

A Brief Introduction to Critical Systems Heuristics (CSH)

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1. Some Basic Terms

Critical systems heuristics (Ulrich 1983) is a framework for reflective practice based on practical philosophy and systems thinking. The name stands for three major concerns. First, the aim is to enhance the ‘critical’ (reflective) competence not only of well-trained professionals and decision-makers but also of ordinary people. Second, reflective practice cannot be secured by theoretical means only but requires ‘heuristic’ support in the form of questions and argumentation tools that make a difference in practice. And third, ‘systems’ thinking can provide us with a useful starting point for understanding the methodological requirements of such an approach to reflective practice. Here is a short explanation of each of these three pillars of CSH:

Heuristics means literally ‘the art (or practice) of discovery’; the Greek verb ‘*heurisk-ein*’ means to find or to discover. In professional practice, heuristic procedures serve to identify and explore relevant problem aspects, assumptions, questions, or solution strategies, in distinction to deductive (algorithmic) procedures, which serve to solve problems that are logically and mathematically well defined. Professional practice cannot do without heuristics, as it usually starts from ‘soft’ (ill-defined, qualitative) issues such as what is the problem to be solved and what kind of change would represent an improvement.

A **critical** approach is required since there is no single right way to decide such issues; answers will depend on personal interests and views, value assumptions, and so on. At the latest since Christopher Columbus we know that discovery goes hand-in-hand with deception! A critical approach does not yield any single right answers either; but it can support processes of reflection and debate about alternative assumptions. Sound professional practice is critical practice.

Systems thinking is relevant because all problem definitions, solution proposals, evaluations of outcomes, and so on, depend on prior judgments about the relevant ‘whole system’ to be looked at. Improvement, for instance, is an eminently systemic concept, for unless it is defined with reference to the entire relevant system, sub-optimisation will occur. CSH calls these underpinning judgments ‘boundary judgments’, as they define the boundaries of the reference system that is constitutive of the meaning of a proposition and for which it is valid.

Boundary judgments determine which empirical observations and value considerations count as relevant and which others are left out or considered less important. Because they condition both ‘facts’ and ‘values’, boundary judgments play an essential role when it comes to assessing the meaning and merits of a claim.

Claims are all assertions or suggestions to which we attach some relevance (meaningfulness) and validity (justifiability) in processes of opinion formation, problem solving, decision-making, action, or conflict resolution. Typical claims are: a problem definition or an account of a problem situation; a solution proposal; a suggested measure of success or an assumed general notion of improvement; an assertion of moral rightness; a claim to knowledge or to rationality; and so on. All these types of claims are inevitably *partial* (selective) in the dual sense of representing a part rather than the whole of the total universe of conceivable considerations, and of serving some parties better than others - no proposal, no decision, no action can get it equally right for everyone!

Merit is a pragmatic criterion in the sense of philosophical pragmatism and semiotics. For a claim to have pragmatic merit, it is not sufficient that its formulation is grammatically and logically coherent and semantically clear, it also needs to be relevant and acceptable to those concerned in the light of the real-world consequences that it may have if it is accepted as a basis of action. In order to clarify a claim’s meaning and to judge its merits, we need to examine the question: What difference does it make in practice? Accordingly, issues such as ‘Who will benefit and who not?’, ‘How does this claim deal with the concerns of those who are not likely to benefit?’, or ‘What is the underlying notion of improvement?’ are to be considered.

In the terms of CSH, the sum-total of these considerations of fact and of value make up the **reference system** that gives meaning to a particular claim and conditions its validity. In everyday language, we may speak of the ‘relevant context’ or of the ‘situation of concern’ (meaning the *perceived* context or situation), but we usually do so in an intuitive rather than a systematically reflected way. Consequently, in many discussions we fail to achieve mutual understanding, since due to divergent reference systems, we actually speak about different subjects.

