according to which systems are viewed as operationally closed in order to win an additional perspective.

Explanations

Bateson and the dog as systems react to themselves. Now, in principle, both of them might question why the condition of their retina varies in accordance with their own behaviour. To perform this question H. Maturana tells us the story about a *kybernetes* (steersman) of a submarine, who successfully navigates his submarine – which he has never left – on the basis of eigenvalues which are represented in the instruments of the submarine, therefore, in blind-flight manoeuvre. From the outside world the *kybernetes* is offered an explanation. He is told that the conditions of his system (his eigenvalues) mirror the reality outside the ship. H. Maturana points out, that the *kybernetes* does not need this explanatory view from the outside and that he cannot examine it, he is only able to believe in it or to accept it. This kind of explanations, H. Maturana says, are therefore social relations.

Bateson could explain the relation between his kicking and his perceptions to himself with the hypothesis that there is a real dog out there who really runs away because of kicks. However, he offered another, a more cybernetical suggestion.

“Hypothesis non fingo”

Bateson wrote several “Metalogues” in which he talks to his daughter. They can be read as second order observations, as dialogues about dialogues, which reveal the cybernetic perspective. In one of the metalogues his daughter asks:

“Daddy, what is an instinct?” (Bateson, 1999, pp. 73-96). Bateson answers: “An instinct is an explanatory principle. Explanatory principles explain nothing; or they will explain just anything”. Explanatory principles are at the end of explanations which introduce hypotheses that cannot be examined.

For cybernetic explanations – this is what G. Bateson suggests in this metalogue – orientate to I. Newton’s postulate: “Hypothesis non fingo”. I will translate I. Newton’s phrase (which Bateson intentionally did not translate in the metalogue) – as: I do not fabricate strange explanations which in reality I do not want to examine after all. As a scientist I construct explanations which represent generative mechanism and, therefore, systems. By doing this I am making myself aware of what I am trying to explain and what I presuppose as facts in my explanations, when constructing the mechanism.

If, for example, the thermometer shows that my child’s temperature is 40° and I do not like that, I can give my child medication to lower the temperature as a compensating measure. An implicit hypothesis could be that this medication fights fever. But I am not testing this hypothesis; I am applying it as a fact (as in Latin *facere*), by giving the medication to my child. I will keep taking this measure if it leads to the goal state and I will replace it if it does not achieve it. If my child – because it has to take medication – stops to manipulate the thermometer, the temperature displayed on it will decrease without my child’s temperature getting lower. But I will continue with my measures of applying medication in this case as well, because it leads to the temperature on the thermometer getting lower. That the temperature on the thermometer should be related to the body temperature of my child and that the medication lowers fever are hypotheses which I do not have to make up, they are contingent, therefore not necessary but possible. It is crucial that I am neither investigating the hypothesis with my measurement nor that I am presupposing it. Cybernetically thinking I am only exploring whether a certain measure of compensation is viable with regards to a certain perturbation.

The coupling as an explanation

Bateson kicks the dog. By this measure he regulates his well-being. It is observable to him, whether he is able to compensate the perturbation in the form of a perceived dog by the means of a kick. This constitutes the hypothesis he subjects to a practical falsification attempt. Any further hypotheses, for example the hypothesis that the dog out there in the world really exists, he does not examine by that. But naturally, Bateson too can observe dog owners in his environment interacting with their dogs and the dogs’ resulting behaviour. He can, as an outside observer, construct a structural coupling between the observed systems and use it in order to explain the outcomes resulting from his own behaviour. In a kind of a re-entry he is therefore able to observe from the outside how he communicates as a dog owner with his own dog. He then uses the structural coupling he observes to model the interpretation of his own behaviour.

The communication process within the system Bateson produces an image into the system Bateson of him communicating with a system in his environment. In this representation, the dog, in the situation of a “communicative kick” appears to react to a message from the outside. Bateson is aware that there are no dogs which are able to do that. But it is a good thing anyway, that it is possible to inform dogs in this way.

Epilogue

I do read the implied cybernetics of Bateson as a theory of explaining. Every cybernetic explanation is based on differences which make a difference. By making different choices of the system, i.e. I can observe only Bateson or him and the dog, I try to become aware of the “fiction” meaning the constructed nature of my explanations. The choice of the system ostensible leads to whether I will perceive communication or structural coupling. The “doubled” choice of the system by which I understand communication and structural coupling as an entity of difference, qualifies my fiction. I would have to be a dog to know what it is like to be kicked by Bateson. But I do not have to be Bateson to make the differences he suggested.

References

- Bateson, G. (1987), *Geist und Natur. Eine notwendige Einheit*, Suhrkamp, Frankfurt.
- Bateson, G. (1999), *Ökologie des Geistes. Anthropologische, psychologische, biologische und epistemologische Perspektiven*, Suhrkamp, Frankfurt.
- Maturana, H.R. and Varela, F.J. (1992), *Der Baum der Erkenntnis. Die biologischen Wurzeln des menschlichen Erkennens*, Goldmann, München.

Appendix. Dmitry Fedotov (Russia) comments as the Batesonian interpretation

Fedotov's reply

I understand that my comment can appear not quite appropriate for I am Russian and the author (I guess) is a German and for both of us English is a foreign language. Nevertheless, I take the risk to assume that the author failed to recognize that “difference that makes a difference” is one more Bateson’s play on words and took literally what was meant as a sort of a joke.

Difference, being a “nonsubstantial phenomenon not located in space or time” (Bateson, *Mind and Nature*) cannot “make” anything. English “to make a difference” is an idiomatic construction which means “to be of importance” “to matter”. So “difference that makes a difference” is a “difference that matters”. Bateson points out that we are surrounded by countless differences, but only a very few of them really matter (the absolute majority of them simply do not exceed response threshold). In *Mind and Nature* Bateson explains this perfectly clear:

Kant argued long ago that this piece of chalk contains a million potential facts (*Tatsachen*) but that only a very few of these become truly facts by affecting the behaviour of entities capable of responding to facts. For Kant’s *Tatsachen*, I would substitute *differences* and point out that the number of *potential* differences in this chalk is infinite but that very few of them become *effective* differences (i.e. items of information) in the mental process of any larger entity. *Information* consists of differences that make a difference.

So “difference that makes a difference” is an effective difference, difference that matters and which triggers a chain of secondary, tertiary, etc. differences, that transforms (Batesonian term) the initial difference.

It is important to stress (as Bateson did many times) that this subsequent differences are exactly triggered (not “made”) by the initial difference. “Difference is a nonsubstantial phenomenon not located in space or time” and therefore can “make” nothing. The factual “maker” of the secondary difference is an active, responsive and energized substrate through which this difference (an elementary idea) travels.

As to “Bateson’s dog” yes this story is very famous and was told by Bateson many times. But I do not think this story was told (to illustrate “difference that makes a difference”) or that aim of Bateson’s kick was “to get rid of the dog” or “to regulate the optimum distance” between him and dog. The purpose of this story (or rather comparison of the situation when man kicks a dog with

the situation when one billiard ball hits another) was to clarify the difference between *Pleroma* and *Creatura* – world of nonliving matter and world of living organisms. In this respect the outcome when dog turns back and bites the one who kicked her (instead of following the vector of physical impulse like Newtonian body should) – is not at all a “surprise” but is exactly the positive goal of the demonstration.

Bateson was reiterating that speculations on dimensional physical variables like “distance” or “energy” can hardly be adequate to explain the behaviour of living systems. Specially this relates to “conservation of energy”. Indeed, according to Prigogine’s notion of “dissipative structures” life is nothing but one big waste of energy. Living systems are concerned with conservation of ideas, or more specifically “descriptive propositions”.

In another story Bateson told many times – the story of acrobat on a tight wire – this extremely energy-consuming activity is not concerned with regulating any physical variable, but with maintaining the ongoing truth of the descriptive proposition “I am a good acrobat and therefore I’m ON a tight wire, not under it”.

Quite in the same way the aim of the Bateson’s kick (with all it’s obvious energy-consuming consequences) was to maintain the ongoing truth of the descriptive proposition “I am a good epistemologist and therefore I know how to demonstrate *Pleroma–Creatura* difference very clearly”. And in this respect – paradoxically – it really served to “regulate Bateson’s well-being”.

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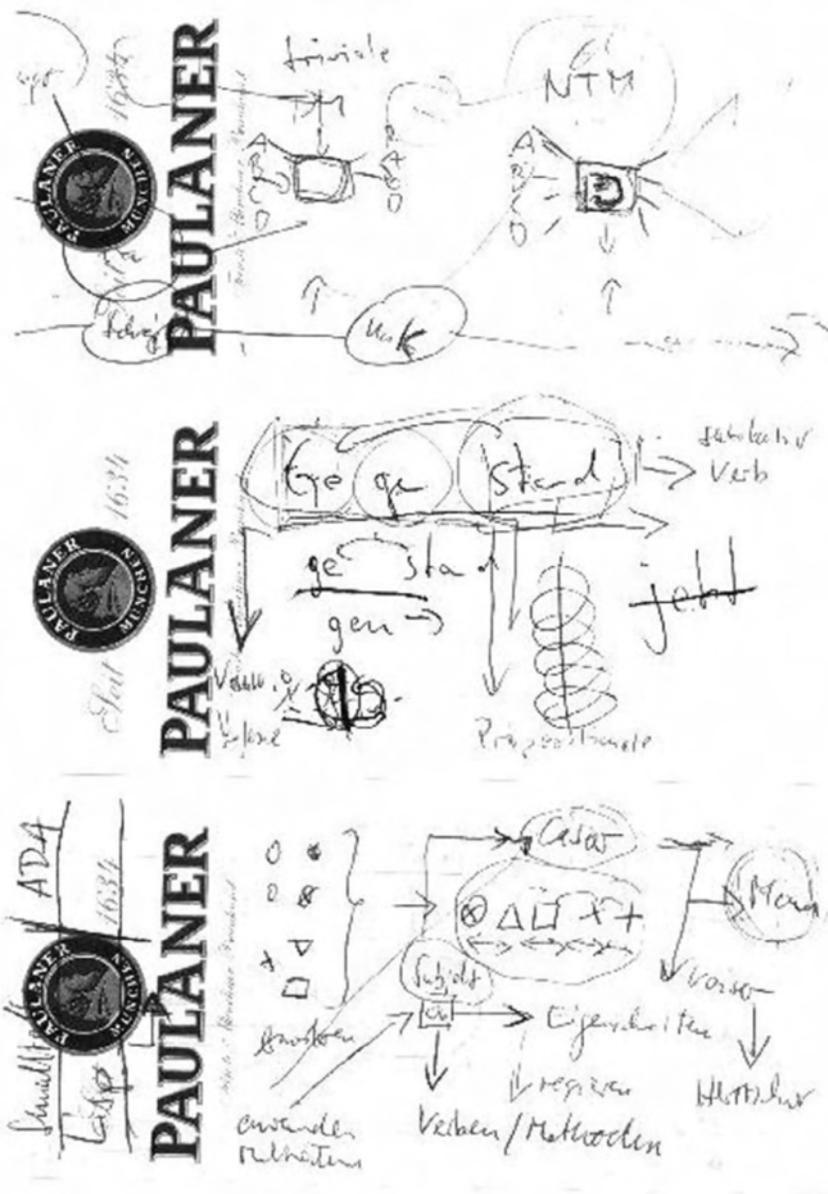


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Maps of maps

Michael Grossmann

1098





Metalogue: “less than one and more than two: developing a partiality for whole(some)ness”

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Abstract

Purpose – To elaborate a systemic view of conducting psychotherapy with twins.

Design/methodology/approach – Using the form of a Batesonian metalogue the authors unpack and illustrate a number of key notions in the systemic psychotherapy of twins, including the ideas of the “exosomatic mind” which makes special reference to Bateson’s definition of “mind” “cybernetic complementarity” and the “incarnated narrative”.

Findings – The discussions in the metalogue evidence a number of important systemic conversational features, underlining the fact that a therapist can conduct “systemic therapy” with a single individual.

Originality/value – Therapists are helped to see the need for going “beyond the individual skull” when doing therapy with a single person.

Keywords Cybernetics, Psychology, Children (kinship)

Paper type Viewpoint

Preamble

This is a Batesonian-type conversation between the authors (V. Kenny as “V” and L. Scarino as “L”) which reflects upon, and synthesises, some of the passages in the therapy process they conducted some years ago. It is less “meta-” and more “-logue” than the Bateson metalogues because, where he actually wrote both the “father” and the “daughter” lines, here we have collaborated to produce a four-handed text which is focused on some of the issues of doing psychotherapy with a “twin”. We hope it is clear that what follows may be a relevant way for understanding any number of people in *any* network of conversations, be it couples, families, or organisations.

Metalogue

V: Why didn’t you bring your sister again this time?

L: Because I wanted to talk to you alone . . .

V: OK. What’s on your mind?

L: Well, the question of *personal* change, how difficult it is, especially being a twin sister.

V: Being one of a twin set *does* have its advantages in doing psychotherapy.



L: How do you work that out?

V: To begin with, I see twins as a “*double description*” as Bateson called it, and so you are one half of a double description, but at the same time you are not and cannot ever be a “single description”.

L: You mean that I can’t be a “proper individual”?!!

V: No, I mean that you have the advantage of knowing that the different “parts” of discourse, the different positions in the networks of conversations, all combine to generate the emergent identity of the *conversation* that is going on between you.

L: Parts and wholes again?

V: Yes, in a way that creates an ever-present awareness of the fact that our “individual” point of view cannot ever stand alone.

L: So you mean like Bateson’s notion of “mind” as going beyond the individual skull and extending externally along the whole communicative circuit?

V: Yes, I like to call it the “*exosomatic mind*”. To put it alternatively, I can say that being “out of your head” is the only proper way to be “in your right mind”.

L: Oh, well this sounds slightly better than not being a “proper individual”! So me and my sister combine to form an “exosomatic twinned mind”? To be “out of our heads together?”

V: Well, you *know* that people have their suspicions and fantasies about the secret powers of twins?

L: That twins are able to “read one another’s minds” and have powers of extra-sensory perception? But, its nonsense isn’t it?

V: The popular idea of “mindreading” twins may have found a neurophysiological basis in the discovery of “mirror neurons” about ten years ago. It is currently hypothesised that these “audio-visual mirror neurons” are the basis of our human capacities for intersubjectivity, empathy and reading the intentions of others. So with humility we can say that “I know what you are doing!” – even if I can’t see you doing it.

L: You mean that we will have a new model of “mind” that does not have to stop at the customs barrier of the “internal/external” interface?

