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The Concept of Systemic Triangulation
Its Intent and Imagery



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What is systemic triangulation? Systemic triangulation is one of the key concepts of my work on critical systems heuristics (CSH), an approach to applied systems thinking that focuses on the critical use of the systems idea with a view to promoting reflective professional practice. The approach has brought forth as its main methodological principle and practical tool the concept of *boundary critique*. Boundary critique aims at a critical handling of the boundary judgments that are constitutive of our systems maps and designs – the ways we "delimit" or "contextualize" an issue of interest. Regardless of whether we use systems terminology and methods or not, it is never a bad idea to ask what our boundary judgments are, and what they might or ought to be. *Boundary judgments* delimit what is considered relevant from what is not; they distinguish between what is part of the picture and what is not. Accordingly, boundary critique entails an effort of systematically uncovering the inevitable *selectivity* of all research and professional practice, and of related claims to knowledge, rational action, and resulting improvement. In this short note, I would like to explain the way in which "systemic triangulation" relates to this idea of boundary critique. Wherein consists its intent and where does the imagery come from? I'll begin with a short overview of some main issues involved, before then turning specifically to the imagery. The account addresses newcomers to my work and thus requires no previous familiarity with CSH.

The problem of boundary judgments¹⁾ All claims to knowledge, rationality, and improvement depend on assumptions about what "facts" and "values" are to be considered and what others are to be left out. As they define the boundaries of the "problem," that is, the issue or situation taken to be relevant, I call these assumptions *boundary judgments*. I also describe them as "justification break-offs," for they mark the point at which justification ends; or as "contextual assumptions," for they can help us understand the context that matters. The three concepts find a common

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1) This section, except the quote it includes from Ulrich, 2005, is a revised and extended extract from Ulrich, 1996, pp. 15-19.

explanation in systems theory: whenever we conceive of some part of reality in terms of a whole of interdependent circumstances, we need to make prior assumptions about what belongs to it, or more accurately, what *should* be considered as part of the system and what should not. However, if you are not familiar with systems thinking or prefer not to use its language, it should be clear that the problem of boundary judgments poses itself quite independently. It is not an artifact of systems thinking or its language but represents a basic problem of all rational thought, inquiry, and practice. Simply replace the term "system" by "situation" or "issue" (or other suitable terms that are used in your field of interest) to get the idea.

Boundary judgments and the interdependence of fact and values The important point about boundary judgments is that they are always in play, whether we are aware of them or not. So the question is not whether we rely on boundary judgments but rather, how carefully we identify and *examine* them, so as to understand the ways in which they condition our findings and conclusions. Since there is no such thing as perfect boundary judgments – perfect boundary judgments would be those we can avoid – the crucial issue is not so much what they are but how we handle them. We cannot avoid the deficits of knowledge and rationality they imply; but we can at least try to handle these deficits in transparent and prudent ways. (Laying open value implications in professional practice would be an example of transparency; applying the precautionary principle may illustrate the quest for prudence in fields such as applied ecology, technology assessment, and public health.) The important point is to keep our boundary judgments open to critique and revision. How do they condition the "facts" (relevant circumstances) and "values" (needs, interests, and aims) we take to be relevant? How do they shape the "problem" or issue that we are dealing with in the first place? How different might things look if we revise them in various ways?

As a rule, the issues we face or problems we try to solve, and the answers or solutions we come up with, are rarely more adequately defined than are the underlying boundary judgments. In the language of problem solving, boundary judgments imply assumptions as to whose needs and interests should be served in the first place, who should be involved, and what circumstances or aspects of the real world should be part of the definition of "the" problem. Different boundary judgments make us see the world differently. Accordingly, different boundary assumptions will lead to

different problem definitions, to different selections of relevant "facts" and "values," and accordingly also to different solutions.

But there is a second, perhaps even more important implication of the inevitability of boundary judgments. They not only shape people's "facts" and "values," their "problems" and "solutions," they also explain the way facts and values are mutually dependent. Each time we consider new "facts," we have implicitly changed our boundary judgments about what's part of the picture and what is not, so that the relevant considerations of value are also bound to change or in any case are in need of revision. Conversely, new or revised value judgments imply a change of boundary judgments, which may compel us to consider new facts or can make the considered facts look different. Each time our judgments of fact change, our value judgments are thus bound to change as well. We have here a precise explanation of the *interdependence of facts and values*, an interdependence that is often asserted but rarely explained in precise terms (if at all). Bringing in the concept of *boundary judgments as a mediating third* allows us to better understand how facts and values condition one another.