Clear and valid thinking, as well as *productive communication*, demand that we make it clear to ourselves as well as to everyone else concerned what is the reference system that we assume in each discussion. If we are not able to qualify the reference system for which we claim a proposition to be meaningful and valid, we don’t really know what we are talking about, and we certainly risk that others will understand something else than what we expect them to understand. If however we are very well aware of our boundary judgments but do not disclose them to others, we risk claiming too much - we fail to qualify our claims by pointing out their limitations.

2. Boundary Critique - The Methodological Core Principle of CSH

The basic idea of CSH is to support *boundary critique* - a systematic effort of handling boundary judgments critically. Boundary critique may take two main forms: it can aim at handling boundary judgments self-critically (*reflective practice*), or it can use boundary judgments for critical purposes against those who may not handle them so self-critically (*emancipatory practice*).

The methodological core idea consists in surfacing the unavoidable *selectivity* of claims, in the dual sense of ‘partiality’ explained above. 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. This consequence is the reverse side of the coin of ‘clear and valid thinking’, as it were; we cannot meaningfully talk about any aspect of a situation or an issue without implying boundary judgments. What a certain aspect means depends on what consequences we anticipate it to have, whose concerns we assume to be affected, what criteria of success or improvement we associate with it, and so on; and all these assumptions and associations embody boundary judgments as to what is to be part of the picture and what is not. Whether these judgments are conscious and deliberate or unintended makes no difference.

Likewise, 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. The same observation applies to the influence of power and other non-argumentative means of buttressing a claim: if those in control of a situation deliberately suppress or ignore some aspect of a problem situation at issue, they actually talk about something else than what they pretend. Those who understand the trick can then challenge them by uncovering the circumstance.

In conclusion, both reflective and emancipatory practice can methodologically be grounded in a systematic process of boundary critique. The question is, can we offer people the conceptual tools they need to identify, discuss or challenge boundary judgment systematically?

3. The Process of Boundary Critique

A systematic *process of boundary critique* faces the following tasks:

1. It needs to *identify* the sources of selectivity that condition a claim, by surfacing the underpinning boundary judgments.
2. It needs to *examine* these boundary judgments regarding their practical and ethical implications; what difference do they make to the way we see the situation in question?
3. It needs to *find options* for determining the reference system that conditions a claim, by giving alternative answers to some of the boundary questions; for only in the light of alternative reference systems can we fully appreciate the selectivity of the present one.
4. It needs to *seek some mutual understanding* with all the stakeholders concerned regarding their different reference systems. If in the process a shared notion of the relevant reference system can be achieved, so much the better; but even if no agreement can be reached, understanding the way reference systems differ still represents an important gain in communicative rationality. Misunderstandings can be avoided in this way, and mutual tolerance can grow. (Note that identifying the stakeholders to be consulted represents itself a boundary judgment in need of critique, although the previous steps should provide a tentative basis).
5. Finally, when some of the parties handle their own boundary judgments uncritically, either because they take them for granted or try to impose them on others, it may become necessary to *challenge* their claims through the emancipatory use of boundary critique (see Section 5).

CSH offers some guidance for each of these tasks. However, it would be a mistake to conceive of boundary critique as a kind of step-by-step technique for 'boundary setting', that is, as a method to determine 'right' and 'wrong' boundary judgments and to settle conflicts. No kind of theory of methodology whatsoever could claim to know the 'right' answers to boundary issues. All that boundary critique can achieve is to help the parties in appreciating their own boundary assumptions and those of others, so that they can then articulate their concerns in a cogent way. The decision on what boundary judgments should underpin practical action is then a question of *legitimacy* rather than of validity; once the selectivity of claims has become transparent, democratically institutionalised processes of decision-making can work in a meaningful way.