V: Yes, the “exosomatic mind” outlook and the mirror-neuron research programme are both models which dissolve the “self-others” boundary. This has led some researchers to hypothesise that autistic children may be lacking functionality of their mirror neurons. In my terms it means they are left *out* of the whole-mind network, stranded on an isolated partial arc of the whole circuit where they don’t develop the skills of inter-subjectivity and don’t enter into the flux of communications.

L: And are you saying that as twins we have more opportunity to be familiar with the experiencing of the “exosomatic mind” and that this familiarity helps me in the therapy change process? But I don’t really see how?

V: It helps because as twins you already have an “exosomatic awareness” about communication and understanding, but more so it helps because the entity “twins” is what must evolve, and this evolution is primarily to do with the emergent joint mindfulness that you generate together.

L: This means that I cannot change unilaterally, without the changes being reflected in my sister's experiences, because what changes is the *Whole-Mind System* of which we are both constitutive parts?

V: Yes. To take a practical example, it is probably unlikely that you can unilaterally "lose weight" as an "individual" without affecting your sister's weight. The entity "twin" will probably have to conserve its overall weight – so if you lose some, your sister will have to gain some, to maintain the overall weight constant.

L: But I don't understand: you first state that being one of a twin set is an advantage for making personal changes and now you declare that we have to remain constant! How could this be possible *at the same time*?

V: To my way of thinking, twins embody – literally – the core solutions to the living mystery of change and invariance, of difference and sameness . . .

L: This is where you talk about what is it that stays the same while change is going on?

V: Precisely. The notions of "autonomy" and "interdependence" can be most usefully seen as a *cybernetic complementarity*: the twins, in being a living solution to the paradoxes of change and stability, are a simultaneous double description of living alternativism.

L: You mean we can *individually* feel both our *personal* identity and our *joint* identity? OK, so can we come back to my first question about why it is so difficult to change?

V: To change what? A light bulb? A jet engine while the plane is still in flight?

L: Your last question is near the mark! I mean making personal changes.

V: To understand personal change we need to distinguish it from changing bulbs in two main ways: firstly, that we have to understand that the "change" is not a permanent "fix" for whatever the problem seems to be.

L: To change our idea of "change"?

V: Yes. We need to abandon the idea of change as a "solution" to a problem.

L: To stop looking for the "quick fix" that seems to put things "right" and instead to shift into a new way of thinking about our human experiences? . . . and what was your second point about the differences to changing a light bulb?

V: The other main point about change is that "change happens"! Our human system ecology is in continuous transition and change. In our society a lot of effort is spent on trying to remove or ignore the disturbances that change brings in our lives. We spend very little time trying to understand what our symptoms of disturbance are trying to tell us. Instead we rush to "remove" them as quickly as possible – as if the symptoms were like leeches in the jungle, that had attached themselves to our body when we weren't looking.

L: I would really get crazy having leeches attached to my body!! *I certainly* will remove them as quickly as possible! Why should this be a *mistake*?

V: But our symptoms are *not* leeches. They have *not* attached themselves to us when we weren't looking. Our mistake is in pretending that our symptoms are somehow *not* a part of ourselves. We have robbed our spontaneous symptoms of their significance for our understanding of ourselves and our experiences with others.

L: OK. So when we don't like how things have changed and we try to iron out the wrinkles that have appeared? Not only wrinkles in the skin, but wrinkles in our life's plan, wrinkles in our relationships with others?

V: The “symptom” is a message from the whole-mind system to a part (the single person) – which is an invitation to him or her to reconstrue their understandings of their own constitutive part in generating a given Whole with others. It is not just a “wrinkle” to be ironed out!

L: And also our constitutive roles with others is often quite different to what we imagine it to be. We tell ourselves a lot of “lies” about this.

V: Yes, we tell ourselves a lot of “lies” . . . also by ignoring or eliminating the symptoms before we have a chance to reflect on their invitation to reconstrue. The symptom asks us – “can you get your partial mind around to thinking about Wholes?” Or to put it more colloquially – “*Can you get partial to wholeness?*”

L: So you *do* believe that the “symptom” is not only about one's individual discomfort, but it is also an invitation towards more human wholeness. But how could a therapist make good use of the symptom's questions?

V: The original symptom which prompts the impatient to go to therapy quickly unfolds in the psychotherapeutic conversations into other areas of concern. It is an indication of a strong flow of *meaningful intentions* which the person wants to re-appropriate for themselves: like finding a strongly flowing tide which, if we can enter into it fully, will take us a long way from where we are now.

L: The symptom as a “marker buoy” showing the deep tidal flow . . .

V: Yes, but when the participants in the therapy, both impatient and therapist, are able to “see” it as such, and can accept to enter into the flow of changing without any guarantee as to where it will all “end up” . . .

L: In other words, the person's “symptoms” are communications of ongoing personal-relational changes which we can either ignore or, embrace as a voyage of inquiry – the destination of which is unknowable.

V: Indeed, if the therapy goes well, we learn that the notion of “arriving at a destination” is equally irrelevant as that of the “quick fix” I spoke about earlier.

L: Once we change our idea of change, we have to continue to “change” it!

V: You're right! And in addition, in therapy one “symptom” takes us only part of the journey, and is then substituted by another “symptom”. Each successive “symptom” is like an RSVP invitation into otherwise inaccessible domains of our experiencing. All of these “symptoms” are themselves an organisation of experiential domains and invitations.

L: The symptoms as a self-organising system?

V: Yes, in this case literally organising a “*self*” in terms of its potential evolutions and changes. To come to know the particular language of this “*self-organising symptom domain*” is an important part of the initial work in therapy.

L: But where will it stop?

V: Why should it stop?

L: Because some of these symptoms are very painful to bear ...

V: Let's change our definition, then ... I prefer to think about "symptoms" as our capacity to generate endless inviting questions which have a high relevance or interest for us.

L: You mean that the symptom is really a *form of question* that we need to pay attention to, that we need to ask ourselves?

V: Yes. When the "symptom" is reconnected up in our lives to its *originating question-generating contexts*, rather than being "eliminated" then we start to live in a very different manner. That which is important to us changes.

L: How did the symptom get to stand for the unasked questions? And how come the questions got to be "unasked" in the first place? And how is it ...

V: Hold on there, too many good questions all getting run into one another!

L: OK, then – how do the questions get split-off from the questioner?

V: Good old George Kelly had the vision of human action as a form of questioning. Everything we do is best seen as a "question" rather than an "answer". Our actions are questions about what could *be coming* next, rather than being standard answers to something already past. It is about our *becoming* human, rather than being "human beings".

L: So his idea is that everything I do is a way of questioning myself or others about something?

V: Yes. Now the point is that we are doing this *questioning-through-acting* from the time we are born, maybe before, and, in this active experimentation of relating ourselves intimately to the world or others through what we "do" with them, we come up against various barriers every so often which stop certain experiments in their tracks.

L: Barriers like ... ?

V: ... like one's parents, other adults, big brothers and sisters who thump you on the head when you try to "experiment" with their ice-cream. All the usual co-ordinations of activities and emotions that go on in the family.

L: Meaning that in my case of being a twin, we are already in this kind of active relationship of reciprocally cramping one another's experimental style from the time we are in the womb!!!

V: Possibly yes! Anyway, as I was saying, our original questioning explorations of the world hits up against obstacles of various kinds. At times we find it necessary to abandon a given experiment.

L: So the child is constrained to abandon that line of exploration ...

V: And this is where the "splitting" takes place – the separation of the spontaneous organismic questioning activity from the "public bodyhood" of the child.

L: And then in time, because the child is growing and changing, she or he loses the original contexts of her/his experimentations. Does the same thing go for losing the *critical time* for the crucial experiments? Running out of time before being able to elaborate the key questions with the key actors?

V: Yes and no! We lose the originating experimental laboratory context. But as a twin, you can continue to carry forward through time the "private laboratory" that you created with

your sister. Your private lab is still actively present. And this is another advantage for making personal changes!

L: So these lost questions then produce the “symptoms” in later life which I called “wrinkles” earlier on?

V: Your body and its wrinkles is your *lived map* of your life’s experiences and experiments. It tells directly the story of the forms of relationships that you have constituted and also those that you have *not*. The big questions that have *not* been experimented!

L: Dear oh dear!

V: From my point of view, this “body-map” that we are living could be seen as the “unconscious” – all those spontaneous activities that we can do without having to think about them, together with all of those “lost-question opportunities”. Except for the fact that this “*incarnated narrative*” is easily “accessed” and “read” by others.

L: So the bodily wrinkles tell a long tale?

V: Yes, and I like to picture this wrinkling flow of communications like the wave movements across the surface of water. I like that image rather than the notion of wrinkles as something to be “ironed out”.

L: You know what happens when you try to “iron out” wrinkles in your favourite piece of clothing? You find at the end that the wrinkles have simply moved, to another location in the clothes!

V: And this is what is happening also in human relationships unless we learn to “read” our wrinkles and to follow their path – to discover that they are just part of the pathway that is connecting us all.

L: And so not bringing my sister today . . . ?

V: Well, talking about having one’s “incarnated narrative easily accessed by another” – can you think of anyone else who would know better “what’s on your Mind?!”

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Metalogue: “less
than one and
more than two”

1105



How to understand giants?

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1106

Abstract

Purpose – The paper is aimed at understanding and investigating Gregory Bateson's and Heinz von Foerster's peculiar relation to knowledge, the unknowable, and research. From this, the question of how to carry on their heritage is raised.

Design/methodology/approach – The whole paper is designed as an epistemological experiment starting from reflections on Gregory Bateson's metalogues and adopting a methodological style of reasoning. A strong focus is laid on the combination of loose and strict thinking which is characteristic of both Heinz von Foerster and Gregory Bateson.

Findings – In order to preserve and further develop their heritage, it is necessary to deal with Bateson's and Foerster's view(s) on the relations between the unknowable and the meaning of research. This has to be done in a manner in which epistemology and research become a personal as well as ecological matter in which the relationship between the single individual and its greater context becomes explicit.

Research limitations/implications – This paper refuses to view science and cybernetics within predefined boundaries. It suggests that the form of science and its relations to the individual and the community should be viewed as processes of constant re-generation.

Originality/value – The value of this paper lies in viewing the similarities of Bateson's and von Foerster's peculiar style as general guidelines for future research and an understanding of epistemology.

Keywords Cybernetics, Knowledge management, Heritage, Research

Paper type Viewpoint

A story is a little knot or complex of that species of connectedness which we call relevance [...] I would assume that any A is relevant to any B if both A and B are parts or components of the same "story." Again we face connectedness at more than one level: first the connection between A and B by virtue of their being components of the same story. And then, the connectedness between the people in that all think in terms of stories [...] This is indeed how people think (Bateson, 2002, p. 12).

Part I: introduction

I have designed this paper along two guidelines. The first being the general one of the In Memoriam Gregory Bateson edition of *Kybernetes* to allow more unknown authors to show how Gregory Bateson has influenced their own thinking and their emergence as scientists or, in this case, as a systemicist. The second being the more specific one that our Editor Georg Ivanovas prefers us to leave the usual paths of academic discourse in favor of some epistemological experiments in order to create a small section of experimental epistemology in this In Memoriam edition of *Kybernetes*. When one thinks of Gregory Bateson in relation to epistemological experiments, his famous metalogues are clearly the first thing that come to mind, and, fortunately for me, they had the strongest impact of all of Gregory Bateson's writings upon my approach of systemic thinking. Reading Gregory Bateson's metalogues guided and focused my development in crucial phases of my life, and, as Bateson used them as first steps to his



ecology of mind, I as well would like to use my reflections about them as my point of departure for this epistemological exploration.

As probably many systemic thinkers do, I keep re-reading Gregory Bateson's metalogues, and within the context of different times of my life they take on different meanings, bring up new questions and insights. Perhaps, one of the main reasons why the metalogues are particularly useful to read at the beginning of a research lies in their specific dialogical form. Whatever subject is raised in a particular metalogue, all metalogues deal with an underlying pattern: how to find and invent the appropriate questions during the constant evolvement of almost always changing subjects which he and his daughter end up talking about. Generally, they talk about one theme which takes one form at the end of each metalogue which includes its relations with the most important sub-themes connected with it. It is the working out of this pattern through which the metalogues provide a much better catalyst for a scientist to get clarity about which questions to ask and how to approach a specific task than an ordinary scientific text structure in which the answers are usually dominant and the subject is almost always given and stays unchanged. Instead of providing fixed answers and contexts, Bateson lets the reader participate in the raw ontogenetic development of his patterns:

Daughter: What were we talking about?

Father: I don't quite know – not yet (Bateson, 2000, p. 31).

It is exactly this style of writing, in which the meanders are not recessed but used as triggers for showing related themes, that allows me to read the metalogues over and over again each time experiencing an ongoing conversation:

Daughter: What do you mean by a conversation having an outline? Has this conversation had an outline?

Father: Oh, surely, yes. But we cannot see it yet because the conversation is not finished. You cannot ever see it while you're in the middle of it. Because if you could see it, you would be predictable – like the machine. And I would be predictable – and the two of us together would be predictable (Bateson, 2000, p. 32)

When I was given the opportunity to contribute an article to a Heinz von Foerster memorial publication, it was clear to me that it must not be a text the outlines of which would be given in advance (Pawlik, 2005, pp. 558-66). I could not proceed in a way which Heinz von Foerster had criticized all his life, could not act as if I were a trivial machine. Following the conception of the metalogues in leaving the path of academic discourse, it was clear that I could not do this in the case of this paper either:

We all have lots of ready-made phrases and ideas, and the printer has ready-made sticks of letters, all sorted out into phrases. But if the printer wants to print something new [...] he will have to break up all that old sorting of the letters. In the same way, in order to think something new or to say new things, we have to break all our ready-made ideas and shuffle the pieces (Bateson, 2000, p. 16).

Owing to its metalogical form, the beginning of this paper should be an introduction to its form of questioning and to its own organization which is at the same time part of the paper's development. Just as in Gregory Bateson's metalogues, the "gestalt" of the paper must come forth through this development and thereby reflect its explorative process. As the context of the metalogues is not a particular scientific field but an

imaginary everyday situation, our point of departure is a plunge into the unknown and, as the development of the rules of the game proceeds, we transgress from what von Foerster (1990) calls principally undecidable to decidable questions. Based on this understanding of the explorative process, Foerster has called science the art of thinking on the tip of the iceberg of unknowing (von Foerster, 1990). Bateson's metalogues might be understood as showcases for such a science:

Daughter: I don't understand.