Critical systems thinking If there is a field of thinking that you might expect to have long since dealt systematically with the methodological implications of boundary judgments, it would surely be *systems thinking*, given that it is specializing on the use of "systemic" or integrative, inter- and transdisciplinary approaches to research and professional practice. Systems thinking has brought forth many specialized subdisciplines such as systems theory (including, e.g., general systems theory, complexity science, cybernetics, biological systems theory, and social systems theory), applied systems thinking or systems research (i.e., the empirical study of systemic aspects of the real world, e.g., applied systems analysis and systems design, operational research, information systems design, etc.), and systems methodology (i.e., the development of methodological frameworks and tools for applied systems thinking, so-called systems methodologies). You would expect that these fields know how to handle boundary judgments well and can provide us with widely used and proven frameworks for boundary analysis and critique. You would be wrong!

Boundary critique is in fact a latecomer to the field of systems thinking. Only slowly the idea has begun to receive the attention it requires, supported by

the emergence of what is now called *critical systems thinking* (CST; for a concise, up-to-date introduction, see Ulrich, 2012c and 2013; for advanced study, consult 2012a, b). A main reason may be that with very few exceptions (CST being the major example), the mentioned subdisciplines have long struggled to free themselves of the naturalistic, not to say positivist paradigm of science that stood at their beginning; this paradigm makes it difficult to deal with the implications of boundary judgments, notably with their *normative implications* (i.e., the difficulty that they are not objectively given but involve value judgments).

A related reason may be that the need for systematic boundary critique is bad news, of course, for all those researchers and professionals who are looking for clean, objective and scientific problem definitions and solutions. They will not, as a rule, like the idea of a "critical" systems approach (first proposed and systematically outlined in Ulrich, 1983) but will prefer to do without it. It is not helpful, they will say, for it only causes us new problems. But this is not a particularly good argument; for it implies that the difficulty is *caused* by the systems idea. Yet the systems idea is merely the messenger that brings us the bad news. Accusing the messenger, as an age-old tradition has it, of *causing* the bad news, so as to have an excuse for ignoring it, is convenient but won't really help in handling the problem of boundary judgments (Ulrich, 1981, and 1983, p. 225).

The language of selectivity Perhaps a better idea is to take the messenger seriously and to understand boundary critique as an opportunity to confront a fundamental difficulty that has always been there and will always remain a crux in the quest for valid claims to knowledge, rationality, and improvement – the mentioned, unavoidable *selectivity* of all such claims. But what exactly is the connection between boundary critique and selectivity? Does it really make sense, readers may wonder, to locate all selectivity of claims in underlying boundary judgments? Indeed it does. As I explained on an earlier occasion:

Boundary judgments are the perfect target for this purpose, for unlike what one might think at first, they reflect a claim's *entire* selectivity regarding both its empirical or normative content. It is important to understand that boundary judgments are not just one (perhaps even minor) among many other sources of selectivity – for example, in the sense that once the reference system is determined, it is then the specific content of our thinking or discussion which determines how "partial" they are. Rather, *any* partiality can and needs to be understood as amounting to boundary judgments; for any

content we do or do not consider, and the way we consider it, implies corresponding boundary judgments.... We cannot meaningfully talk about any aspect of a situation or an issue without implying boundary judgments.

[Hence] the argumentative quality of a reflection or discussion reflects itself in boundary judgments. Wanting argumentation, say because we argue incoherently or fail to anticipate side effects and risks of a proposed action correctly, always amounts to modifications of the reference system that we treat as relevant. Thus, if for example we consider some aspect as relevant and perhaps even agree with others that it is important, but then fail to take it properly into account, due to lacking knowledge, to an error of judgment or some communicative misunderstanding or distortion, we have in fact excluded that aspect from our reference system. (Ulrich, 2005, p. 3)

Boundary judgments, then, are indeed a good leverage point for examining selectivity. Without such an effort, selectivity risks becoming a source of bias, partiality, and failure. The good news is that since systems ideas meanwhile play a role in many fields of research, boundary critique is now increasingly recognized as an important methodological principle of sound inquiry and practice. This holds true particularly for a growing number of applied disciplines; among them (to mention just a few) operations research and management science, the design fields, public policy and planning theory, environmental planning and management, social planning, development studies, technology assessment, evaluation research, professional education and ethics, and many others.