As a matter of principle, from a critical point of view we can never justify our claims by referring to the methodologies we use or to the theories we rely on. Only institutionalised processes of legitimate decision-making can justify the way our claims may affect the different parties concerned. Hence, boundary critique should be understood - and practised - primarily as a reflective *attitude*, rather than as a technique. That

has both advantages and disadvantages: The advantage is that practising boundary critique does not depend on learning yet another problem-solving methodology (few professionals, much less ordinary people, are prepared to learn to master a large array of different problem-solving methodologies). It is quite good enough to understand the role that boundary judgments play and then to ‘translate’ this understanding into a Socratic attitude of self-reflection regarding one’s own claims, and of tolerance (combined with critical appreciation) regarding the claims of others. The disadvantage is that boundary critique is not a self-contained approach but is more useful in combination with other approaches to problem structuring and problem-solving.

Let us briefly characterise the kind of *boundary-critical attitude* that CSH proposes:

- Basically, from now on, when we refer to a ‘problem situation’ or to any kind of ‘real-world’ circumstances, it should be clear that we always mean to refer to the *perceived* situation or circumstances *as appreciated through a reference system* of underpinning boundary judgments.
- Likewise, we understand that one of the most important qualities of a claim is its limitations, and hence, its *self-limiting* nature. Obviously, as soon as we recognise the conditioned character of all our perceptions and claims, we can no longer articulate perceptions or raise claims in the same (unqualified) assertive mode that is so characteristic of everyday discussions as well as of the usual practice of ‘applied science’ and expertise. Rather, the question of how ‘*scientific*’ the findings and conclusions of even the most professional application of scientific tools are, as well as how *credible* our everyday claims are, is now to be measured by the extent to which we make their conditioned character clear to ourselves and to everyone else concerned. Lest we be convicted of relying on undisclosed assumptions and hence, of *claiming too much*, an effort of clarifying and disclosing our boundary judgments is required. Furthermore, such a critical effort also makes sense lest we misunderstand the claims of others or let ourselves be deceived by them.
- A third and last important aspect of a boundary-critical attitude is this. Once we have understood that all our claims are conditioned by boundary judgments, the next step is to realise that this limitation holds just as much for the claims of well-trained experts and decision-makers as for those of ordinary people! The implication is that *when it comes to boundary judgments, we basically meet as equals*. Everyone can question the boundary judgments of others with equal right. This opens up a chance for everyone to acquire a new critical competence, one that is independent from any special knowledge or argumentative skills beyond those available to a majority of ordinary people. The mentioned Socratic attitude thus paves the way for an orientation towards emancipation and democratic self-determination.

Let us now look at the **methodological core principle** embodied in the concept of boundary critique. As we have understood, the basic requirement for developing the required critical competence is grasping the way judgments of fact as well as of value depend on boundary judgments and are connected through them. CSH explains this by means of the **eternal triangle** (Figure 1). Whenever we propose a problem definition or solution or raise any other claim with a practical intent, we cannot help but assert the relevance of *some* facts and norms as distinguished from others. Which facts and norms we should consider depends on how we bound the reference system, and vice-versa; as soon as we modify our boundary judgments, relevant facts and norms are likely to change, too. We are thus caught in an argumentative triangle.

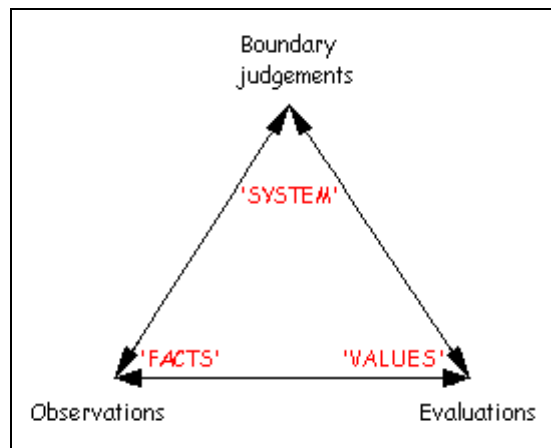


Figure 1: The 'eternal triangle' of boundary judgments, facts, and values
(Source: Ulrich 2000, p. 252)