Father: Yes. The point is that the purpose of these conversations is to discover the "rules." It's like life – a game whose purpose is to discover the rules, which rules are always changing and always undiscoverable (Bateson, 2000, pp. 19-20).

Now dealing with the always undiscoverable, I have by now decided two undecidable questions. The first one being my momentary answer to the question: "What is the question?" As each of my feet seems to rest on the shoulder of one giant, I, in order to have some ground, must ask how to understand them. Secondly: having decided that I am not a trivial machine and prefer working in a metalogical manner, I have decided which game to play. It is, as Gregory Bateson says, a game with no prescribed rules which is certainly not like chess or canasta but rather like what kittens and puppies do (Bateson, 2000, p. 20).

Part II: steps towards understanding the unity of mind and nature

Following the gist of Gregory Bateson's metalogues, the idea of an Archimedes' point must be discarded:

Daughter: I think it's gloomy. What's the point of it all?

Father: No, no. If you were in love, you would not ask that question (Bateson, 2002, p. 194).

Gregory Bateson suggests that the idea of needing such a point is a deficiency in itself. He insists on not only discarding the idea of an Archimedes' point but the whole perspective which has evoked it:

Daughter: Do you mean that love is the point?

Father: But again no. I was saying no to your question, not answering it. It's the question for an occidental industrialist and an engineer. This whole book is about the wrongness of that question (Bateson, 2002).

If I want to approach the question of understanding Gregory Bateson in a similar manner as he himself approached the unity of mind and nature issue, it seems that I have to turn my attention towards my own attitude, the context within which I am asking this question. Doing so, the first step must be to refrain from claiming any kind of truth about his heritage, not even or maybe especially not the one that Gregory Bateson would approve of. The proposition regarding Bateson's metalogues hold also true for his unity of mind and nature. The way in which he reflects the question of identity back on the observer can be understood as another aspect in which Gregory Bateson and Heinz von Foerster can be understood as intellectual twins (Lutterer, 2005, p. 500) whose mind, as already mentioned, must be considered as analytically impenetrable as his famous non-trivial machine "Uncle Joe" (Freund, 1992, documentary film). Foerster's answer resembles that of Bateson when he says,

“if we ask the aunt, the nephew, etc., etc. we will know more about the aunt, about the nephew, but we will get to know nothing about Uncle Joe” (Freund, 1992).

In addition, Foerster (2003, p. 209) protects his heritage by classifying all questions of verification as “illegitimate” questions. So even if one is misled enough to claim knowledge about Heinz von Foerster, no questions could legitimately be asked as a form of testing this knowledge. Both thinkers have repeatedly expressed their utter dissatisfaction regarding common ways of dealing with knowledge and have therefore safeguarded their knowledge from being used for what Foerster calls trivialization (Foerster, 2003, pp. 207-10) and castration of language (Foerster, 2003, pp. 202-203) and what Bateson humorously summed up in his metalogue “How much do you know?”:

Daughter: Daddy, why don't you use the other three-quarters of your brain?

Father: Oh, yes – that – you see the trouble is that I had schoolteachers too (Bateson, 2000, p. 26).

As another pattern within my paper comes to an end, it becomes clear to me why the main part of my paper deals with the unknowable and what we in fact cannot or perhaps should not do. Authors such as Foerster or Bateson must not be dealt with as if they were ordinary academic thinkers. If we do not take the peculiar context of how they themselves dealt with knowledge into consideration, all we can do is trivialize their heritage and fill our heads with fog.

As the outlines are clear, I wonder why am I am so utterly surprised to end up affirming the feedback loop of content and meaning in which I set out on the epistemological exploration titled “How to understand giants?” – receiving the answer that what is necessary is exactly setting out on an epistemological exploration. It fits Gregory Bateson's thoughts very well when one thinks of T.S. Eliot's famous lines which he used for his own metabiographical excursion (Bateson, 2002, p. xi):

We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time.

What is affirmed by my epistemological experiment is the knowing of the not-knowing, a state of knowing and not-knowing at the same time. A perspective through which every after and before of a research situation can present themselves both different as well as identical, as the homoeodynamics (von Foerster, 1974, p. 53) of knowing and not-knowing are preserved (Landolfi, n.d.). Considering Heinz von Foerster's second note on an epistemology for living things, it becomes clear that this way of viewing does not provide any problems from a purely logical point of view:

2. The logical properties of “invariance” and “change” are those of representations. If this is ignored, paradoxes arise.

2.1 The paradox of “invariance”:

THE DISTINCT BEING THE SAME

But it makes no sense to write $x_1 = x_2$ (why the indices?).

And $x = x$ says something about “ = ” but nothing about x .

2.2 The paradox of “change”:

THE SAME BEING THE DISTINCT

But it makes no sense to write: $x \neq x$ (Foerster, 2003, p. 252).

While the logical solution of his idea might be clear and we might even claim a lasting unity between knowing and not-knowing, which nevertheless stays affirmed as more and more scientific research is done, one comes to question the aesthetical value of such a view though. Can it be satisfying to pursue science from such a perspective; is there some beauty to it? A general answer following Foerster and Bateson would probably reject such a question and run something like: “Well, if you have to ask, you don’t know. If you are in love with what you are doing, you are unlikely to ask this question.” However, on a personal level, and I believe that most scientists are likely to ask themselves this question, maybe especially at times when they are about to re-read Bateson’s metalogues. I have found an answer which is valid only in combination with my own explorative process. Turning my attention towards the context of my own actions I realized that exactly this process of exploration cannot be substituted for this beauty to come forth.

If I allow this process to become its own reason for its continuation, the beauty lies in arriving where you started and knowing it for the first time. Though exploration and research are self-affirmative, we never cease to explore and regard our findings as reasons for further exploration. This is why you cannot advance as all rules change and always stay undiscoverable, regenerating an equilibrium which is the point of departure for the ones in love with exploring. What might be tedious for some is not tedious for them. To know that the earth is not flat is not enough for them, and once they have found out that it is round and moving, they want to know how this movement comes about. They are what Heinz von Foerster has called himself: “curiousologists” (Kahl, 1999, p. 106).

So whether this circumstance is beautiful or tedious is again a principally undecidable question, but as I happen to be an explorer I indeed consider it beautiful. Now how about understanding our two giants Gregory Bateson and Heinz von Foerster – what about their relation to each other?

When asked about why he would write this book about an entirely unknowable unity, Bateson thinks that he is taking an ostensive and participating approach in which he considers parts as useful for describing wholes:

Daughter: Then why write this book?

Father: That’s different. This book, or you and me talking, and so on are only little pieces of the bigger universe [. . .] parts are useful when you want to describe wholes (Bateson, 2002, p. 195).

Bateson also gives a second answer earlier on in his book, answering in a way which he considers “inevitably personal.” Again his answer is not about a definition, but about the context which embeds the question and the answer:

But epistemology is always and inevitably personal. The point of probe is always in the heart of the explorer: what is my answer to the question of knowing? I surrender to the belief that

my knowing is a small part of a wider integrated knowing that knits the entire biosphere of creation (Bateson, 2002, p. 82).

And his intellectual twin? Referring to the pattern which connects him which this context, what is a belief for Gregory Bateson turns into what Heinz von Foerster outlines as the most fundamental decision of his life: whether one conceives of oneself as being part of the world or not:

You would like us to finally talk about the consequences of this position and the development of Heinz the human being. What I noticed most clearly, is the close proximity of the thoughts we are discussing here to the teachings of the Tao [. . .] We must understand that we are one with nature. It is not that there are various parts flying around in the universe. The essence of our idea is that we are a unity. One emerges from the other, and the other emerges from one.

And that is a starting point that I too try to express: I conceive myself to be part of the world (von Foerster and Bröcker, 2002, p. 296, translation by Barbara Anger-Dias).

Although both Gregory Bateson's unity of mind and nature and Heinz von Foerster's mind are ungraspable, these thinkers have provided clear facilities of how to carry on their heritage for all those who want to believe or decide to be part of a whole for which there are various words: biosphere, world, universe. If parts are useful to describe the whole, then all one needs is a pattern which one feels connected to Gregory Bateson and which is shared with others to carry on his heritage. All such patterns will be useful to understand the whole. Again this is only my personal belief, my personal decision. Is this true? Or put as Heinz von Foerster would have put it: can you trust the author of these thoughts? Can you base your decision on them? I can give only a very personal answer: you can trust him only if you consider yourself to be part of this world because only then will one emerge from the other.

Bateson defines as story as "an agglomeration of formal patterns scattered across time." It was also the objective of Bateson's seminars to weave a web of formal patterns through a collection of stories (Capra, 2000, p. 148, citation after the German translation).

References

- Bateson, G. (2000), *Steps to an Ecology of Mind*, University of Chicago Press, Chicago, IL/London.
- Bateson, G. (2002), *Mind and Nature. A Necessary Unity*, Hampton Press and Institute for Intercultural Studies, Cresskill, NJ.
- Capra, F. (2000), *Synthese (Neue Bausteine für das Weltbild von morgen)*, Droemersch Verlaganstalt, Bern/München.
- Foerster, H. (2003), *Understanding Understanding*, Springer, New York, NY.
- Freund, S. (1992), Heinz von Foerster – Cyber-(ethics), A Portrait, ORF.
- Kahl, R. (1999), "Der Neugierologe, GEO Wissen", *Denken, Lernen, Schule*, Vol. 1, pp. 106-9.
- Landolfi, V. (n.d.), *Metalogues. A Brief Look and Some Practice*.
- Lutterer, W. (2005), "Systemics: the social aspects of cybernetics", *Kybernetes*, Vol. 34 Nos 3/4, pp. 497-507.
- Pawlik, L. (2005), "Forget the observer: the presence, the paradox and self-reference", *Kybernetes*, Vol. 34 Nos 3/4, pp. 558-66.

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36,7/8

von Foerster, H. (1974), *Cybernetics of Cybernetics (reprinted 1995 by Future Systems)*, University Press of Illinois, Champaign, IL.

von Foerster, H. (1990), *Verzauberte Welt – Die Wiener Wurzeln des Konstruktivismus*, Nachtstudio, ORF.

von Foerster, H. and Bröcker, M. (2002), *Teil der Welt – Fraktale einer Ethik – Ein Drama in drei Akten*, Carl-Auer-Systeme, Heidelberg.

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Further reading

Bateson, G. and Bateson, M.C. (2005), *Angels Fear. Towards an Epistemology of the Sacred*, Hampton Press and Institute for Intercultural Studies, Cresskill, NJ.

Eliot, T.S. (2001), *Four Quartets*, Faber and Faber, London.

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Autobiographical note

Lucas Pawlik has explored issues of epistemology at the University of Vienna, before he focused on the relationship of epistemology and arts at the Academy of Fine Arts Vienna where he did his PhD. Combining constructivist and cybernetic as well as daoist approaches, he presently works on developing a transdisciplinary and transcultural perspective of understanding epistemology.



Fictional communication: developing Gregory Bateson's "Theory of Play and Fantasy"

Fictional
communication

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Abstract

Purpose – To supplement Gregory Bateson's theory with findings from literary studies and attempt a new take on literary communication.

Design/methodology/approach – On the basis of Gregory Bateson's "Theory of play and fantasy" the transmission of messages between author and readers is investigated. After that, it is attempted to show the particularities of literary messages and their communication, including different literary levels of what Bateson calls the "frame" of a message. The elements discussed include creativity, tension, surprise, Coleridge's notion of "the willing suspension of disbelief" in reading fiction and emotional response.

Findings – While messages usually contain signs referring to an existing range of object representations, literary texts depart from and expand this range. The term "message" is subject to shift. The creativity of both author and readers allows a level of innovation that alters Bateson's categories: the metacommunicative level is not necessarily denoted by the message itself, and the metalinguistic level is adjusted to allow creativity that is existential for fiction writing and reading.

Research limitations/implications – Trying to give a schematic introduction, this paper is rather an overview than an in-depth study.

Originality/value – This paper discusses a part of Bateson's approach in the light of findings in literary theory and thus helps to create an interdisciplinary dialogue that makes both sides' achievements, respectively, accessible.

Keywords Cybernetics, Communication, Imagination, Reading

Paper type Conceptual paper

Alice laughed, "There's no use trying" she said, "one can't believe impossible things."

"I daresay you haven't much practice" said the Queen. "When I was your age, I always did it for half-an-hour a day. Why, sometimes I've believed as many as six impossible things before breakfast."

Lewis Carroll, *Through the Looking-Glass*

In his "Theory of Play and Fantasy" Bateson (1972) attempts to establish the ground rules for playful human interaction. This paper suggests that fictional texts should be counted among the manifold forms of play and can be described with the mechanisms Bateson attributes to playful communication. However, the peculiarities of fictional texts and the different agents involved require a development of Bateson's theory.

Therefore, I will try to show how fictional messages differ from other forms of playful interaction. To that end, I will first make a couple of rather general remarks concerning the agents of fictional discourse and their different roles. Following that, I will sequentially discuss the problems of metalinguistics, metacommunication and frames of messages, that are all crucial to understanding and imagining fictional scenarios.



Afterwards, I will address the problem of map-territory relations in play as described by Bateson, trying to highlight the special requirements of written fiction[1].

Fictional texts, in this context, shall be defined as all those texts that do not claim to be referential in the empirical world, i.e. that narrate what is possible or imaginable but not verifiable in what we construct as empirical reality[2]. While a close observation of different genres would exceed the frame of this paper, as would a discussion of the status of metaphors, allegories, etc. in play, I believe that the basic mechanisms of experiencing something that is not actually happening are comparable on a general level; therefore, I argue that the following reflections are significant for a broad discussion of fictional texts.

The players in fictional communication

In Bateson's theory, play essentially consists in the playful interaction of several individuals (human or animal), based on the agreement that what is happening is not real:

Expanded, the statement "This is play" looks something like this: [...] "These actions, in which we now engage, do not denote what would be denoted by those actions which these actions denote" (Bateson, 1972, p. 180).

While basic forms need nothing but at least two agents who interact playfully, the realm of fictional texts is a little more complicated.

Let us first consider the level on which a story is told. For a fictional text to be read and understood we need someone to write it, i.e. to send a message in a very basic sense, and someone to read it. The future reader is not personally involved in the process of writing while the author is usually absent in reading. The author can of course imagine a reader when writing, just as the reader can imagine an author when reading, but both such imaginations remain highly speculative. That is, the play between author and reader is usually not *interaction* in a basic sense, but play between two people who have never met and may even be divided by huge cultural or time gaps, a point made by Riffaterre (1959).