Critical systems heuristics, or facing the bad news Critical systems heuristics, or shorter critical heuristics (CSH; see Ulrich, 1983, 1987), proposes a practical framework that should help us to deal with the bad news. The framework is grounded in systems thinking along with practical philosophy, the philosophical study of what good or proper practice and rational discourse about it mean. (Well-known examples are American pragmatism and the practical philosophies of Aristotle and Kant, all of which play a role in CSH.) This theoretical grounding does not mean we all need now to speak systems jargon or study philosophy. Once we have listened to the bad news and understood its message, it is not so important what language we speak but only that we take the message seriously. Thus, in critical heuristics I often use everyday terms such as "problem" or "problem situation" along with more precise, theoretically grounded terms such as "reference system" or "context of application," instead of merely or mainly using systems language, for example, by speaking of "systems" of interest or

of concern, or (to avoid the trap of reifying systems as if they were real entities) of "systems maps and designs."

The basic idea remains the same: in order to reflect systematically about what we know and should do about a situation of concern – that is, more precisely, how we should assess related claims to knowledge, rational action, or proposals for improvement – it is never a bad idea to surface the underpinning boundary judgments and to trace their live practical implications for the different parties concerned, as well as to systematically modify them and to check how different the claims under consideration then look. A very good systems map or design should make its underlying boundary judgments explicit and, in the case of a design, should also point out how its concept of "improvement" might look different if alternative boundary judgments were chosen.

The emancipatory use of boundary judgments But not all designs are very good designs. Hence it is important that ordinary people be enabled to challenge systems designs or proposals for action of concern to them, by learning to make visible to themselves and to others the ways in which they depend on boundary judgments. This is possible in principle, due to the fact that when it comes to boundary judgments, there are no definitive experts. In respect to these judgments, those who have the advantage of knowledge and status or power on their side are just as much lay people as anyone else. Or, to say it more bluntly, when it comes to debating boundary judgments, experts do not look good. Nor do decision makers, usually. Citizens, once they have got the idea, have a real chance to be just as competent as those who "know better" and to influence the way designs or proposals for action look. This provides us with a crucial leverage point for what I call *emancipatory boundary critique*, that is, for giving a competent voice to ordinary citizens with respect to boundary judgments (for introductory readings, see Ulrich, 1993, 1996, and 2000; for advanced study, consult Ulrich, 1983, Ch. 5). The question is, how can we identify and discuss boundary judgments systematically? This is where the principle of "systemic triangulation" and its underlying concept of the "eternal triangle" come in.

The eternal triangle²⁾ As we have understood by now, the concept of boundary judgments says that both the meaning and the validity of a claim depend on how we bound the *reference system*, that is, the situation or

2) This section is an edited extract from Ulrich, 2000a, p. 251f; a similar account can also be found in Ulrich, 2003, p. 334.

context that matters when it comes to assessing the claim's merits and defects. On this reference system in turn depend the facts and values we consider in this assessment. We are facing an *iterative* movement of thought in which the reference system considered (i.e., the boundary judgments underpinning it), and the judgments of fact and value applied to it (i.e., the selection of relevant circumstances) mutually shape one another. The moment we change our boundary judgments, the facts and values that matter will change as well. For example, if we expand the system boundaries, new facts come into the picture. But then, new facts can in turn make us revise some of our boundary judgments. For example, if we learn of previously unknown long-term effects of a proposed action, we may want to extend the time horizon we consider so as to sweep in those anticipated long-term effects (a boundary judgment with respect to the relevant part of the future). Changing the time horizon in turn may compel us to adjust our value judgments (e.g., our sense of responsibility for future generations), which then may again make the relevant facts look different, and so on. Thus boundary judgments strongly influence the way we "see" a situation.

Since boundary judgments ("the system"), observations ("the facts"), and evaluations ("the values") are so closely interdependent, they form what I call an *eternal triangle* – the eternal triangle of boundary critique (**Fig. 1**).