CSH calls the process of thinking through the triangle **systemic triangulation**. It means to consider each corner of the triangle in the light of the other two. For example, what new facts become relevant if we expand the boundaries of the reference system or modify our value judgments? How do our valuations look if we consider new facts that refer to a modified reference system? In what way may our reference system fail to do justice to the perspective of different stakeholder groups? Asking ourselves how the facts that we find relevant, the value considerations we deem adequate, and the context (reference system) that we consider, mutually condition one another is highly relevant for developing a sense of modesty regarding our claims, as well as tolerance regarding those of others who appear to have got their facts and values wrong!

4. The Conceptual Framework of CSH: Boundary Categories and Questions

In order to support systematic boundary critique, CSH has developed a systemic categorisation of boundary issues. There are four basic boundary issues, each of which leads to three types of boundary problems. The reason why each basic issue raises more than one boundary problem is that with regard to each issue, we need to clarify not only *what* aspects of a situation are to be considered relevant and what others are to be left out, but also *who* is among those involved in determining these aspects and who is not, as well as *how* we handle differences or conflicts among their views. Accordingly, CSH proposes a conceptual framework of twelve boundary categories. Before we introduce the specific boundary categories that CSH uses, let us make sure we understand the concept of ‘boundary category’.

A **boundary category** stands for a basic type or *form of boundary judgments*, that is, for a source of both empirical and normative selectivity in need of critical reflection. Note the emphasis on ‘form’: a boundary category requires that we give it empirical and normative content; otherwise, it does not tell us anything about the situation at hand. It is thus a kind of *place-marker* that reminds us of the need for clarifying an issue of empirical or normative selectivity.

Empirical selectivity is contained in observations about what *is* the case; normative selectivity in judgments about what *ought* to be the case. You might thus be tempted to equate empirical selectivity with judgments of fact and normative selectivity with judgments of value, but things are a little more complicated. Note that either type of selectivity applies to the selection of relevant *facts* as well as of *values*:

- *Normative selectivity* is contained not only in explicit value statements (e.g., ‘I think we should do X rather than Y’ or ‘I don’t think Z is morally acceptable’) but also in assertions of fact (‘Fact is ...’ or ‘Let us consider fact A’ or ‘I don’t think fact B is relevant’); for what such statements assert is really which facts *should* be considered relevant and which others should not.
- *Empirical selectivity* is contained not only in the facts considered relevant but equally in the values at work; for in both cases, the issue is not what facts and values ought to underpin a claim but which ones are *actually* built into it.

If we cross-tabulate assumptions of ‘facts’ and ‘values’ with the two forms of selectivity, we get four perspectives for examining the selectivity of any claim (Figure 2).

<i>Perspective</i>	Empirical selectivity (‘Is’ mode)	Normative selectivity (‘Ought’ mode)
‘Facts’	Actual mapping: What ‘facts’ are considered relevant and which ones are left out?	Ideal mapping: What ‘facts’ ought to be considered relevant and which ones should be left out?
‘Values’	Actual mapping: What ‘values’ are considered relevant and which ones are left out?	Ideal mapping: What ‘values’ ought to be considered relevant and which ones should be left out?

Figure 2: Four perspectives for examining selectivity

It is then clear that an examination of empirical selectivity (‘Is’ mode) must look at those assumptions of both fact *and* value which *actually* are at work in a proposal, whereas an examination of normative selectivity (‘Ought’ mode) concerns those assumptions of both fact and value that we think *ought* to inform the proposal.

In order to avoid terminological confusion, CSH calls the systematic examination of empirical selectivity (‘What boundary assumptions are at work?’) **‘actual mapping’**, whereas the examination of normative selectivity (‘What boundary assumptions ought we to rely on?’) is called **‘ideal mapping’**, as shown in Figure 2.