Just like in other forms of playful communication, both agents need to understand that what is happening is play. Thus, the author's playful action consists in telling a story that he invented, while the reader habitually agrees to engage in it emotionally although she knows it to be fictitious.

However, there is a second level, which is closely interwoven with the first one and takes place directly between the reader and the text. This level contains a narrative strategy the author uses to tell the story (no story tells us all aspects of a situation, we always have a certain chronology, focus, number of descriptions, perspective, etc.). Consequently, the reader has no direct access to what the author is thinking because his voice is alienated by the narrator's.

Hence, literary play takes place on two levels: between author and reader and between reader and text. On both levels, the agents are separated by the medial nature of the communication. Also, reading fiction seems more static than other forms of play insofar as there is no direct interaction: first, the author writes, then the reader reads.

In human communication, but also e.g. with monkeys, as Bateson (1972, p. 178f.) stresses, play is subject to abstractions. Particularly important abstractions are metalinguistic remarks (remarks about the nature of words or *signifiés*[3] referred to)

and metacommunicative remarks (remarks about the nature of communicative utterances, about the “meaning” of an utterance). The majority of remarks belonging to these two groups are entirely implicit and therefore subject to interpretation (Bateson, 1972, p. 178).

Metalinguistics

Fictional texts have very peculiar metalinguistic requirements that are sometimes tightly interwoven with the story, either as unavoidable condition for a narrative or as topic thereof.

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Words that in our reality clearly refer to certain objects and/or ideas can be subject to change in fiction. That does not imply that the language-object relations in fictional texts are entirely random; in that case, the texts would be positively unintelligible. I rather suggest that the meanings we usually attribute to certain words may prove to be problematic during the reading of a text. Such disappointment of seemingly pre-negotiated meanings can be seen as a strategy to (mis-)guide the reader and evoke surprises, discovery, shock, etc. There are two different ways for this to happen; I will try to point out these two alternatives with the help of examples.

In the first case, a word is employed in a way utterly dissimilar to the one we normally use it in (Iser, 1993, p. 247f.), which happens e.g. in Lewis Carroll’s *Through the Looking-Glass and What Alice Found There*. Alice meets Humpty Dumpty, who suggests that words can mean different things at different times and that indeed it does not matter if we use them in a way they were not intended because as its users, we are also the masters of language. He then swiftly proceeds to talking in quite an eccentric way:

“When I use a word” Humpty Dumpty said, in a rather scornful tone, “it means just what I choose it to mean, neither more nor less.”

“The question is” said Alice, “whether you can make words mean so many different things”.

“The question is” said Humpty Dumpty, “which is to be master – that’s all”.

Alice was too much puzzled to say anything; so after a minute Humpty Dumpty began again. “They’ve a temper, some of them – particularly verbs: they’re the proudest – adjectives you can do anything with, but not verbs – however, I can manage the whole lot of them! Impenetrability! That’s what *I* say!”

“Would you tell me, please” said Alice, “what that means?”

“Now you talk like a reasonable child” said Humpty Dumpty, looking very much pleased. “I meant by ‘impenetrability’ that we’ve had enough of that subject, and it would be just as well if you’d mention what you mean to do next, as I suppose you don’t mean to stop here all the rest of your life.”

“That’s a great deal to make one word mean” Alice said in a thoughtful tone.

“When I make a word do a lot of work like that” said Humpty Dumpty, “I always pay it extra”.

“Oh!” said Alice. She was too much puzzled to make any other remark (Carroll, 1872, p. 186f.).

In the second case, the words keep their meaning, but lose their reference object. This type of problem is the topic of H.G. Wells’ story *The Country of the Blind*. The story’s protagonist gets lost in the mountains and ends up at a village where for many

generations all the inhabitants have been blind. They live happily, not feeling the faintest desire to see, because the whole concept of eyesight has long been moved beyond their recall. Therefore, they do not understand why the protagonist believes to have an advantage over them. In their view, he is just a lunatic whose persistent claims that he has a fifth sense appear utterly unreasonable and are taken as proof for his mental condition. It is impossible for them to imagine eyesight, and since they do not know what they are lacking, they are not lacking it within their own reality and feel neither admiration nor envy (Wells, 1904). Here, we can see how a familiar word-concept relation (“seeing” and the concept of eyesight), although shared by the reader and the protagonist, all of a sudden stops working in the text. Thus, unlike in the Humpty Dumpty example, the references stay the same, but are suddenly disabled.

More generally, we can establish that in reading fiction, the words used never refer to anything existent. While they may refer to certain ideas, they never refer to objects in an absolute sense that would allow us to associate the entire usual context with these objects. The logical significance of fiction is such that everything in the text is part of the fictional world. Even if a historical person like Napoleon is mentioned in a text, in this context, he is at best a fictional Napoleon compossible with the real one, as Thomas Pavel has shown in a semantic study of literature (Pavel, 1975, p. 169).

Metacommunication

Metacommunication is always part of reading fiction. In that sense, texts work a lot like theatre. In his introduction to theatre studies, Lazarowicz (1997, p. 97) explains that if someone ran out of a theatre just because one of the actors shouted “Fire” this would be a sign that the theatrical communication had failed. In fiction we have a similar situation that Pavel sums up as follows:

Imagine that our reader is looking for a good private detective [...] who would think of actually looking for Sherlock Holmes? In view of the origin of the information about Holmes, such a step would be preposterous (Pavel, 1975, p. 169).

From that we can conclude that a certain metacommunicative contract is needed for reading fiction. Such a contract could look as follows (I am basing my formulation on Lazarowicz’s (1997, p. 97) definition of theatre: Fiction reading takes place or fictional communication succeeds when we have at least one text and one reader who knows the content of the text to be fictitious. Or, as Coleridge has defined it, the reading of fiction always depends on the “willing suspension of disbelief for the moment, which constitutes poetic faith (Coleridge, 1817, p. 341)” – we accept what we would not normally accept because we know that what happens is play.

We can read about Tolstoy’s Anna Karenina throwing herself under an incoming train and get emotionally shattered by that without having to deal with real suicide; thus the knowledge that what is happening is fictitious makes it possible to handle it and maybe even enjoy the emotionally painful experience (1875-1877).

Of course, as Bateson (1972, p. 182) points out, there are situations where the assertion “This is play” is replaced by the question “Is this play?”. In the theatrical context, we have seen examples where the fictional communication went spectacularly wrong. In autumn 2004, a group of outraged Sikhs stormed a theatre in Birmingham because they felt offended by a play showing there, not taking into account its fictional character (*BBC News*, 2004)[4]. On the other hand, when the musical theatre showing

“Nord-Ost” in Moscow was stormed by terrorists in 2002, it took the audience several minutes to understand that the attack was not part of the play and that they were about to be taken hostage[5].

When it comes to fictional narratives, the examples are less shocking, but point in a similar direction, as illustrated by the case of Klaus Mann’s novel *Mephisto*. The protagonist of the novel bears a certain resemblance to Gustav Gründgens, a German actor who had become very successful during the Nazi reign. 32 years after the novel was first published, Gründgens’ adoptee Peter Gorski felt that it was an attack against Mr Gründgens’ postmortem personal rights and took court action. While Klaus Mann has famously been influenced by Gründgens when inventing his protagonist, the novel certainly has many other levels and is still fictional; a fact apparently quite invisible to the deciding court that conceded to Mr Gorski’s wishes by preventing further publication of the novel (Spangenberg, 1981, pp. I-XV)[6].

Metacommunication about fictional texts often takes place outside the text itself. This is certainly the case for literary criticism, essays, pre- or postfaces, interviews with authors and miscellaneous blurb.

Other metacommunicative remarks may take place within the text. This happens when the characters or narrators show awareness of the fictional nature of the situation. In Diderot’s novel *Jacques the Fatalist and his Master* (1783), for instance, the narrator is very occupied to tell us about the nature of storytelling and keeps reminding us that he is unwilling to follow certain storylines or tell us where the protagonists are coming from or going to, because the story is just an invention. Another example is Henrik Ibsen’s *Peer Gynt* (1867), where the protagonist fearing for his life is reassured by his opponent who at the same time calls to mind the conventions of playwriting:

Oh well, as far as that’s concerned,
don’t be alarmed – one doesn’t die
right in the middle of Act Five (Ibsen, 1867, p. 178).

Predetermined formal rules can evoke further metacommunication. One of the most obvious examples for this is the fairy tale where sentences like “Once upon a time” as well as recurring motives (princesses, dragons, evil stepmothers, . . .) add structure. In this example, metacommunication and my next issue, the framework of messages, overlap.

Frames

The frames of playful interaction as designed by Bateson (1972, pp. 184-90) are highly relevant for fictional messages, and there are several types of conceivable frames. According to his theory, the frames shaping play are psychological, allowing the individual to accept agreed-on signs as indicators and borders of play. Such frames can be of logical or physical nature (Bateson, 1972, p. 186f.); Bateson attributes explanatory character to all of them, but also believes them to shape the message (Bateson, 1972, p. 188).

There is one main difference between fictional texts and the forms of playful interaction Bateson describes, which I believe to strongly affect the nature of their frames: In Bateson’s “Theory” the playful actions are carried out by the very agents that agree on the rules of the game. In written fiction, the author and the reader invent

the game and agree on its rules, but the acting characters are imaginary, mediated via conventional symbolic signs on a piece of paper and only coming alive on the author's and readers' minds. While the players in Bateson's "Theory" perform actions that denote something else, these fictional characters usually know no as-if. In their world, their actions are entirely serious. Only the reader, who is no agent in the story, plays insofar as she agrees to treat something that she knows to be an invention as if it were an occurrence of her own empirical reality. Consequently, Anna Karenina's suicide, while purely fictitious, is not a pretended suicide or a playful action denoting suicide. A reader's tears about this suicide, however, while caused by honest emotion, qualify as play: The reader is moved as if by a real suicide, although she knows it not to be. As soon as she would stop engaging in the as-if, her emotional reaction would become absurd – why cry about the death of someone who has never even lived?

Secondly, in forms of play as depicted by Bateson, the players are all present at the same time and place, which allows them to renegotiate the conventions of their game if they deem it necessary. In fictional communication, the distance between reader and author and the medial character of the message make basic renegotiations impracticable.

Also, the idea of physicality is more difficult in communication via fictional texts than in other forms of playful interaction. We could say that the physical frame of fiction lies in the design/length of a book and its linguistic shape (e.g. the number of words, paragraphs, chapters). But aside from the physicality of the artefact "book", fictional texts are systems rather different from the forms of play described by Bateson.

Unlike the picture frames he mentions (Bateson, 1972, p. 189), physical frames do not always show the border between reality and fiction – the yearly stock market information comes as a booklet as well. However, Bateson's remark that physical frames are part of the psychological frames of play (Bateson, 1972, p. 188f.) still applies for fictional texts, since they are as a minimum indispensable for mediating the message.

Physical frames can also be used to give a certain form to the content. They, e.g. serve to maintain the tension, like in *Anna Karenina* where the end of a chapter often also indicates that now the character Anna, whatever just happened to her, is abandoned by the narrator who will, before continuing, tell at least one chapter's worth about other characters. At the end of their chapter(s), however, the anxiously awaited continuing of Anna's story will be paired with the tension arising from the fact that this time we do not know what will further happen to the other characters. Thus, as Bateson states (Bateson, 1972, p. 188), in printed messages such outward frames can have metacommunicative character and set psychological frames (as do the aforementioned recurring sentences in the fairy tale).

Logical frames can be of very peculiar nature when it comes to narratives. One example for this would be link-and-frame stories, such as in Chaucer's *Canterbury Tales* (1378/1992) or Boccaccio's *Decameron* (1350/1998) where individual stories are embedded in a narrative situation in which fictional characters speak to others from their world.

Furthermore, logical frames can, e.g. be used to distract the reader and/or make the grand finale more unexpected. This happens, e.g. in Wallace's criminal novel *The Squeaker* (1927), where the story opens introducing a handsome, rich young man, a beautiful, bright, but poor young lady and another, rather scruffy but somewhat attractive male individual of whom stories are told that are much to the disadvantage

of his reputation. These stories in the story serve to distract the reader before revealing that the scruffy fellow is a refined person of high moral standards who will eventually win over the lady, while the rich and handsome man turns out to be a mean, cruel and dishonest individual (of course, what is sought to mislead the reader is probably explanatory to fanciers of Wallace novels because they are familiar with the way these novels are constructed and able to recognise the hero and the villain)[7].

Map and territory

If fiction is indeed play as argued above, and if the qualities of play as defined by Bateson are accurate, then two different processes paradoxically take place in fiction like in any other type of play: a primary process where the player equates non-fantasy (the territory the play is carried out on, i.e. the *signifié*s fiction refers to in order to be intelligible) and fantasy (the map drawn by the author, i.e. the fictional context and references), and a secondary process where the two are discriminated and the player reminds herself (or is reminded) of the playful nature of her doing[8]. For the secondary process to be possible, the map-territory relation must be clear to all (Bateson, 1972, p. 180f.). Additionally, in the case of fictional texts, the players have particular roles: the author need not suspend his disbelief, while the reader cannot change the artefact “text”. The territory, however, is an individual construct of the reader and consequently alters the reading experience.

The primary process takes place when we react to fictional texts with emotions that are otherwise reserved for “real” life, such as laughing, crying, getting frightened, etc. Simultaneously, we always know that what is happening is not actually happening, which constitutes the secondary process (but does not alter the feelings we have). The latter can (but need not) be reinforced by the text if the narrator (or a character) leaves the context and moves on to remarks that remind the reader of its fictional nature.

The American literary scholar Norman Holland has summed up these two processes in an example he gives in “The power(?) of literature”, a paper based on neuroscientific evidence, in which he tries to find out how and why we care so much when experiencing fiction:

Nineteenth-century adults would write to Dickens as the serial publication of *The Old Curiosity Shop* progressed. “Don’t let Little Nell die,” they would plead. In other words, we do not want to feel the grief and sadness that that event would evoke, even though we know perfectly well this is all fictional, since we are writing the author who is making up the story! (Holland, 2004, p. 407)

This behaviour displays precisely the combination of primary and secondary process as suggested by Bateson; I believe that specifically this dualistic cognitive act makes fiction possible.

Conclusion

I hope to have shown that the criteria of play Bateson depicts in his “Theory” are indeed also useful when it comes to regarding fictional texts. However, they need to be slightly changed and adapted since there is no direct interaction between the players who have to accept both the mediality of the situation and its fictional nature. Fictional characters being the ones who carry out the actions the story depends on, we could say

that the players in fictional communication, i.e. the reader and the author, let them act for their own pleasure and at best pretend to believe in the truth of the matter for the particular moment. Also, the text is given and (as an artefact, not in its meaning) stable to the reader. Thus, there is an inflexible means in this sort of play that will not change its form although it may (and will) be understood and valued in various ways, depending on the reader's representation of territory.