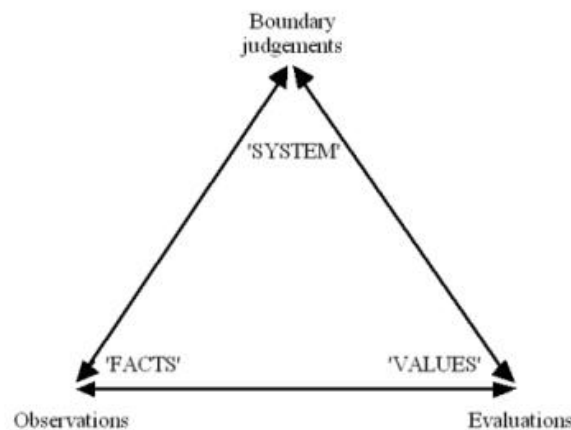


Fig. 1: The eternal triangle of boundary critique: the interdependence of boundary judgments, observations, and evaluations

The facts we observe, and the ways we evaluate them, depend on how we bound the system of concern. Different value judgments can make us change boundary judgments, which in turn makes the facts look different. Knowledge of new facts can equally make us change boundary judgments, which in turn makes previous evaluations look different, etc. (Sources: Ulrich, 1998, p. 6; 2000a, p. 252; 2000b, p. 18f; 2002, p. 41f; and 2003, p. 334)

The triangle illustrates the dependence of both "facts" (relevant observations)

and "values" (relevant evaluations) on the reference "system" (boundary judgments) and thereby, as we have noted, also explains the fundamental interdependence of judgments of fact and value, namely, via boundary judgments. The triangle figure offers itself since figuratively speaking, each angle in a triangle depends on the other two. We cannot modify any one without simultaneously modifying the other two.

It is a case of what the French call a *ménage à trois*. As everybody knows, mutual understanding can be difficult under such circumstances. Differing boundary judgments make it difficult for people to communicate. Unfortunately, many people do not appreciate the role that their boundary judgments play. As the concept is unknown to them, they suspect the reason of mutual disagreement is that the other parties got their facts wrong or rely on dubious ethical principles. So they quarrel about statistics and ideologies. Because I am right, the others must be wrong. Because I am responsible, the others must be irresponsible. Because I am rational, the others must be irrational. Because I am compelling, the others must be idiots!

That may sometimes be true, but more often the crucial difference lies in differing reference systems. So long as the involved parties do not see that they talk about different reference systems, they will not really understand each other. In fact it is quite rational that they do not. How could they reasonably see the same facts and rely on the same value judgments, since they are talking of different issues?

Instead of disputing the other parties' facts and values, it might then be more fruitful to uncover the different systems of concern. Once we begin to appreciate each other's reference systems, we can usually understand much better why our opinions differ. Perhaps we can even agree about the reference system on which we want to talk, at least in the sense that we focus on one at a time. But even if we cannot agree on such a coordinated handling of the situation, we can at least appreciate one another's different rationalities. We need not agree in order to understand why we do not.

The anatomy of selectivity The eternal triangle is useful to explain – and remind us at all times – why reflective practice of inquiry and professional intervention calls for a systematic process of uncovering and examining the boundary judgments that inform all our conjectures, findings and conclusions. For this purpose critical systems heuristics (CSH) offers a table

of twelve basic boundary categories and, derived from it, a checklist of twenty-four boundary questions. It also offers a small selection of what I call "critically-heuristic ideas," that is, essential general ideas such as the systems idea, the moral idea, and the guarantor idea, along with a few complementary ideas such as the participatory idea, the emancipatory idea, and the democratic idea, all of which can serve as standards for reflection on the answers we give to boundary questions. For the present purpose it is not necessary to explain these boundary categories, questions, and ideas in any detail; interested readers will find accounts in many of my publications (see, e.g., Ulrich 1983, 1987, 1993, 1996, 2000a, 2001, and 2013).

Instead, it is quite sufficient to have a basic notion of the *anatomy of selectivity* – the basic types of boundary issues – that the boundary questions aim to make a subject of scrutiny and discussion. Once these basic boundary issues are understood, it does not matter how exactly we formulate the boundary categories and questions; it will often make sense to adapt them to the specific field of practice concerned. Here is a basic scheme, in a language that should be relevant for many applied disciplines (**Fig. 2**).

