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May, 2006

Another Introduction to Boundary Critique

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The art of boundary crossing Finally, spring is in the air. The winter has been unusually long and cold and April the usual flop. Now that May's here, we definitely want to see a different picture; more sun, more colors, more fun! Thank God, *May makes everything new*, or does it? Maybe it takes a little help from us. Why not take that "Spring is in the air" theme literally and see what new views this may afford us? I gave it a try, and *behold!* I discovered a new face not only of spring but also of my favorite theme of boundary critique.

Accordingly, this month's picture takes up the "Spring is in the air" theme in two rather different yet related ways: first, literally, by taking you to the air; then, metaphorically, by sharing with you some reflections on boundary critique inspired by that aerial view of spring. Flight-tested reflections on the meaning of sound research and professional practice, as it were!

Spring is in the air ... You probably know those lines from Terry Jacks' tired old song, "Seasons in the Sun":

Goodbye my friend it's hard to die
When all the birds are singing in the sky
Now that spring is in the air
Pretty girls are everywhere
Think of me and I'll be there.

Terry Jacks, "Seasons in the Sun," 1973,
originally written by Jacques Brel ("Le moribond," 1961)

Two years ago, my wife and I decided to take that "Spring is in the air" theme literally. A desperate, ultimate attempt to breathe new life into the worn-out song, as it were. A befriended amateur pilot had long invited us to join him and his wife on a flight excursion. So there we were, on the 2nd of May, 2004, taking to the air in a Piper PA-28 ("Cherokee") Arrow III plane. We took off from Annemasse, a small French airport near Geneva, and flew west towards Lyon.

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Yes, it's me (not spring) in the air, fiddling around with a Piper Arrow III, or at least trying to do as if I were the copilot!

Sky fever I could not help but think of Geoffrey de Havilland's (1961) *Sky Fever*, the autobiography of one of Britain's most outstanding flight pioneer. I had devoured the book as a boy of 14 years, in 1962 or so. In it, Sir Geoffrey described the long way from his first breakneck flight attempts in the years 1909-10 to the construction of the **de Havilland Comet**, the world's first jet airliner, in the years 1946-52.



Powered flight remains a fascinating achievement to me, although I find what commercial mass transportation has made of it slightly less attractive, so much so that nowadays I try to avoid flying when I can. But of course, sitting in the copilot's seat is a different thing! OK, I admit, yes I did give in to the temptation and tried my hands at steering the plane, but only just a little bit and, to be sure, with a little help from my pilot-friend.

An aerial view of spring But I'm getting carried away. My topic was spring in the air.... As it turned out, spring was less in the air than in the open countryside below us! It was indeed stunning to see all that greening and blooming of nature in the fields and meadows below, infinitely varied in shape and form. A surprisingly colorful sight it was, too. I tried to capture it in this month's picture (see below). Whenever I now encounter the "Spring is in the air" theme, I have to think of how spring looks *from* the air.

Boundary crossing There is a second association that I connect with this picture. Flying up there in the air across all these different shapes and colors seemed to me like a beautiful metaphor for one of the hopes I associate with my philosophical work on *boundary critique*, namely, that understanding the principle of boundary critique should increase our proficiency in the art of *boundary crossing*.

Now, to be sure, my work on critical systems heuristics (CSH), critical systems thinking (CST), and reflective professional practice does not, of course, focus on geographical boundaries; which is why I refer to this

month's picture as a *metaphor* rather than a direct visualization of my interest in handling boundaries. The boundaries in which I am interested are conceptual rather than merely physical boundaries; they concern the way we conceive of problem situations and of interventions aimed at improving them. They stand for *boundary judgments* that our mind constructs actively and which determine the way we see a situation, rather than simply being given by the situation. In other words, boundaries for me represent an epistemological rather than an ontological concept; they condition the way we see reality, but they need not "really" exist and rarely do so in an unequivocal way. When we talk about boundary judgments, we basically talk in an "ought" rather than an "is" mode, although both ways of looking at boundary judgments matter. In addition to spatial boundaries, boundary judgments define temporal and pragmatic boundaries, that is, they delimit the situation at issue in terms of space, time, and purpose.