Bateson's "Theory of Play and Fantasy" allows us to combine different fields of literary studies which are not usually regarded simultaneously: the communication between author and reader, the significance of both the text and extra-textual influences and the social, linguistic, cultural and structural conventions underlying fiction writing and reading. Therefore, I suggest that it provides a solid ground to revisit and rethink the main elements of understanding fictional messages and their communication.

Notes

1. Bateson's "Theory" has already been used by Wolfgang Iser to describe fiction (Iser, 1993). However, Iser covers Bateson's ideas only sporadically. Furthermore, I disagree with him on many levels, especially regarding his rather indistinct terminology establishing the fictive, the real and the imaginary as the three pillars of fiction, his semiotic remarks and the way he deals with the problem of frames. Also, my work is based on a view of reality rather more constructivist than Iser's.
2. I therefore do not claim that fiction is what is invented and reality is what is true, a simplified ontological perspective which would be quite antithetical to Bateson's approach.
3. The word *signifié* is usually used in linguistic semiotics, following Ferdinand de Saussure's terminology. Saussure suggests that words are dualistic linguistic signs. They consist of (a) a *signifiant*, the actual word or combination of letters that we agreed to use in order to designate a certain object/individual/idea, and that differs in different languages (e.g. dog – chien – Hund – ...); (b) a *signifié*, the object designated by the signifiant. The signifié is not a particular object (e.g. not a particular dog); it is rather an idea that we link to the word so that we can understand it when someone says it (e.g. the general idea/mental image of a dog including the fact that there are different types of dogs) see (Saussure, 1916, pp. 65-70).
4. see <http://news.bbc.co.uk/go/pr/fr/-/1/hi/england/west-midlands/4107437.stm> (19 December 2004).
5. see <http://english.pravda.ru/russia/9133-hostage-0> (26 October 2005) and Shmelev (2005).
6. The court's decision only regarded the publication of the novel by its publisher at the time; in 1981, Rowohlt reprinted it and no further action was taken by Gründgens' legatees.
7. This chapter was profoundly influenced by discussions with my friend Dr Michael Seitz, to whose prolific remarks I owe many a thought.
8. I am by no means implying that territory is reality and map fiction; this would be a simplification of Bateson's theory and entail an unwanted and inaccurate opposition. I rather suggest that territory includes the imaginary worlds evoked by the *signifiés*, as well as the context and knowledge the player must have from the field of "not play" as Bateson (1972, p. 181) puts it; hence, territory includes individual constructs. The fictional text serves as map insofar as it denotes and evokes these contexts, imaginations, etc., but does not consist of them (Bateson, 1972, p. 180).

References

- Bateson, G. (1972), "A Theory of Play and Fantasy", *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution and Epistemology*, University of Chicago Press, Chicago, IL (2000), pp. 177-93.
- BBC News (2004), "Theatre stormed in Sikh protest", *BBC News*, available at: http://news.bbc.co.uk/go/pr/fr/-/1/hi/england/west_midlands/4107437.stm (accessed 19 December).
- Boccaccio, G. (1350) in Usher, J. (Ed.), *The Decameron*, (translated by G. Waldmann), Oxford University Press, Oxford (1998).
- Carroll, L. (1872) in Haughton, H. (Ed.), *Through the Looking-Glass, and What Alice Found There, Alice's Adventures in Wonderland and Through the Looking-Glass*, The Centenary Edition, Penguin, London (1998), pp. 114-241.
- Chaucer, G. (1378) in Cawley, A.C. (Ed.), *Canterbury Tales*, Everyman's Library, London (1992).
- Coleridge, S.T. (1817) in Jackson, H.J. (Ed.), *Biographia Literaria*, Oxford University Press, Oxford (1985), pp. 155-482.
- Diderot, D. (1783), *Jacques the Fatalist and his Master*, (translated by M. Henry), Penguin, London (1986).
- Holland, N.N. (2004), "The power(?) of literature: a neuropsychological view", *New Literary History*, Vol. 35 No. 3, pp. 395-410.
- Ibsen, H. (1867), *Peer Gynt. A Dramatic Poem*, (translated by P. Watts), Penguin, London (1970).
- Iser, W. (1993), *The Fictive and the Imaginary: Chartering Literary Anthropology*, Johns Hopkins University Press, Baltimore, MD.
- Lazarowicz, K. (1997), "Triadische Kollusion. Über die Beziehung zwischen Autor, Schauspieler und Zuschauer", *Gespielte Welt. Eine Einführung in die Theaterwissenschaft an ausgewählten Beispielen*, Lang, Frankfurt am Main, pp. 97-111.
- Pavel, T.G. (1975), "'Possible worlds' in literary semantics", *The Journal of Aesthetics and Art Criticism*, Vol. 34, pp. 165-76.
- Riffaterre, M. (1959), "Criteria for style analysis", *Word, Journal of the Linguistic Circle of New York*, Vol. 15, pp. 154-74.
- Saussure, F.de (1916), *Course in General Linguistics*, translated by W. Baskin, ed. C. Bally/A. Sechehaye, in collaboration with A. Riedlinger), McGraw-Hill, New York, NY (1966).
- Shmelev, I. (2005), "Russia marks 3rd anniversary of Nord Ost hostage drama", *Pravda*, available at: <http://english.pravda.ru/russia/9133-hostage-0> (accessed 26 October).
- Spangenberg, B. (1981), "Zur Veröffentlichung dieser Ausgabe", Mann, K. (1936), *Mephisto. Roman einer Karriere*, Reinbek bei Hamburg, Rowohlt, pp. I-XV.
- Tolstoy, L. (1875-1877), *Anna Karenina*, (translated by R. Pevear and L. Volokhonsky), Penguin, London (2001).
- Wallace, E. (1927), *The Squeaker*, Hodder & Stoughton, London (1968).
- Wells, H.G. (1904), "The country of the blind", in Dolley, C. (Ed.), *The Penguin Book of English Short Stories*, Penguin, Harmondsworth (1967), pp. 103-28.

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Bateson and the Arts

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Free Play Productions, Ivy, Virginia, USA

1122

Abstract

Purpose – To elucidate the relationship between science and the arts in Gregory Bateson's thinking, from the viewpoint of an artist-musician and student of Bateson.

Design/methodology/approach – Synthesis.

Findings – One theme that pervaded Gregory Bateson's lifelong contribution was the rich and complex interface between art and science. Artistry (which may occur in either the arts or the sciences) plays across the interface between conscious and unconscious mind and environment. We come in actual practice to an appreciation and a facility for working with total cybernetic systems rather than the fragmented bits and pieces which are taught in conventional education and media. Through the play and discipline of creativity, we are able to experience this total systemic view of mind and nature.

Originality/value – Shows the reader significant ways of seeing the systems nature of our world through the experience and the practice of artistic creativity.

Keywords Cybernetics, Bateson, Art, Poetry, Seeing systems

Paper type Viewpoint/Conceptual paper



Art & Science cannot exist but by Naked Beauty display'd (Blake, 1804)

Gregory Bateson had a favorite opening gambit when meeting a class of new students. He would slap down on the table the remains of a crab or some other organism, and challenge us to examine it as the visible portion of a biological process. We would quickly be nudged toward an understanding of pattern and relationship, of what it is to be part of a living – and therefore sacred – world. The next week, he would bring in something quite different as a way into the same issues: a painting by Blake or Goya, a poem by Eliot. And very quickly we would enter into the essence of Bateson's world view as a biologist when he told us that art is *secreted* by organisms. Form is secreted by process; art is secreted by living beings. We would begin to share his fascination with the rich, complex, and fluid relationships between science and art, and to see them as aspects of an essential unity.



On the first page of his first book, Bateson (1936) wrote:

The artist . . . can leave a great many of the most fundamental aspects of culture to be picked up, not from his actual words, but from his emphasis. He can choose words whose very sound is more significant than their dictionary meaning and he can group and stress them so that the reader almost unconsciously receives information which is not explicit in the sentences and which the artist would find it hard – almost impossible – to express in analytic terms. This impressionistic technique is utterly foreign to the methods of science, and the Functional



School [of anthropology] . . . has scarcely attempted the delineation of those aspects of culture which the artist is able to express.

Art and science are set out as parallel but incommensurate activities. We often hear about “the art and science of medicine,” or that activity x is “both a science and an art.” What people often mean by these phrases is “science” as a set of logical, precise procedures and facts, and “art” as inspiration, subjective understanding, or the taking of intuitive leaps that cannot be taught or quantified.

At this first cut through our theme, the scientist has the task of collecting information, and of making connections and patterns explicit. Works of art can communicate a tremendous amount about the patterns of culture, not only by emphasis, coloration, context, and imagery, but by what is unsaid. In this paragraph, Bateson is poking toward the notion that the artist is able to participate, and to get the audience to participate, in *unconscious information*. The scientist must write for his or her audience in such a way that everything is unequivocally laid out, all the data and its interconnections held in conscious awareness. Since, the information inherent in any culture, in any human or biological interaction, is recursive, multilayered, and multidimensional, something essential always gets squashed or cut out.

Playing across the boundary/interface between science and art, we see Bateson’s subsequent work as redefining our epistemology so that science can begin to carry an awareness of the same unconscious and systemic richness that we find in art.



Many of the issues and themes in Gregory’s body of work were set in motion by his father, the dualism between art and science among them. William Bateson, the foremost British biologist of his day, rediscovered the lost work of Gregor Mendel, and established and named the science of genetics. He had an eye for pattern and the systems view of things long before “systems” were spoken of.

William Bateson was steeped in visual art and poetry, was an avid art collector, and one of the few people who kept the work of William Blake alive in an age when Blake was neglected or misunderstood. He introduced Blake’s work to Geoffrey Keynes, the surgeon who went on to become the great Blake scholar of the Twentieth Century, and who more than anyone else brought Blake into the public eye as one of the great poets, painters and philosophers. Bateson was made a trustee of the British Museum, not because he was a wealthy donor, but because he intimately knew the collections of every museum in Europe. He purchased an original set of Blake’s *Illustrations of the Book of Job* to celebrate the birth of his eldest son, John.

William Bateson expected his sons to follow in his footsteps. He was adamant that a Bateson could be a scientist, but was not equal to being an artist. Part of his attitude was the reluctance that many parents feel about their children going into the arts, for fear that they would not be able to make a living. But part, the imputation of “not good enough,” was a statement that artistic creativity exists somehow at a too exalted level for mere mortals. Much as he loved art, he set it upon a pedestal, and felt that to actually *be* an artist was simply too mysterious a condition. It required genius rather than conscious effort.

After John was killed in World War I, William’s forbidding attitude toward artistic creativity may have contributed to the suicide of his second son, Martin, who wanted to be a poet and dramatist. The third son, Gregory, inherited both the scientific legacy

and the Blakes – and the conundrum or the koan of how to reconcile them. Gregory’s journey over the next half century became a tale of reconciling WB & WB.

Blake, the prophetic, passionate, and spiritual artist who so precisely saw and drew his visions, may have served as a kind of placeholder for all those feelings that were beyond or outside for the elder Bateson. Those things for which Blake stood – a sense of wholeness, a recognition of the vastness of unconscious activity, and love, were the elements which Gregory Bateson later tried to integrate into the epistemology of science.



There are plenty of differences between art and science, but also many commonalities. Both artists and scientists are empirical, intimately involved with data and observation. They may have theories, which may come by intuitive leaps and *seeing* disparate pieces fall together into a whole – but the theories have to be tested by experience. If your theory results in a sloppy symphony or a sculpture that falls over as soon as you remove the scaffolding, it is not worth much. Blake (1810) said:

Every man has eyes nose & mouth, this every idiot knows; but he who enters into & discriminates most minutely the manners & intentions, the expression the characters in all their branches is the alone wise or sensible man & on this discrimination all art is founded.

There was no treat greater than watching Gregory Bateson observe a forest, a tide pool, or a couple interacting at the next table in a restaurant. He had an uncanny ability to get really close to the data at hand, to see things that others could not see but which then seem obvious when they are pointed out.

Data was a word which Gregory often pronounced with a kind of religious enthusiasm and gleam in his eye – a scientist who loved the act of observing the natural world. But, as his teaching methods showed – looking at the crab and the Goya painting as equally examples of biological phenomena – his idea of data was wider than that of many scientists.



Students often ask – and are sometimes even taught to ask – what does the poem (novel, painting, Bible, . . .) *mean*? It is as though art were a codebook and you could flip the page over to get the right answer. It is tempting to say that the meaning of this book is that Madame Bovary should not have done *x*, so she got what she deserved. For people who like to ask, “what does it mean?” the all-around perspective of art can be irritating or intimidating. It can take a while to figure out why artists cannot just say what they mean.

Artist and scientist are both in the business of uncovering reality. But neither can do so without reference to larger patterns and contexts. The artist uses story, image, and movement, to evoke layers of reality that cannot be explicitly stated, but which are ever-present. The data show up as though mapped on a Möbius strip or a Klein bottle, in that it can never be flattened onto a piece of paper. The scientific approaches that come closest to preserving the multidimensionality of data and awareness of context are natural history and systems theory – unsurprisingly the two most significant influences on Gregory’s work.

William Bateson passed on to Gregory the notion that in examining living systems, the most important question is not “what pieces is the system made of?” but “what is

the pattern?” What is the structure, how do the pieces connect to each other? He was interested in isomorphism: how is the crab’s leg related to the human leg and so forth. The primacy of patterning is central to Gregory’s work, and goes against the grain of our society’s preferred ways of thinking. We decipher the “genetic code” and think that if we can figure out which gene “causes” something, we can turn traits on and off and go on our merry way. Without a systems view, it is difficult to see unintended consequences coming, to understand the integrative qualities and influences of patterning and context, the dialectic of self and environment.

Gregory’s most central document about art is the 1967 paper, “Style, Grace, and Information in Primitive Art.” There he cites the statement famously attributed to Isadora Duncan: “If I could say it I wouldn’t have to dance it.” The information that is portrayed in art cannot be explained in terms of what is conventionally called “meaning.” We can talk forever in sequential explanations without getting close to what she can do in one gesture, what the filmmaker can do in one shot, or what the poet can do in one phrase. It is not a matter of verbal vs nonverbal communication, because literature can evoke the unsayable layers of pattern and context in words too. Since its essence is metaphor and interconnectivity, the work of art does not lie flat on the page (or on the television or computer screen, or in the time frame of music) and never can. Nor can a sequential explanation convey all the richness of Darwin’s Beagle expedition, or any other body of nature’s data.