The Anatomy of Selectivity



Fig. 2: The anatomy of selectivity

There are four basic boundary issues, each of which stands for a basic source of selectivity in research and professional practice. They are asking for a claim's sources of motivation, of control, of knowledge, and of legitimacy. Each boundary issue is covered by three types of boundary categories that ask for the major group of stakeholders concerned, for this stakeholder group's major concern, and for the crucial issue or related methodological crux in need of clarification, respectively. The boundary questions are so formulated that they also define the intent of the four basic boundary issues / sources of selectivity, as well as of the twelve boundary categories. (Source: derived from a representation of the overall architectonic of critical systems heuristics in Ulrich, 1983, p. 342; the present, simplified figure has not been published as yet)

I call the reflective or discursive process of uncovering a claim's specific anatomy of selectivity *boundary critique* (the general term for a reflective or discursive approach) or also *boundary discourse* (the more specific term for a dialogical approach). As explained above, I like to describe this process with the imagery of the eternal triangle; based on this imagery, I then also explain boundary critique as a process of *systemic triangulation*, that is, a systematic effort of thinking through the eternal triangle.

The concept of systemic triangulation Since antiquity it was known that there exists a fixed relationship between the sides and the angles of a right-angle triangle, so that if two elements (say, the value of one of the two acute angles and the length of at least one side) are known, all sides and angles can be calculated. This happens by means of mathematical functions that describe these relationships, the so-called "trigonometric functions" (*sine*, *cosine*, and *tangent*). This knowledge was used for surveying land, that is, measuring distances between triangulation points or determining their locations. The term *triangulation* originally means the use of several (at least three) triangulation points to this end, so that the principles of trigonometry could be applied.

In modern times, this old idea of triangulation became a metaphor for the use of more than one data basis for testing theoretical hypotheses and conversely, for validating and interpreting data in the light of alternative theories or perspectives. Particularly in the empirical social sciences, the *principle of triangulation* has thus come to demand reliance on multiple perspectives and data bases, the latter gained by alternative research methods, to describe and analyze social issues; a seminal contribution is by Denzin (1970).

As a practicing evaluation researcher, the principle of triangulation was familiar to me; but only eventually, after starting to describe boundary critique in terms of the "eternal triangle," it occurred to me that a useful way to understand boundary critique was indeed by conceiving of it as a different, richer concept of triangulation. The eternal triangle made it plain that the conventional concept of triangulation, as used in the social sciences, was insufficient in that it focused on the generation of factual knowledge while at best affording a marginal role to value judgments and entirely neglecting the role of boundary judgments. Once I had made this connection between the eternal triangle and scientific triangulation, it was only a small further step to

propose a systematic principle of *systemic triangulation*. In fact, as I recognized with hindsight, I had proposed and applied it all along, just without designating it as such! "Systemic triangulation" – a term first used in Ulrich, 2000b, p. 18f, and 2003, p. 334, but implicit in all references to the eternal triangle – goes beyond the conventional concept of triangulation by considering not only different data sets and corresponding theories and research methods as bases for judgments of fact but also different normative assumptions (judgments of value) *and* different reference systems (boundary judgments); in this way it is a tool for gaining a deeper understanding of a claim's anatomy of selectivity, including supposedly merely factual claims.

Once we have understood the idea, systemic triangulation can also be described more simply as the reflective or discursive process by which the eternal triangle is applied to specific issues (**Fig. 3**). It is a core skill we need to develop in order to become competent in boundary critique.

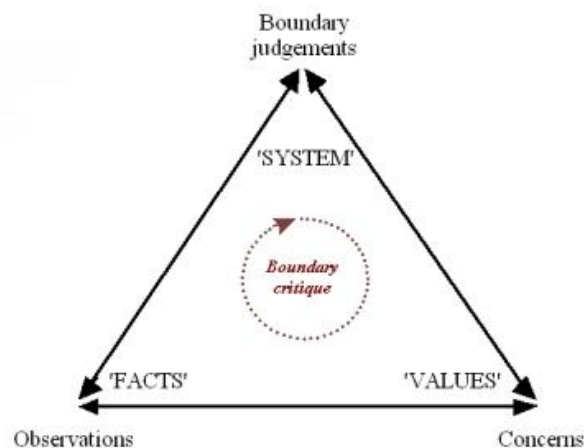


Fig. 3: Systemic triangulation: the process of boundary critique

Systemic triangulation is the reflective or discursive process of systematically applying the "eternal triangle" to the task of boundary critique. As a new methodological principle, systemic triangulation extends the conventional concept of triangulation in science by considering findings and conclusions not only in the light of multiple observations (judgments of fact relying on different research methods, theories, and data bases) but also of different ethical and moral perspectives (value judgments as to relevant concerns and notions of improvement) and reference systems (boundary judgments as to relevant situations or contexts). (Sources: Ulrich, 2012b, p. 1317; adapted from Ulrich, 1998, p. 6; 2000a, p. 252; 2000b, p. 18f; 2002, p. 41f; and 2003, p. 334)