Boundary critique: the basic idea The basic idea of boundary critique is that the merits of our ideas and propositions (e.g., claims to knowledge, understanding, and rationality) crucially depend on and are limited by the way we bound our reference systems, that is, the contexts that matter for identifying relevant "facts" and "values." One of the old dreams of humanity is to learn how to overcome such contextual limitations in favor of a comprehensive, "holistic" or "systemic" perspective. This is why one of the root metaphors of systemic thinking is *boundary expansion*: by continuously expanding the limits of what we consider as relevant aspects of a situation of problem solving and decision-making, we expect to gain better knowledge, understanding, and rationality.

The trouble is, we are dealing with an ideal. The underlying concept of rationality is so ideally comprehensive that it would overcome all one-sidedness and partiality of perspective, all conflict of views. It would, in this sense, be objective. It's not that the ideal is wrong; it simply does not lend itself to translation into some methodological principles to which we might hope to live up. It cannot give us operational guidelines as to what aspects of the real world we ought to include and what others to exclude from "the problem." The quest for comprehensiveness, elevated to the status of a criterion of adequate thinking, risks leading us into helplessness and,

ultimately, skepticism.

This is one basic reason why for me, systems thinking has become more meaningful if we understand it as a *critical* approach only. Its aim, then, is not to secure comprehensive knowledge and rationality but rather to help us see through the inevitable limitations of all our claims to knowledge and rationality. Such a notion of systems thinking will have to replace the root concept of boundary expansion with the new methodological core principle mentioned above, *boundary critique*. We will thus systematically abandon the holistic ideal in favor of a systematic effort of uncovering the boundary judgments that condition all our thinking, all our claims to knowledge and understanding. Hence,

If we are not interested in understanding boundary judgments, systems thinking makes no sense; if we are, systems thinking becomes a form of critique.” (Ulrich, 1995, p. 13, and 1996b, p. 171).

The critical turn of systems thinking Lest I cause some confusion, let me immediately point out that this new understanding of systems thinking as a form of critique – critical systems thinking – does not imply that we should throw the concept of boundary expansion entirely over board. It only implies that we must understand the concept differently. We will no longer expect boundary expansion – conventional systems thinking – to afford us a superior point of view, from which we could claim a kind of rationality that other approaches cannot achieve. In other words, let us avoid the trap into which many systems scholars fall, of mistaking the principle of boundary expansion for a guarantor of superior rationality.

Once we have taken this small but decisive step to a merely critical understanding of the systems approach – the *critical turn of systems thinking*, as I call it in my writings – boundary expansion gains a less ambitious, but methodologically more powerful, role. Along with other tools, it may help us in becoming aware of our boundary judgments, as well as in tracing their consequences and exploring alternative boundary judgments. Rather than ensuring us of comprehensiveness, it may thus drive the process of uncovering the unavoidable *lack* of comprehensiveness in our thinking. In sum, not the idea of systematic boundary expansion as such is misguided but only what we conventionally expect it to achieve as a methodological principle.

The logic of inclusion and exclusion that drives effective thinking What really matters for clear and rigorous thinking is not achieving comprehensiveness but rather, that we learn to deal in a careful and systematic way with the *logic of inclusion and exclusion* that rules our thinking. Already **Francis Bacon**, one of the early philosophers of empirical science, recognized that strong inductive reasoning depends on finding effective ways of excluding options rather than on finding all-inclusive theories or models of the world. As he demonstrated in his *Novum Organum* (Latin original 1620, English translation 1863), successful inductive reasoning essentially depends on a systematic process of excluding inadequate assumptions ("the method of analysis by exclusion," as he called it):

In the process of exclusion are laid the foundations of true induction, which however is not completed till it arrives at an affirmative. (Bacon, 1863, Book II, Sec. XIX)

That is, positive conclusions depend on previous exclusions! Trying to be clear about what assumptions (as well as consequences, I would add) our propositions do or do not exclude, and then varying these assumptions systematically, is indeed a powerful source of effective reasoning, whether in the realm of basic research (compare, e.g., Platt, 1964) or in the realms of applied science and expertise and of everyday problem solving and decision-making (compare Ulrich, 1996a, 15-20). It is certainly more conducive to rigorous and conclusive thought and argumentation than any (endless) quest for all-inclusive thought – the attempt to avoid exclusion – can ever be. Dealing carefully with the logic of inclusion and exclusion is another useful way of explaining what my concept of boundary critique, or of a "critical employment of boundary judgments," is all about. Although it was not originally conceived in this way, we may understand it as an adaptation of Bacon's method of analysis by exclusion (the method of science) to the realm of applied science and expertise.