In playing across the interface of art and science, Bateson was part of a long tradition of thinkers who have had a preference for seeing patterns which connect rather than a world of things and forces. It is a tradition of polymaths and renaissance men, going back to the great granddaddy of them all, Pythagoras.



He only takes portions of existence and fancies that the whole (Blake, 1790).

Freud taught Western civilization to see that conscious mind is merely a small portion of the total mind-body. But, he was hobbled by the mechanistic (and hydraulic) metaphors of his time, and talked about “the” unconscious as though it were a thing or a place. Jung came along with important efforts to refocus and expand Freud, but was limited by the same mechanistic metaphors. Bateson laid out the pattern in a way that was more true to life than Freud, thanks to his cybernetic view of things. He understood how consciousness cuts mental circuits into small arcs (Bateson, 1970, 1971). Mind and communication can be understood as circuits of influence and causation – of information transforming information at multiple levels. All life processes are vast complexes of such feedback loops. Consciousness, the gift of being able to focus in on single details of our perceptual or mental world, is also the limited view, snipping a feedback loop into a line segment; and we mistakenly take that line segment to be the whole. Hence, our preference for straight-line cause-and-effect thinking. Art – like religion, dream, and other experiences – restores a sense of the whole, which is far too complex to be handled in discursive consciousness or “meaning.” The activity of art, creating and beholding, takes us into the breach, the interface between consciousness and unconsciousness.



The roaring of lions, the howling of wolves, the raging of the stormy sea, and the destructive sword are portions of eternity too great for the eye of man (Blake, 1790).

The word *cybernetics* comes from *kybernetes*, the Greek for helmsman or steersman. The same root developed into the word *governor*. All words begin as metaphor, that is, as little works of art[1], arising from and evoking images, sounds, feelings, associations. Like many works of art, they may become fossilized, and may require new works of art to de-fossilize them. The steersman metaphor references the central cybernetic fact of feedback – respond to conditions, turn right, turn left, adjust and balance as cause and effect loop around the circuit to keep you on course. But, there is another aspect to the steersman image.

The *kybernetes* steers a course with the corrective feedbacks and goal-seeking behavior which we now know so well. But in addition, the steersman is aware of the whole field of stars above, aware of the qualities of the winds, the currents, the smells of the air and the sea and what that information tells him, the whole environment of complex, analog information that is best understood by feel and direct experience. This is how Bateson (1936) describes the gestalt perceptions in art and fiction, on page 1 of *Naven*. The all-around environment of experience is quite unlike our usual way of conceptualizing information. Linguists, computer programmers, psychologists prefer to see communication as a sequence of utterances: I say *a*, you say *b*, I say *c*, you say *d*. Even a model that comprehends feedback and recursiveness falls easily into the trap of breaking experience up onto a timeline, into events and utterances, breaking music into notes. The utterances are ascribed “meaning” and the total conversation is their sum. Bateson was frequently upset by researchers who wanted to count double binds, or more generally, to split human interaction into identifiable “events.”

But the steersman perceives the environment *not in series but in parallel* – a harmony or counterpoint of a total environment rather than a lineal string of bits of information. Rain is an integral, multisensory milieu, not a series of drops. If science is to help us understand and clarify the nature of real life, we need to understand more about parallel or harmonic processing.

The cybernetic conception of circuits of communication in self-environment systems is an advance over earlier ways of thinking, but does not go far enough. Much, probably most, of communication is harmony and counterpoint – simultaneous or parallel signals, images, tones, feelings, environmental factors that are continually blending and modifying each other. We live in a field or environment of co-occurring information, a great deal of it analog. I see this from the point of view of an improvisational chamber musician. My partners and I get up on stage and produce music by means of one technique only: total, intense, interactive listening. No one is in charge or plans anything in advance, yet a coherent piece reliably emerges; we inhabit an indissoluble environment of information.

Whether harmonious or cacophonous or both, this environment is a layering of multiple interdependent voices playing at once. A walk in a jungle, or a temperate forest in summertime, will give the same impression. So many voices from so many directions, yet the complete consort dancing together. Artistic functioning, particularly when the method is improvisation, puts us in conscious contact with the realities of system, such as continuous feedback and calibration, recursive self-modifying behavior, concurrency, ongoing interactional relationship. These qualities, as Bateson

teaches, are the hallmarks of being alive, but we seldom experience them consciously. In improvisation, these realities are right there for us to see, hear, touch, and play with.



Artistic functioning is a dance of equilibrium between motor and sensory. The productive and receptive sides of art each involve some of the other. We long ago came to understand that information does not simply come in through the senses and get registered on our nervous system – perception and memory are actively constructed. Bateson was influenced by the constructivist view in psychology, from Bartlett (1932) and Piaget (1937) on. We construct reality in apprehending it, so that perceiving is making, making is perceiving.

As we look out the window, our training, biases, learning, social conditioning, physiology, and chemistry, all are causing us to construct a perception of reality in a certain way. In this sense, we are always acting artistically on the environment simply by looking out the window. Active perception becomes a central fact of life when we make artwork or take in the artwork that someone else has made. Making and knowing, acting on things as an artist does, the action itself is constantly conditioned by feedback, by environment, by vast and finely differentiated ecosystems of unconscious activity.



For we now recognize the nature of our disease. What is wrong with us is precisely the detachment of these forms of experience – art, religion, and the rest – from one another; and our cure can only be their reunion in a complete and undivided life (Collingwood, 1924).

What is art? From one perspective, a professional life in the arts consists of three activities: refining one's technical skills, keeping up with current developments in the field, and ingratiating oneself to people who can be helpful in one's career. This is no different from any other profession. Many who pursue such a path produce beautiful and influential work. But this is not what is evoked by the word *art* in our present discussion. Seen in this light, we cannot say that composing music is art, while studying genetics is not art. "The arts" can be as limiting a line of work as any other.

What Bateson provides is an understanding not of art but of artistry. Artistry entails transformation and expansion of the person into something more inclusive than our limited concepts of identity and meaning. Artistry operates across the slash mark of conscious/unconscious, of self/other. Bateson makes us face a series of illusory dichotomies which we accept in our daily lives but which are false, such as mind/body, self/other, organism/environment, conscious/unconscious, thought/feeling. This is in the great tradition of scientific breakthroughs, like Einstein finding two separate realms, matter/energy, a fundamental dualism that everyone accepted, and realizing that these terms are a matter of perspective. Most particularly, we bridge the split of conscious purpose vs our unconscious totality or nature.

Bateson evokes a nonduality of body and mind which is very much akin to Buddhist perceptions, particularly Zen. From this nonduality is born our creativity and our ability to partake of the artistry of others.

We can reveal artistry in every field of life, even politics. I often return to the hopeful image of one of the most creative politicians of our time, Nelson Mandela. Artistry engages unitive experience, that is, crossing or erasing those slash marks. Mandela, along with Desmond Tutu and others in South Africa, was able to re-visualize the slash mark between oppressor and oppressed as an interface, with the invention of the Truth and Reconciliation Commission – a practical, empirical technique for enabling people to move on from a brutal past. This was magic, in the sense of doing something that seemed impossible, but involved nothing supernatural, only simple thinking.

Bateson (1980) reminded us, in a lecture he called “Simple Thinking,” that creativity finds a simple pattern that can contain the great complexities and contradictions without diminishing them.



grok, v.

a. trans. To understand intuitively or by empathy; to establish rapport with. **b. intr.** To empathize or communicate sympathetically (with); also, to experience enjoyment. (Oxford English Dictionary).

At the end of *Mind and Nature*, Gregory inexactly quotes e.e. cummings. Gregory writes, “Always the more beautiful answer who asks the more difficult question” (Bateson, 1979a). As it turns out, cummings (1938) said, “Always the beautiful answer who asks a more beautiful question.” Bateson, with his own set of presuppositions and tastes, unconsciously substituted “difficult.” And why did he do that? He was making the connection between aesthetics and complexity, aesthetics and a fundamental understanding that the world is cybernetic, a vast interactivity of many creatures, many variables, ecological systems that are beyond the capacity of discursive thought to encapsulate in simple words and formulations – and therefore “difficult.” He told me that beauty is awareness of the pattern which connects. He was fleshing out Keats’ (1819) statement that “Beauty is truth, truth beauty.” While Bateson did not refer to the Keats line specifically, he went about showing how that equation works. For Bateson, beauty is (biological and systemic) complexity, and complexity is beauty. *Difficulty* does not mean something unnecessarily complex, but rather the necessary complexity and multidimensionality of the world that cannot be defined in the partial explanations of discursive thought, that cannot be handled in the kinds of proofs that we like to see in academia, law, politics, science, or journalism.

cummings, in the same text, tells us that we are going to hear “nothing proving or sick or partial.” So cummings groks a Bateson-like idea that cognition is always partial, and of its very essence leaves out the complexity and multilevel nature of the world around us. The real world is a totality, and conscious understanding is the small sliver that we can see at any time. If we turn our attention away from that small sliver, we see yet another small sliver. Sickness – of our relationships with the earth, with other human beings – arises from the inevitably partial nature of our perception. He says his poems contain:

nothing proving or sick or partial. Nothing false, nothing difficult or easy or small or colossal. Nothing ordinary or extraordinary, nothing emptied or filled, real or unreal; nothing feeble and known or clumsy and guessed (cummings, 1938).

which almost sounds like the wording of that foundational document of Buddhist epistemology, the Heart Sutra. In consciousness that goes beyond our ordinary thought processes, there is “no eye no ear no tongue no body no mind,” and so on. It cannot be grasped in ordinary ways. But it can be grokked.

We can look at any of cummings’ words and ask “what does that mean?” But that is the fundamental non-question about art. This non-question, which we love to ask, brings us back to “If I could say it, I wouldn’t have to dance it.”

cummings comes at the very end of *Mind and Nature*, where Gregory points toward the themes of beauty and ugliness, the sacred and the nature of consciousness, and how they relate to the fundamentals of science. These are the matters of *Angels Fear* (Bateson and Bateson, 1987). Dancing, playing the violin, photographing images, using words in the way cummings or Blake or Eliot used them – these gestures poke questions at nature, and at the perceptual constructs we impose on it. The activities of art and science, once again, while not the same, are related. The dialog with nature, if it is to result in real understanding, needs to be explored in a way that preserves the richness and multiplicity of the material. There is a lot of pressure on us to squash our thoughts into the plane of “what does this mean?” with bullet-pointed answers in the fashion of Microsoft PowerPoint. Drawing distinctions, laying out logical pathways of thought, clarifying words, without these activities we cannot begin to talk about things, and lose all points of reference. But, we have to regard these points as provisional. Too easily, we get drawn into the well established forms of reductionism and disciplinary blinders. We all know the Buddhist parable of the three blind men and the elephant. But, the problem is not that each of the blind men only knows one part of the elephant, it is that the entire elephant is flattened into a two dimensional “object.”



If this were the sort of message that could be communicated in words, there would be no point in dancing it. But it is not that sort of message. It is, in fact, precisely the sort of message which would be falsified if communicated in words, because the use of words (other than poetry) would imply that this is a fully conscious and voluntary message, and this would be simply untrue (Bateson, 1967).

“If I could say it, I wouldn’t have to dance it” is usually attributed to Isadora Duncan, but has also been attributed to Martha Graham. There is also a story that Louis Armstrong was asked about the meaning of his music, to which Satchmo replied: “Lady, if I could say it, I wouldn’t have to blow it.” Who “really” said it? Bateson might tell us that this is not the significant question: the story is a parable, whose factual basis may be fuzzy or even made up – the truth of a parable is not the particulars of the story but the relations between them. Since, the relations reflect a truth that we all experience, the parable is retold time after time. As Joyce (1941) said, “not a feature alike and yet the face the same.”



“Art and science cannot exist but by naked beauty displayed.” Art and science are both about the revelation of reality. Listen to Bach as he peels back the mathematical

structure of the universe and shows how everything is interconnected. He moves through a network of variations like a mathematical proof winding around and enclosing many dimensions. You can feel and experience the interconnections, as the individual self recedes into the background.

Gregory saw an analogy (Nachmanovitch, 1981) between Bach's *Goldberg Variations* and the spinal column of an animal or human. Each vertebra is a self-contained piece; each is a unique modulation of a basic pattern which replicates from piece to piece; each transform takes its relational identity from the place it occupies between the piece before and the piece behind. He felt that he could appreciate this music because he also was a segmented, rhythmic object. He was following the train of thought: homology → isomorphism → metaphor → art. This train of thought begins with William Bateson's fascination with the comparative anatomy of living beings and ends with Gregory's clearly thought-out form of aesthetics and spirituality. Truth is beauty, beauty truth.

The tools of art become *me*, the *me* dissolves to include a cybernetic system which is *me* plus the tools. Thus, Bateson's (1970) parable about the blind man and the stick – where does the person end and the stick begin? where does the stick end and the world begin? Where does *me* end? The violin and the bow, as dynamic extensions of body and mind, bring up that question, but so do all our toys and tools. Similarly, in relationship to my loved ones . . . where does the *me* end and the *other* begin? If I am 100 percent sure of where *me* or my interests end and *she* or her interests begin, is it really love?



There was the story of a man who had a tame computer, and he wanted to know whether computers would ever think. So he programmed the computer to solve the problem, "Do you compute that you will ever think like a human being?" The computer thumped and bumped, and finally printed the answer on a piece of paper. The man ran to get the piece of paper, and he read it. On it was printed, "That reminds me of a story." (Bateson, 1979b).

In Dickens (1843) *Christmas Carol*, selfish Scrooge has an awakening experience when he is exposed to the point of view of other people and other time frames. He sees the systems of which he is a part, and opens up to a better existence. The ghosts of Christmas Past, Present and Future give Scrooge a little taste the gift that Blake (1804) called "vision" or "prophecy." Blake said: "I see the Past, Present & Future, existing all at once." Visionary experience is not a matter of seeing weird personages who are not there, it is a matter of seeing systems and how they interconnect. If we do not see the systems in which we live, we will live in systems anyway, and some of those systems are unlikely to be healthy for the survival of the human species.