Taken together, the four fields of Figure 2 - the results of actual mapping and ideal mapping - represent the *reference system* that conditions our perception of a problem situation as well as the claims we raise with respect to it. Critically speaking, without an effort to handle these four issues in an open and transparent way, our claims are neither *clear* (regarding their meaning and relevance) nor *valid* (regarding their rationality and ethical acceptability).

Boundary categories are a kind of ‘shorthand’ for the particular boundary issues that we need to examine in all four fields, or (to simplify matters a bit) in actual mapping and/or ideal mapping. The point is that the issues remain the same - only the ‘mode’ of examination changes. It is therefore convenient to introduce these issues in the form of a table of boundary categories. So much for the basic notion of boundary categories.

Next, let us consider the intent of the **four basic boundary issues**. (Note: the fact that the number of issues is the same as that of the fields of meaning clarification and validity examination in Figure 2 is incidental). They ask for a claim’s:

- Basis of *motivation* - Where does a sense of purposefulness and value come from?
- Basis of *power* - Who is in control of what is going on and is needed for success?
- Basis of *knowledge* - What experience and expertise support the claim?
- Basis of *legitimacy* - Where does legitimacy lie?

Together, the four issues make up a claim's 'anatomy of purposefulness' (Ulrich 1983, p. 342). Critical heuristics proposes that these four issues are essential for reflective practice in most (if not all) situations of problem solving, decision-making, or professional intervention. They are essential since without considering them, we do not really understand what a claim *means* and whether or to what extent we should recognise it as valid, that is, as a basis for action. The underlying philosophical position is that of pragmatism. Its core principle, the *pragmatic maxim*, was formulated by the American philosopher Charles S. Peirce (1878):

Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. (Peirce 1878, par. 402)

That is to say, the meaning of a claim (or as Peirce would say, an idea or proposition) consists in all the possible effects we associate with it - the sum-total of the consequences we expect it to have. Peirce was mainly interested in experimental science and for this reason associated with the pragmatic maxim primarily an operational concept of scientific definition and hypothesis formulation; he suggested that the meaning of a hypothesis consists in the experimental consequences we expect to observe when we test it, and in nothing else. But the maxim also makes sense (sic!) in everyday experience and communication: the meaning of an idea or claim consists in the difference it makes to us in the way we 'see' things, in the beliefs we hold or the kind of actions we deem reasonable and ethical.

CSH interprets the pragmatic maxim through the lens of the four mentioned boundary issues. The boundary categories of CSH thus can be understood to represent a categorisation of the kinds of 'effects' that we need to examine in situations of applied science and expertise or of everyday practice.

We are now ready to look at the particular *boundary categories* that CSH uses for purposes of meaning clarification as well as validity examination. (For reasons that I cannot explain here, CSH, unlike Peirce, considers the pragmatic maxim relevant not only for questions of meaning but also for questions of validity; compare Ulrich, 2006.)

To each basic boundary issue, CSH assigns three categories:

- The first category of each group refers to a major kind of *stakeholder*, that is, people concerned by a situation either because they are involved or else because although they are not involved, they are effectively or potentially affected.
- The second category refers to the major kind of *concern* we associate with the stakeholder in question.

- The third category, finally, refers to the main kind of **difficulty** that may arise with regard to the concerns in question, for instance because they compete with one another or for other reasons cannot be fully met (as it is characteristic of real-world situations of problem solving).

This yields the table of boundary categories given in Figure 3.

<i>Boundary categories</i>	<i>Boundary issues</i>			
1. Client	} Sources of motivation	} Those involved	} The reference system (system of concern) that determines what observations ("facts") and evaluations ("values") are considered relevant when it comes to assessing the merits or defects of a proposition	
2. Purpose				
3. Measure of improvement				
4. Decision-maker	} Sources of power			
5. Resources				
6. Decision environment				
7. Professional	} Sources of knowledge			} Those affected
8. Expertise				
9. Guarantee				
10. Witness	} Sources of legitimation			
11. Emancipation				
12. World view				

Figure 3: Table of boundary categories
 (Source: W. Ulrich 1983, p. 258; 1996, p. 43; and 2000, p. 256)

As help for supporting a process of boundary critique, we may now translate each boundary category into **boundary questions** that make the intent of each category clear. In this way, we can at the same time define the intent of each category without needing to refer to a separate list of definitions later on.