Boundary critique: expanding, shifting, and transgressing boundary judgments Basically, the difficulty with boundary judgments is akin to that of handling any particular standpoint or perspective from which we see the world: our standpoint is our blind spot. Unless we first take a step back, we

cannot see it as such. Much less will we see the way it conditions and limits our views. Furthermore, unless we make a habit of looking at things from varying standpoints, the trouble is that we become attached to our standpoint and let it dictate what we see and think. All collection of facts, all efforts to model and quantify the world and to prove our propositions by reference to empirical science and expertise, will then do little to overcome the intrinsic limitation and partiality of our research and practice. Only a determined effort at gaining critical distance can help. Only thus can we hope to *see through* and overcome the limited nature of our standpoint (or, in the language of critical systems heuristics, of the reference system we consider).

I see three basic ways of gaining some critical awareness of, and distance to, the boundary judgments on which we and others rely:

- **Boundary expansion:** we can seek to expand the reference system assumed in a proposition, so as to see "the bigger picture."
- **Boundary shifting:** we can try to see a situation or issue from an altogether different frame of reference, so as to make ourselves aware of how different things may look from other points of view.
- **Boundary crossing (or boundary transgression):** we can try to work with alternative frames of reference at one and the same time, so that on principle we do not allow ourselves to get attached to any single perspective.

Taken together, the three strategies make up the basic tool basket of boundary questioning. Each strategy has its specific merits and difficulties; but together, they may help us doing a reasonable job of boundary critique – of handling boundary judgments critically. Once we have understood the concept, we will never again fall into the trap of mistaking systemic thinking for a guarantor of rationality. In addition, the concept opens up a new avenue to competence for ordinary people (see, in particular, Ulrich, 2000).

A lot more would need to be said about the methodological implications of boundary critique. Let me just emphasize that boundary critique as I understand it – and this goes thoroughly beyond the intent of Francis Bacon – seeks to ground sound research and practice as much in practical philosophy (with its core discipline of ethics) as in the philosophy of science.

This is necessary because our boundary judgments embody both assumptions of fact and assumptions of value; conversely, they condition what we recognize as "relevant" facts and as "appropriate" value judgments. The interested reader may turn to some of my writings on CSH for further information (see, e.g., the pages "[Readings on CSH](#)" and "[Downloads](#)" of this site).

I would like to conclude this reflection by briefly illustrating the enormous scope of boundary critique and, hence, the methodological potential it opens up for cultivating reflective practice.

Cultivating the art of boundary transgression Boundary critique aims at *boundary transgression* rather than *boundary setting*. When it comes to boundary judgments, the point is not "Who is right?" but rather, "How can we achieve mutual understanding despite differing boundary assumptions?" As it happens, when I was preparing this page I received a report about a series of research training seminars at a management school in India. In a preface to the report, my appreciated younger colleague D.P. Dash (2006) comments about what he has learned from these seminars (which he organized) in terms of "transgressing boundaries." Here is a slightly edited extract from his comments:

It is a good exercise for researchers to transgress a boundary at least once a week. It keeps them open-minded. Different sorts of boundaries have been transgressed in the Research Training Seminar (RTS) series.... Here are some illustrative examples:

- boundaries set by our *preconceived notions of research* (transgressed in RTS through a reconsideration of the "problem of demarcation" [in science theory]);
- boundaries set by *analytical categories* (transgressed through relational approaches such as "social network analysis");
- boundaries set by *technological determinism* (transgressed through the approach of "social construction of technology");
- boundaries set by our *national identities* (transgressed by focusing on the broader historical processes and the role of human agency);
- boundaries set by *institutionalized cultures and conventions of research* (transgressed by focusing on their meaningfulness to oneself);
- boundaries set by the practices of *austere science* and the *everyday world* (transgressed through the perspective of "social studies of science");
- boundaries set by *familiar dichotomies* such as thinking/ doing, qualitative/ quantitative, normal/ abnormal, etc. (transgressed in a multiplicity of ways, e.g., by recognizing more inclusive frames,

multidimensionality, continuums, evolutionary processes, forms of autonomy and inter-penetration, etc.)