Gregory's most abiding effort as a teacher was to get people to see systems. "And, quite seriously, I suggest to you that we should trust no policy decisions which emanate from persons who do not yet have that habit" (Bateson, 1970). Yet, here is the rub: good luck finding people who can see systems! He argued that our linguistic habits distort how things are, and we can spend dozens or hundreds of years trying to create a language for talking about relations, and still not do a very good job of it. But, there is one technology for talking about relations which exists today and which has always existed: that is the language of story (Bateson, 1979b).

Here is the hero of Blake's longer epics, the blacksmith-artist-poet Los, working "in pulsations of time & extensions of space,"

With great labour upon his anvils, & in his ladles the Ore
 He lifted, pouring it into the clay ground prepar'd with art;
 Striving with Systems to deliver Individuals from those Systems;
 That whenever any Spectre began to devour the Dead,
 He might feel the pain as if a man gnawd his own tender nerves (Blake, 1804).

For Bateson too, the medicine is empathy, feeling what life is like on other paths of the circuit. Art is medicine, art is play, art is the coordination of conscious and unconscious. People with an aesthetic sensibility "would meet the primrose with *recognition* and *empathy*. By *aesthetic*, I mean responsive to *the pattern which connects*" (Bateson, 1979a).

It is difficult, sometimes impossible, to effectively tell people what we think they should know, or to describe patterns without distorting them. However, we can invite someone to sit in a chair which is positioned so that the data and patterns can be seen for themselves. Microphone positioning creates a point of view, as do camera angles, the lighting of shots, and other artistic devices. There is the art of creating fictional characters, even evil characters, in such a way that we are capable of being positioned inside their experience.

In art, we operate in the playspace of empirical testing so that we can observe the world from many points of view and can experiment freely with form, pattern, feeling, and sensation. Yet, there can also be leakage between the playspace of metaphor and the "real" world. ("So you are the little lady who made this big war," said Abraham Lincoln to Harriet Beecher Stowe).

Human evolution, including cultural evolution, has produced languages and logics from which have flowed the manifest benefits of technology, but which have also created grave problems in terms of limiting our point of view. The same evolution has produced some correctives to these limitations . . .



The central question is: In what form is information about psychic integration contained or coded in the work of art? (Bateson, 1967).

The idea of the healing effect of the arts, in the West, goes back to Pythagoras and beyond. Is the corrective or medicinal nature of art just a subjective impression we would like to be true, or does it have a basis that we can identify? What is the mechanism? In the *Timaeus*, Plato talks about the power of drama. Plato, we know, was suspicious of artists and poets, and did not want them in his Republic. Yet, he recognized that there was some great power and significance in artistic expression. In a remarkably cybernetic turn of phrase, he said:

The motions akin to the divine part of us are the thoughts and revolutions of the universe. These every man should follow, correcting those circuits in the head that were deranged at birth, by learning to know the harmonies and revolutions of the world; he should assimilate the thinking being to the thought, renewing his original nature. (Plato, c. 350 BCE).

The specific derangement of the human circuits that we need to heal is *not knowing that they are parts of circuits*. Consciousness, as we ordinarily conceive of it, is caught in a model of thinking in straight lines and pairs of opposites – cause-effect,

before-after, subject-object, me-other. Bateson argued that pathology arises from cutting a continuum at an arbitrary point. We consciously scan little bits of reality – our percepts, thoughts, feelings, memories – and take them to be the whole. We take simple goal-seeking actions and are then blindsided when the effects ripple through and come back in some unexpected way to bite us. In our arrogance as a society and our belief in our conscious purposes, we transform the earth and are then surprised when those transformations cycle back in some toxic form. Poetry, music, religion, dream, meditation, and art are among the activities that Bateson repeatedly cited as “correctives” to bring us back into touch with the total circuit. We can perceive the self as dynamic, transient and fluid, rather than a static, permanent entity. We can recover connections to patterns in our environment of which we were heretofore unaware. These are among the royal roads to making the unconscious conscious, re-connecting those circuits, and recovering some sense of our own wholeness.

The most ordinary act of creativity is improvisation, in the form of spontaneous conversation – the art of listening and responding, interacting, taking in the environmental factors unconsciously but with precision, modifying what we do as a result of what we see and hear, a multidimensional feedback. In our daily lives, we create all the time; we do not write down what we are going to say before we say it (Nachmanovitch, 1990). We do not need any extraordinary credentials. There is “nothing special” (Suzuki, 1973) about it, but from that nothing special arises our opportunity to attain some wisdom and compassion about the world in which we live. And so we can take art off of William Bateson’s pedestal and put it where it belongs, in the dynamic center of our lives.

Return to the beginning, where Bateson slapped the crab and the artwork on the table. The bodies of living things, the artworks by Blake and Goya, are secreted from a process, which is life. In the many arts, we attain some completeness through practice, and then express something that bespeaks that completeness.

For I am full of matter, the spirit within me constraineth me.
Behold, my belly is as wine which hath no vent; it is ready to burst like new bottles.
I will speak, that I may be refreshed: I will open my lips and answer.
(Book of Job 32:18-20)



Note

1. Words as little artworks: a search of the Oxford English Dictionary reveals 105 words whose first or definitive usages are by either Gregory or William Bateson.

References

- Bartlett, F. (1932), *Remembering*, Cambridge University Press, Cambridge.
- Bateson, G. (1936), *Naven*, Cambridge University Press, Cambridge.
- Bateson, G. (1967), “Style, grace and information in primitive art”, paper presented at Wenner-Gren Symposium on Primitive Art and Society, Reprinted in *Steps to an Ecology of Mind*.
- Bateson, G. (1970), “Form, substance, and difference”, *General Semantics Bulletin*, Vol. 37, Reprinted in *Steps to an Ecology of Mind*.

-
- Bateson, G. (1971), "The cybernetics of 'self': a theory of alcoholism", *Psychiatry*, Vol. 34 No. 1, Reprinted in *Steps to an Ecology of Mind*.
- Bateson, G. (1979a), *Mind and Nature*, Dutton, New York, NY.
- Bateson, G. (1979b), *What is Epistemology?*, Lecture at the Esalen Institute, Big Sur, CA.
- Bateson, G. (1980), *Simple Thinking*, Lecture at the Esalen Institute, Big Sur, CA.
- Bateson, G. and Bateson, M.C. (1987), *Angels Fear: toward and Epistemology of the Sacred*, Macmillan, New York, NY.
- Blake, W. (1790), *The Marriage of Heaven and Hell*, Printed by the author, London.
- Blake, W. (1804), *Jerusalem*, Printed by the author, London.
- Blake, W. (1810), *Catalog, A Vision of the Last Judgment*, Printed by the author, London.
- Collingwood, R.G. (1924), *Speculum Mentis*, Oxford University Press, Oxford.
- cummings, E.E. (1938), *New Poems, from Collected Poems*, Harcourt, Brace, New York, NY.
- Dickens, C. (1843), *A Christmas Carol*, Chapman and Hall, London.
- Joyce, J. (1941), *Finnegans Wake*, Faber, London.
- Keats, J. (1819), "Ode on a Grecian Urn", *Annals of Fine Arts*, Vol. 15.
- Nachmanovitch, S. (1981), "Gregory Bateson: old men ought to be explorers", *CoEvolution Quarterly*, San Francisco, CA.
- Nachmanovitch, S. (1990), *Free Play: Improvisation in Life and Art*, Penguin-Putnam, New York, NY.
- Piaget, J. (1937), *The Construction of Reality in the Child*, Basic Books, New York, NY.
- Plato (c. 350 BCE), Timaeus, cf. translations by F.M. Cornford (1937) and Desmond Lee (1952).
- Suzuki, S. (1973), *Zen Mind, Beginner's Mind*, Weatherhill, Tokyo.

Further reading

- Bateson, G. (1972), *Steps to an Ecology of Mind*, Chandler, San Francisco, CA.
- Collingwood, R.G. (1938), *The Principles of Art*, Oxford University Press, Oxford.

About the author

Stephen Nachmanovitch is a musician, author, artist and educator. He studied at Harvard and the University of California, where he earned a PhD in the History of Consciousness for an exploration of William Blake. His mentor was the anthropologist and philosopher Gregory Bateson. He has taught and lectured widely in the USA and abroad on creativity and the spiritual underpinnings of art. In the 1970s, he was a pioneer in free improvisation on violin, viola, and electric violin and opened up many techniques now used in electroacoustic music. He has had numerous appearances on radio, television, and at music and theater festivals, and has collaborated with other artists in media including music, dance, theater, and film, and has developed programs melding art, music, literature, and computer technology. He has published articles in a variety of fields since 1966, and is the author of *Free Play: Improvisation in Life and Art* (Penguin-Putnam, 1990). He is currently working on a new book on Bateson, and new musical projects. He lives with his wife and two sons in Virginia. Stephen Nachmanovitch can be contacted at: sn@freeplay.com



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What would Bateson's work look like today?

Inside one of the world's most violent nations, now a model for peacemaking and sustainability

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Abstract

Purpose – To demonstrate that Bateson's path-breaking life and breakthrough thinking have directly (and indirectly) inspired a profound shift which has specific and practical effects in the physical world – as well as in the world of ideas.

Design/methodology/approach – The paper describes an outstanding initiative inspired by Bateson's ideas and work.

Findings – Colombia's Gaviotas, situated far from the traditional centers of power and prestige, is the scene of an extraordinary whole system's experiment which is successfully applying Batesonian ideas in a harsh and troubled setting. Colombia is a country where environmental degradation, violence and instability are rampant. The paper examines some of the successes already achieved in Gaviotas, the path that lies ahead and the new opportunities being pursued by the Gaviotas project's developers. The paper attempts to understand how scientists are actively using Bateson's epistemology in their work.

Practical implications – This paper aims to enrich the Bateson memorial by demonstrating that cutting-edge ecological thinking, as pioneered by Bateson, is being applied around the globe in ways both surprising and profound.

Originality/value – This paper identifies a unique attempt to manifest, in the most difficult circumstances, that Bateson's ecological concepts and values are not abstractions and that change is a process which can occur in the most unlikely places.

Keywords Cybernetics, Psychology

Paper type Case study

Humanity's increasingly complex and multi-pronged global predicament has reached a critical "tipping point": the negative impact of our species-wide behavior on the home planet have become a matter of the gravest public concern, and justifiably so. The situation – whether viewed through the lens of degraded water quality, air pollution, soil erosion or any one of a thousand other indicators – has, fortunately, made the necessity of ecological thinking a matter of wide agreement amongst leaders in all of the key sectors, including business, government, science and education.

Gregory Bateson was one of the pioneers of an integrated and synthetic approaches to problem-solving, whether at the micro level (through psychotherapy) or at the macro-level (when he addressed humanity's false alienation from nature). What, during this first decade of the bi-millennium, would he be doing to address the global *problematique*? This essay is written with that one question in mind, and it seeks to provide one speculative answer. To find this answer, consider the possibilities in the



small and troubled nation of Colombia, a troubled land rife with human conflict suffering from massive environmental degradation.

Imagine miles and miles of desolate savannah in South America, without a tree or bird or child in sight, a veritable no-man's land. For Paolo Lugari, this was the perfect place to implement a vision – and to prove a point: if a sustainable community could be created in such adverse environmental, social and political conditions as Eastern Colombia, it could be done anywhere on the planet.

Paolo, a young man who was home schooled by his father, imagined that this desolate region where he spotted a seagull far from any coast, could one day become an inspiration for sustainable development.

By 1992, Paolo's environmental research center, Las Gaviotas, had finished planting 8,000 Hectares (30 square miles) of Caribbean pine trees in a savannah that had been unproductive for centuries. The rebirth of a rainforest in soil so acidic and inhospitable as to measure a pH of 4, was considered impossible by experts in academia, but thanks to the innovative use of mycorrhizal fungi which acts as the saliva for the tree, the forestation was successful. More than just successful, it initiated economic opportunities and unleashed a chain reaction of positive effects that surprised even the initiators of the program... New tropical plants emerged, water was now abundant and products from the forest sustained the employment of many workers.

Gaviotas is a state of mind, more than anything. It is not really so much a place. It's a way of living and thinking. It means not just thinking outside the box, but constant innovation and re-invention (Paolo Lugari, Founder of Gaviotas)

Yes indeed, to everyone's surprise, the symbiosis between the pine tree and the mycorrhizal fungus not only permitted the seedlings to survive the harsh conditions, but as soon as the young pine offered shade, and the pH turned less acidic, a completely new forest emerged. Conditions were created to permit the natural tropical ecosystem to retake its natural course resulting in the arrival of over 250 tropical plant species. The original hypothesis has become a thesis: this "dead" zone is a natural rainforest waiting to re-emerge.

By 2004, more than a decade later, the forestation had resulted in 10 percent more precipitation, converting Las Gaviotas into a net supplier of drinking water, which fetches more money than even petroleum. The choice of the Caribbean pine tree provided another economic impulse. The 7-14 grams of resin a day produced by the tree is locally converted to a raw material for the paint and paper industry bringing industrial activities to the region. Palm trees are planted to provide a permanent supply of vegetable oil, which is rather easily converted into biodiesel fuel for machinery.

In the course of Lugari rewriting the science of forestry, he created a self-sustaining community of 200 full-time workers, independent of donor money. It is a center of creativity, where innovations are conceived by following nature's example. Currently Lugari is expanding and hopes to reforest the entire 6.3 million Hectares of savannah (twice the size of Belgium) that surrounds Las Gaviotas. The \$6 billion required should be easily won as it would be a winning proposition for potential investors and the people of Colombia: the economic power of drinking water (thanks to the forest), hydroponic food crops (thanks to the abundance water), and biodiesel (from the forest) can provide natural revenue streams potentially creating 120,000 new jobs, securing a

local source of drinking water, eliminating the need to import diesel fuel and reducing Columbia's foreign debt.

For 30 years at Las Gaviotas, Lugari and his ever-changing team of university graduates and students, street kids, and indigenous people have used ingenuity and local resources to create livelihoods for 200 workers, who support some 2,000 family members in the region.

The savannah landscape reminds some visitors of central Nebraska, grassland with narrow forest bands along perennial streams. Lugari's team discovered that Caribbean Pines would take root in the exceedingly acidic grassland soil. The pines provided shade and new organic matter and nature did the rest: the regenerating forest has recruited more than 200 species of plants and animals from the nearby "gallery" forests. In addition, the pines provide commercial resin products to support the community. Serendipitously, the altered microclimate yields more rainfall and the enriched soil is an efficient filter, so for the first time Gaviotas has an abundance of potable water.

In the course of its constantly evolving experiment on the Colombian plains, Las Gaviotas has become an oasis of harmony in a country wracked by violence. The village community center, a rakish building that provides both natural air conditioning and wonderful acoustics, houses a mural showing Gaviotas' accomplishments and dreams. The mural includes the inscription: "True maturity consists in realizing your dreams."