Systemic triangulation also stands for an essential critical stance that we need to cultivate *in addition* to the scientific attitude of objectivity and suspended judgment, and/or the professional virtue of detachment. It involves a conscious effort of "*stepping back*" from *current reference systems* so as to appreciate the different perspectives afforded by alternative

conceivable reference systems. Such a stance places high demands on a researcher's or professional's ability to *maintain the tension* between divergent standpoints and to suspend judgment while unfolding the views and consequences they entail – perhaps the most distinguished competence a researcher or professional can strive to cultivate.

With the idea of systemic triangulation, the eternal triangle thus suggests a useful analogy for understanding a core skill that is conducive to systematic boundary critique, as well as a related critical professional stance or ethic. A competent professional will make it a personal habit to always consider each corner of the triangle – relevant observations, concerns, and boundary judgments – in the light of the other two, by asking questions such as these:

- What new facts become relevant if I expand the boundaries of my reference system and/or modify my value judgments?
- How do my valuations look if I consider new facts that refer to a modified reference system, or if I rely on the multiple perspectives that other people have of the issue under consideration?
- In what way may my reference system fail to do justice to the perspectives of different stakeholder groups?

Perhaps I may conclude this short introduction to the principle of systemic triangulation with two quotes from earlier writings that capture its consequences for research and professional practice (and they are essential consequences, I think):

"Any claim that does not reflect on the underpinning 'triangle' of boundary judgments, judgments of facts, and value judgments, risks claiming too much, by not disclosing its built-in selectivity." (Ulrich 2002, p. 42; similarly 2003, p. 334 and 2005, p. 6)

"Systemic triangulation is indeed highly relevant from a critical point of view. It serves several critical ends:

- It helps us in becoming aware of, and thinking through, the selectivity of our claims – a basis for cultivating reflective practice.
- It allows us to explain to others our bias – how our views and claims are conditioned by our assumptions. We can thus qualify our proposals carefully, so that they gain in credibility.
- It allows us to see through the selectivity of the claims of others and thus to be better prepared to assess their merits and limitations properly.
- It improves communication, for it enables us to better understand our differences with others. When we find it impossible to reach through rational discussion some shared views and proposals, this is not necessarily so

because some of the parties do not want to listen to us or have bad intentions but more often, because the parties are arguing from a basis of diverging boundary judgments and thus cannot reasonably expect to arrive at identical judgments of fact and value. And finally, as a result of all the above implications:

- It is apt to promote among all the parties involved a sense of modesty and mutual tolerance that may facilitate productive cooperation; for once we have understood the principle of systemic triangulation, we cannot help but realise that nobody has a monopoly for getting their facts and values right, and that accordingly it is of little help simply to accuse those who disagree with us to have got their facts and values wrong." (Ulrich and Reynolds, 2010, p. 287)

The imagery of systemic triangulation As we have found, the imagery of a triangle quite naturally offers itself for depicting the idea and process of boundary critique. It's so obvious a metaphor, given that in a triangle we cannot change one angle without affecting the other two, just as in boundary critique we face three interdependent types of judgment, each of which cannot be changed without a need for revising the other two. No matter at which corner point of the triangle we start to change things, we'll end up changing all three. Perhaps this obvious implication of a *ménage à trois*, as I have put it, explains why I have never found it necessary to explain the imagery of systemic triangulation in more than cursory form. After all, it is a mere metaphor. Rather than explaining the metaphor, I found it important to explain the methodological considerations for which the eternal triangle is only a metaphor. However, it is true that the metaphor is of interest in its own right, given that it is meant to inspire a demanding kind of professional stance and competence. Now that the principle of systemic triangulation is beginning to find recognition in ever more fields, it is certainly time to dedicate more attention to its underlying imagery.