.... So, dear reader, as you thumb through these pages, visualize the plastic boundaries you may have built around your research. It is my duty to caution you that some of those boundaries may soften as you engage with the discussions reported here. (Dash, 2006, pp. 2-69)

Indeed! Trying to identify and visualize the boundaries we construct around our own thinking is always a relevant idea. But mind you, it does not make things easier; it is likely to confront you with more questions than you can safely answer. To make things worse, the list of meaningful forms and topics of boundary discourse is basically open-ended. There is no way we can make sure we have identified all the kinds of boundary judgments that may condition our thinking in a specific situation. In the spirit of keeping boundaries open, we need to learn to live with this basic open-endedness. Boundary critique is as much a question of attitude as it is a question of technique.

Although not all the forms of boundary discourse suggested above may entail the specific methodological issues addressed and operationalized in my work on critical systems heuristics (CSH), "softening" the boundary assumptions built into our research and practice, or even better, not allowing them to "harden" in the first place, is key to both open-minded and rigorous thought and argumentation.

Ethical boundary critique Despite the necessarily open-ended character of any list of topics for boundary discourse, I would like immediately to add one item to the above list, one that is particularly important to my work on boundary critique:

- boundaries set by our *normative frameworks*, that is, individual and collective values and interests (transgressed through "ethical boundary critique"). (Ulrich, 1996a, pp. 36-49).

For me, ethical boundary critique – a systematic effort of unfolding the ethical implications of boundary judgments – is indeed a core application of boundary critique. I believe it has a role to play in virtually all other forms of boundary discourse, lest we end up in a mere pluralism of perspectives in which all views are considered to be of equal value, at the price of a bottomless relativism of values. No, not all views are equal; sound research

and practice cannot avoid judgments of better and worse. To be sure, the idea is not that there is or should be some single authority that tells us which views and values are right and which others are not. The idea is, rather, that the ethical implications of our boundary judgments always deserve to be made explicit and to be unfolded from the different perspectives of all the parties concerned, and that in comparing and assessing the identified implications, asking for their source of legitimacy is always a relevant and legitimate question. Personally, I believe a democratic grounding of ethical decisions is most appropriate to an enlightened and open society; but I certainly do not mean to impose any particular ethical stance. (For a recent attempt of clarifying the ethical grounding of reflective practice as I try to understand it, see Ulrich, 2006). The point of boundary critique is to ask relevant questions and disclose options, not to close the discourse by giving "the" answers. The spirit of what I am suggesting is one of cultivating freedom of thought and argumentation – an orientation that certainly accords with the ethical core of boundary critique.

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This month's picture: technical data Digital photograph taken on 2 May 2004 at 12:05 p.m., shutter speed 1/500, aperture f/8, ISO 200, focal length 7.81 mm (equivalent to 35 mm with a conventional 35 mm camera). Original resolution 2272 x 1704 pixels; current resolution 807 x 614 pixels, compressed to 71 KB.

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*Spring is in the air, or the art of boundary crossing
(Hint: roll your mouse over the picture)*

„If we are not interested in understanding boundary judgments, systems thinking makes no sense; if we are, systems thinking becomes a form of critique.”

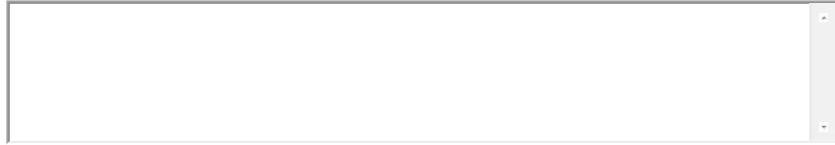
W. Ulrich: Critical systems thinking for citizens (1995, p. 13, and 1996b, p. 171)

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Write down your thoughts before you forget them!
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Last updated 9 Dec 2009 (layout) and 11 May 2006 (text; first published 1 May 2006)
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