In 2004, the Colombian government adopted the dream of reforesting 25,000 square miles of savannah. As part of this "Megaproject," the organizers are managing the expansion of the Gaviotas forest from 32 to 320 square miles – and also initiating reforestation on land donated by the Air Force at Marandúa. At Marandúa – an indigenous name that translates as "Good News" – there are enthusiastic high-ranking officers who bear responsibility for logistical support of the project. The men expressed their dedication to sustainable development as a path away from poverty and violence toward security in their country.

Their vision further includes Gaviotas and Marandúa as centers for ecological research and ecotourism. Often, fleeting glimpses of hummingbirds, macaws, and other birds both pleased and teased me. They exemplify the riches that await amateur and professional naturalists on the savannah, especially in pristine Tuparro National Park across the impressive Río Tomo from Marandúa.

One of the most inspiring stories of sustainable development in recent years is the establishment of the Las Gaviotas community on the eastern savannas of Colombia in South America. Considered to be one of the richest ecosystems in the world, Colombia is situated upon the equator with a range of natural elevations ideal for the efflorescence of an extraordinary abundance of biological diversity. With a highly educated and literate population, the country produces more than a hundred exportable crops and has developed a large range of manufacturing industries including textiles, chemicals, electrical apparatus, and transport equipment.

However, since the late 1940s, Colombia has been principally known for an ongoing cycle of violence associated with the struggle between government forces and the Fuerzas Armadas Revolucionarias de Colombia. This ongoing struggle, coupled with the well-publicized narcotics trade, has established Colombia as one of the most

dangerous places on earth. Yet, despite the very real social crisis, Gaviotas has managed to create one of the world's most significant sustainable communities.

In 1971, the community commenced the slow process of transforming the barren soils of the eastern plains into what has been referred to as the miraculous community of Gaviotas. Situated in Vichada, a two-day drive from the capital city of Bogota, the name is taken from the small yellow-billed terns that frequent the area. At present, Gaviotas is a village of about 200 people and for over three decades has struggled to build a uniquely alternative, socio-political environment and sustainable community in the remote, barren plains or llanos of Eastern Colombia.

The compound features neat white cottages, shaded by mango trees and bougainvillea and a range of buildings including a school, meeting hall, open-air dining room and guest-houses. The roofs are studded with solar water heating systems and the meeting hall is decorated with a large mural depicting the history and vision of the community.

While it is impossible to give a complete account of the many innovative projects developed by the community, it is to be hoped that the following examples would give some indication of the possibilities for sustainable living illustrated by this remarkable community.

Established and directed by Lugari, the son of an Italian attorney and engineer, the community began with a collection of researchers, students and laborers sharing vehicles, bedding, dishes, and clothes. In time, several dwellings were built to house a number of families and the unique social and cultural environment was established on the basis of unwritten rules and consensus decision making.

Designed to be self-sufficient, Gaviotas has produced many innovative, cost-effective projects and made them available as viable alternatives for social and economic development in both rural and urban areas. The community has implemented advanced examples of zero emissions principles and practice and continues to illustrate that these principles are the only way to secure the long-term success of both economic and environmental initiatives.

The range of innovative projects undertaken at Gaviotas is remarkable; key areas have included:

- the development of appropriate technologies;
- reforestation;
- protecting and recovering biodiversity;
- food production; and
- the generation of industries and job creation that sustain the community financially.
- the preservation of Indigenous cultures.

Early problems for the new community were the production of fresh food, and access to clean water. The soils of the llanos were thin and unproductive and there were several unsuccessful attempts to grow fruit trees and vegetables to sustain the multiplying population. Attempts to increase the fertility of the soils produced marginal results and ultimately, the mainstay of fresh food production was supplied by large hydroponic greenhouse areas with a comprehensive array of vegetables and fruits growing in wastes from rice farms along the nearby Rio Meta.

Clean drinking water was also a problem as most of the surrounding surface water was contaminated and contributed to many of the health problems experienced in the area. Despite the poor condition of the available water, the tropical plain was known to sit above a vast subterranean lake. To provide access to clean water, the Gaviotas technicians created a lightweight windmill designed to take advantage of the soft equatorial breezes and subsequently have installed thousands of these windmills across Colombia.

One of the central aspects of the Gaviotas philosophy is the notion of “something for the third world by the third world” and the application of many of the ground breaking innovative technologies for the alleviation of poverty. As the community refuses to patent inventions and prefers to share them with others, these lightweight windmills have been copied and installed extensively throughout Central and South America.

The prohibitive cost prevented many indigenous farmers from taking advantage of the windmills. Consequently, the community developed a revolutionary double-action hand pump that could draw clean water from aquifers six times deeper than conventional models.

The pump operates by lifting a lightweight plastic sleeve rather than the heavy internal piston in conventional models and was utilized to provide a ready supply of clean water for Gaviotas and many of the Guahibo (indigenous peoples’) farms and villages in the surrounding areas. The pumps were so easy to operate they were attached to children’s see-saws and over the years the Gaviotas technicians have set up many of these to provide clean water for schools and villages across Colombia.

Because of the remote nature of the community, a self-sufficient 16-bed hospital was designed and built to reflect the unique social environment emerging from the Llanos.

Conceived as a synthesis of the many ideas generated at the community and as a symbol of healing, the facility took four years to build and was completed in 1986. Named as one of the 40 most important buildings in the world by a Japanese architectural magazine and featuring innovative passive heating and cooling the hospital produces its own energy, distils its own water and cooks locally grown food.

The roof consists of a double layer of corrugated iron to form a series of air channels that remove excess heat. The interior is cooled from underground ducts channeled into a hillside facing prevailing breezes. Energy for water and electricity for the hospital are provided by solar collectors and food for the revolutionary solar-cooking system is supplied by the gardens of the surrounding community.

Other features include an ingenious design that is able to reduce humidity in the operating theatre while providing natural air conditioning in other areas. The recovery area is fitted with skylights that can be opened to circulate fresh air, is decorated with hang mats and uses hammocks for indigenous patients who are uncomfortable in a modern bed with white sheets.

Indigenous families usually accompany their relatives to the hospital and the facility includes a separate accommodation wing for the families as they assist in the recovery process. The families also bring preferred food and local medicinal herbs and, as a result, the hospital has seen the establishment of a unique herbal garden and plant laboratory.

Recently, however, a decision by the government to pass legislation that prevents hospitals without a minimum level of equipment and specialized medical doctors or an

insurance scheme with a minimum of 10,000 members resulted in the closure of the hospital.

The community was not discouraged by these unfortunate events and the building was converted into a facility for collecting, distilling, and packaging water from the afforestation project that acts as an exceptional filtering unit. The hospital distills and packages the water at a low cost and as many of the local health problems are related to water quality (about 70 percent) the facility continues to make a significant contribution to preventative health care.

One of the most successful ventures has been a massive reforestation program. Initiated as a way to respond to the loss of biodiversity caused by the extensive logging of Colombia's primary forests, the program increases the capacity to fix CO₂, recovers lost biodiversity, and is considered to be part of the challenge to reverse global warming.

According to biologists, the llanos were once part of a vast rain forest that stretched to the Amazon River. As a result of climate changes and devastating fires about 30,000 years ago, the area became unproductive and, by the time the Gaviotians arrived, the soil was acidic and shallow. After finding that no indigenous tree would grow on the depleted soils of the area, they have planted millions of Caribbean pine trees (a native of nearby Venezuela) on approximately 7,500 hectares.

After some difficulty with early plantings, the community discovered that if they dipped the roots of the seedlings in a mycorrhizal fungi that was missing from the soil, but obtainable from the pines' native territory, the trees were able to develop at an astonishing rate.

According to Lugari, the success of any community depends upon an integrated approach and the ability to generate value-added projects and jobs in order to become self-sustaining. Rather than cut the standing timber, the trees were tapped and the colophonia (gum resin) was able to be distilled (using solar power) into turpentine and a valuable product used as a substitute for petroleum based substances in paints, glues, cosmetics, perfume, and medicines.

The community has discovered that the forest can produce twice as much resin as any other resin-tapping forests in the world. Tree-tappers normally use sulfuric acid when making incisions, but Gaviotians use an enzyme that appears to be beneficial for the trees. One of the unforeseen aspects of the reafforestation project has been the regeneration of the natural biodiversity in the sheltered under-story of the pines.

At first, the decision to introduce a non-indigenous monoculture was criticized by some, but fortuitously, a tropical forest is beginning to regenerate amongst the sheltered habitat of the pines; so far, 350 native plant species have been identified. The community intends to allow the native forest to gradually choke out the older pines and to continue the process of restoring the habitat for the already proliferating deer, hawks and anteaters.

More recently, the Gaviotians have launched an airship equipped with infra-red sensing that serves as an early warning system for fires 24 hours a day and can respond within 15 minutes.

Resin from the pines, as well as aging trees, are used as a substitute for diesel-fuel in turbine engines and coupled with existing solar power, this has enabled the community to become energy independent. The Colofonia Factory, designed and built by Colombian engineers with the aid of a US\$2 million dollar grant from the Japanese

What would
Bateson's work
look like today?

Extension Fund for International Cooperation, has a unique zero emissions production process and all waste is recovered and utilised.

The innovative approach adopted by the community has also resulted in the design of a prize-winning triple-layered packaging design from recycled materials. The design permits easy filling and cooling and the recycling of material and allows for easy handling of the packaged product. Committed to sustaining the culture of indigenous peoples the reforestation and colofornia projects have resulted in the employment of 160 full-time staff, most of whom are local indigenous people, and contributes to the support of over 1,000 family groups.

In its struggle to build a coherent and integrated community, Gaviotas has demonstrated that it is possible to create a vital environment that can respond to the need for employment, health care, social stability, and economic development in a sustainable way. The community was established in harsh conditions and as Lugari points out:

We always put social experiments in the easiest, most fertile places. We wanted the hardest place. If we could do it there, we could do it anywhere. The only deserts are deserts of the imagination. Gaviotas is an oasis of imagination.

Many of the innovative projects developed in Gaviotas have demonstrated that renewable energy systems are viable alternatives for decentralized social and economic initiatives in rural and urban areas. The practical examples of zero emissions production represent a shift away from linear models, whereby wastes are considered the norm, to integrated strategies—ones that mimic the sustainable cycles of natural systems.

About the author

Gordon Feller, Chief Executive of Urban Age Institute (San Rafael, California), met with Bateson in the last year of his life. Feller organized and chaired the Bateson Centenary Conference at the University of California (Berkeley), an event which drew participants from Asia, Europe and North America and attracted more than 30 co-sponsoring organizations. Gordon Feller can be contacted at: GordonFeller@UrbanAge.org



Slippery rigor

Slippery rigor

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1141

Abstract

Purpose – When the editors of this publication asked me to do a little editing for them, they also asked me to write a short piece for you about how my father’s work has affected my work as a filmmaker.

Design/methodology/approach – A short and informal note from Nora Bateson.

Findings – In the end it turns out, from my perspective at least, that the most important thing he said was nothing he said, (though a lot of it is inherently fascinating and hugely useful). What is truly important is how he approached EVERYTHING.

Originality/value – A personal look into how Gregory Bateson’s ideas and his lifestyle worked together.

Keywords Cybernetics, Literature

Paper type Viewpoint

When the editors of this publication asked me to do a little editing for them, they also asked me to write a short piece for you about how my father’s work was affected my work as a filmmaker. I, having a stubborn streak, wanted to write to you about the nature of multidisciplinary discussion, but then I figured out it was all the same question. If you happen to be wearing a white lab coat or have an office with a nice couch we could have a very long talk about it, say 10 or 15 years worth. But, it may or may not be interesting, so, I would like to look at the question from another angle.

I have his forehead, and his long legs, and in keeping with the genetic similarities I inherited from him, I have just invited you do the thing he did best, which is, to look at the thing, be it an earthworm, a number sequence, a tree, a formal definition of addiction, anything at all, from another angle. The thing was never the thing. “The map was not the territory,” and whatever it was could be turned slightly and re-examined, seemingly infinitely. Like a Rubik’s cube, (which he never saw but would have liked) only one in which there might be several right answers and patterns, he would twist one bit, and re-evaluate the rules from there, and then twist it again, to be sure he did not get stuck down a singular line of thinking.

In the end it turns out, from my perspective at least, that the most important thing he said was nothing he said, (though a lot of it is inherently fascinating and hugely useful). What is truly important is how he approached EVERYTHING. How does it work? What works with it? What are its relationships? How does it fit in? How does it interact? What are the rules of engagement given the limitations? *Can we reverse that question?* And of course, how does it think? The answers only beg the next questions. Pouring through his work, I find that I am continually reminded, at each “step” that “an ecology of mind” is a slippery, and rigorous friend.

The thinking is the issue. Once you start to think about the nature of thought inside an interdependent and interconnected system, (a large one), the rules of thinking and identifying, measuring, mapping, patterns, order, and knowing all change. Buyers beware though, the questions and the turning, the reversals and the puzzling, did not



live in a nine to five tenured box of books, experiments and papers. It was our life, our fish-tank, the coffee in the morning, the dog's behavior, and the grain of wood in the dining room table. When Gregory says that he admires Samuel Butler even though he never studied anything besides his cat and himself, there is ring of home for me, (and I have to wonder what the cat thought). "Bateson-thought" is not only an academic pursuit; it is ultimately a way of life. So, my first exposure to depth psychology or deep ecology, was, in fact, employed in the art and lavish appreciation of the bedtime story, (Just-So). For this little long-legged, big forehead girl the world was already interconnected, and woven together with story, poetry, and another deep science, the love of the unity of the biosphere. Love of the questioning. While that may sound like a daughter's emotional drivel, I want to say that there is no doubt that the nature of our curiosity effects the nature of our findings. Is science driven by anxiety or appreciation?

This upbringing was my preparation for the cultural epistemology of the twenty-first century. It made classrooms torturous, and travel second nature. I have a trained allergic reaction to pat solutions, and easy answers, and gravitate toward variables. So, as a creature, I am sure I am probably quite maladjusted, and certainly twisted. In that respect, I would say his work has had an utterly positive effect on me. Fortunately, I have recently found a terrific extended family in the systems and cybernetics communities. I have only just begun to meet you all, and dive into wild and whirling discussions at various conferences around the globe. I am so pleased to tangle though the complexities of our systems, and to wonder heartfully, as we stand at this dangerous cultural/ecological juncture together, whether real change can be imagined from here, or whether that is an error in logical types.

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