Conforming to the dual nature of selectivity - involving both empirical and normative selectivity - each boundary category translates into two questions, one formulated in the descriptive mode (what *is* the case?) and one in the prescriptive mode (what *should* be the case?). This yields a checklist of twice 12 critical boundary questions (Figure 4).

In Figure 4, each question is formulated in two parts. The first relates the boundary question to the boundary category at issue; the second part, beginning with 'That is, ...', defines the intent of that boundary category. What matters for boundary critique is the intent of each boundary category, not the terms we use to formulate it.

SOURCES OF MOTIVATION

- (1) Who is (ought to be) the **client** or beneficiary? That is, whose interests are (should be) served?
- (2) What is (ought to be) the **purpose**? That is, what are (should be) the consequences?
- (3) What is (ought to be) the **measure of improvement** or measure of success? That is, how can (should) we determine that the consequences, taken together, constitute an improvement?

SOURCES OF POWER

- (4) Who is (ought to be) the **decision-maker**? That is, who is (should be) in a position to change the measure of improvement?
- (5) What **resources** and other conditions of success are (ought to be) controlled by the decision-maker? That is, what conditions of success can (should) those involved control?
- (6) What conditions of success are (ought to be) part of the **decision environment**? That is, what conditions can (should) the decision-maker *not* control (e.g. from the viewpoint of those not involved)?

SOURCES OF KNOWLEDGE

- (7) Who is (ought to be) considered a **professional** or further **expert**? That is, who is (should be) involved as competent provider of experience and expertise?
- (8) What kind **expertise** is (ought to be) consulted? That is, what counts (should count) as relevant knowledge?
- (9) What or who is (ought to be) assumed to be the **guarantor** of success? That is, where do (should) those involved seek some guarantee that improvement will be achieved - for example, consensus among experts, the involvement of stakeholders, the experience and intuition of those involved, political support?

SOURCES OF LEGITIMATION

- (10) Who is (ought to be) **witness** to the interests of those affected but not involved? That is, who is (should be) treated as a legitimate stakeholder, and who argues (should argue) the case of those stakeholders who cannot speak for themselves, including future generations and non-human nature?
- (11) What secures (ought to secure) the **emancipation** of those affected from the premises and promises of those involved? That is, where does (should) legitimacy lie?
- (12) What **worldview** is (ought to be) determining? That is, what different visions of 'improvement' are (should be) considered, and how are they (should they be) reconciled?

Figure 4: Checklist of boundary questions

The second part of each question, beginning with 'That is, ...' defines the boundary category in question.

(Source: W. Ulrich 2000, p. 258, originally in 1987, p. 279f)

As a rule, it makes sense to ask each question both in the 'is' and in the 'ought' mode. Our 'ought' answers always help to clarify the standpoint from which we are assessing a situation or related claim in the 'is' mode. Furthermore, differences between 'is' and 'ought' answers are frequent, not to say the rule; as they point to unresolved boundary issues, they can drive the process of unfolding the selectivity of a claim. However, the specific way in which we combine the 'is' and the 'ought' mode depends on the particular application of boundary critique in which we are interested.

We can distinguish **four basic applications** of boundary critique. The first is the easiest one as it requires ideal mapping only, whereas the others require both ideal

and actual mapping. I will briefly characterise each application by explaining its use with regard to (a) the examination of a particular claim, and (b) the handling of a situation of problem solving, decision-making or professional intervention to which the claim refers. The focus in (a) is on understanding some crucial boundary judgments and the role they play for the reference system in question; in (b), on understanding the *perceived* situation as a whole and how its perception may change with modifications of the reference system.