The present short article is intended to correct the situation a bit. It is in fact the most extensive account I have thus far given of the principle. The impetus for doing it came from my appreciated colleague and Senior Lecturer at the Open University in Milton Keynes, UK, Martin Reynolds. When a publisher requested him to ask for my permission to reproduce the eternal triangle, he took the occasion and asked me about the origin of its imagery. "I wonder," he wrote, "where your diagrammatic representation may have been inspired from (if anywhere)?" (Reynolds, 2016) I certainly found it a question worthwhile to consider, if not a wake-up call reminding

me that I had somewhat neglected this question. It made me reflect on my personal idea history, and discover that there was more to it than I had assumed. I did not anticipate then that I might publish this personal reflection one day, but here is the answer I wrote to Martin, exactly in the wording I sent it to him except for a few minor editorial corrections:

"Martin,

There is no figurative source of the eternal triangle of which I would be aware. It's rather the other way round, it was the result of a rather long personal history of ideas. As you may have noticed, I generally like conceptualizations of issues that work with triple categories or options. (A recent other example is provided by my focus, in the series of explorative essays on the role and proper handling of general ideas, on what I identified as three key ideas of Upanishadic thought in ancient India, *atman*, *jagat*, and *brahman*, with the second one being an unusual but for me crucial addition to the other two.)

The way to the 'eternal triangle' was like this:

First, it had slowly dawned on me that the often asserted, but methodologically somewhat nebulous interdependence of 'facts' (empirical judgments) and 'values' (normative judgments) could be patently explained by adding 'systems' (boundary judgments) as the missing link as it were. So there I was, once again, with one of my favourite triple characterisations.

Second, one day (I remember the moment quite well, as it was one of those rare but precious 'Aha' experiences) it occurred to me that a triangle offered itself naturally for depicting the interdependencies between 'facts', 'values', and 'systems'. It's such a convenient way to capture the need for thinking through the three core concepts (represented by the triangle's corners) of 'facts', 'values', and 'systems', as well as the interdependencies – often also tensions or conflicts – between them (represented by the triangle's sides); thinking through, that is, both conceptually / methodologically (how to understand and handle the issues involved) and practically (how to formulate / unfold these issues in specific situations).

As a third and last step, the name 'triangulation' offered itself for these processes of 'thinking through' the eternal triangle, both in general and in specific applications. But of course, as a former, practicing social researcher I remembered that the concept of triangulation already had a different, rather narrow meaning in the social sciences; it meant, in essence, the alternative interpretation of a given set of collected data (or findings) in the light of alternative theoretical hypotheses (or methods), or conversely, the examination of given findings (or hypotheses) in the light of different sets of data. I had always sensed that something was not satisfactory with this conventional concept of triangulation, I now knew why: because it ignores the essential role of boundary judgments. It had, consequently, remained a bipolar concept, looking only at the tension between empirical findings (or data) and theoretical assumptions that informed them, whether in the form of theories or hypotheses to be tested or methods. A well-understood effort of triangulating research findings, it occurred to me, had to include the effort of

seeing / challenging them in the light of different sets of boundary judgments (or 'reference systems' as I also call such sets, as they serve as reference points for assessing selectivity). The name 'systemic triangulation' thus offered itself for this further-reaching (or deeper, if that doesn't sound too presumptuous) concept of triangulation. Further, since from a critical point of view, there is no natural end (no stopping rule) for such processes of triangulation, the figure of the triangle seemed very adequate (you can go round and round the triangle, there is no natural end), and so did accordingly the name I had given it, the 'eternal triangle'.

In sum, the figure of the eternal triangle was really inspired by the methodological conjectures that led to it, rather than by some other figurative source of which I was aware then or would be aware today. (Ulrich, 2016)

My conclusion from this short essay on the concept and imagery of systemic triangulation is simple: *systemic triangulation is perhaps not a bad idea*. The references that follow should help you inform yourself a bit more about the idea and then start using it – the only way you can experience its heuristic usefulness and critical force.

I hope you'll give it a try.

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Picture data Digital photograph taken on 24 October 2013, around 5 p.m.; near Rüeggisberg, Switzerland. ISO 200, exposure mode aperture priority with aperture f/12.9 and exposure time 1/80 seconds, exposure bias 0. Metering mode enter-weighted average, contrast low, saturation high,

sharpness low. Focal length 45 mm (equivalent to 45 mm with a conventional 35 mm camera). Original resolution 5472 x 3648 pixels; current resolution 700 x 467 pixels, compressed to 266 KB.

March-April, 2017



Farmers' "triangulating" fieldwork – boundary judgments at work

„Systemic triangulation is perhaps not a bad idea.”

(Conclusion from this note on the concept and imagery of systemic triangulation)

Boundary judgments at work: farmers sometimes "triangulate" the landscape by their fieldwork

◀ **Previous Picture**

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