(1) **Ideal Mapping** - Guiding question: *'What is our vision?'*

- (a) By answering each boundary question in the 'ought' mode, with this guiding question in mind, we can clarify the normative basis from which we assess a claim or which orients our efforts to reformulate it.
- (b) In situations of participatory problem structuring and decision-making, ideal mapping can be a helpful starting point to develop some shared motivation and understanding, as it is usually easier for people to share basic ideals and visions than to agree about specific ends and means.

(2) **Evaluation** - Guiding question: *'What is our assessment of the situation?'*

- (a) By answering the boundary questions in the 'is' mode and then contrasting the answers with the previously determined 'ought' answers, we can evaluate the merits of a claim without any illusion of objectivity. That is, we make it clear to ourselves and to everyone else in what way our evaluation depends on a specific reference system that others need not share.
- (b) The combination of actual and ideal mapping provides a useful basis for reviewing a situation at any stage of problem structuring, decision-making or intervention, with a view to clarifying the question 'Where do we stand?' and taking corrective action as required.

(3) **Reframing** - Guiding question: *'What other context might be relevant?'*

- (a) By unfolding a claim's assumptions and implications in the light of alternative reference systems, we can develop a better understanding of its selectivity and of possible ways to do more justice to the concerns of all stakeholders, if not to reach a shared understanding with them.
- (b) This application of boundary critique provides a basis for dealing with situations of uncertainty or unanimity regarding the ends and means of an intervention, competing worldviews and notions of improvement, questions about the stakeholder groups to be involved, or moral issues.

(4) **Challenge** - Guiding question: *'Don't you claim too much?'*

- (a) By using boundary questions against people who are not willing to disclose the boundary judgments underpinning their claims, or who try to impose them by non-argumentative means, we can make apparent the way in which these claims rely on tacit boundary assumptions for which there are options.
- (b) This application of boundary critique provides a basis for dealing with situations in which an asymmetry of argumentative chances, due to unequal status, skills, or power of the parties, threatens to militate against an open and transparent handling of issues of selectivity.

5. A Model of Cogent Critical Argumentation

The last-mentioned application of boundary critique raises an issue that is important in practice, lest a critical handling of boundary judgments remain entirely dependent on the good will of those in control of a situation to lay their boundary judgments open. The principle of boundary critique would then boil down to a mere appeal to those involved in a problem-solving or decision-making process to handle their assumptions self-critically. This can be avoided only if boundary critique can also be shown to support those parties whose concerns are ignored or suppressed, by giving them an *argumentative tool* that allows them to carry their concerns into a wider arena of discussion and to question the rationality of the claims of those involved in a *rationally cogent* way.

Emancipatory boundary critique represents the use of boundary critique to this end. The idea is that for someone who has grasped the basic idea of boundary critique, it is always possible to challenge a claim that fails to qualify its meaning and validity in terms of underpinning boundary judgments. Required for this is that it become obvious to all the parties and, where necessary, to a larger public, that some of the asserted facts or values depend on undeclared boundary judgments, and that other facts and values may be just as relevant if only we modify some of these judgments. The important point is that in order to achieve such transparency, one need not have as much information and expertise as those who use boundary judgments dogmatically; it is quite good enough to offer an overtly tentative and subjective suggestion or question regarding a boundary issue. The only thing that matters is that everyone can then see there may be *options* for selecting relevant facts and values! When the mask of objectivity and rationality slips, we discover boundary judgments at war.

For instance, when the issue is improving land use and ecosystem management in an underprivileged region such the North Rupununi District of south-west Guyana, introducing a new type of land use may well have ecological and socio-economic side-effects that affect the lives of the people of the region in unintended and unequal ways. Say, there is a plan to modify agricultural practices or introduce some new crops; it may bring new opportunities to make a living for some members of the community while not benefiting others or even imposing disadvantages on them. Those who feel their concerns have not been addressed properly may then want to challenge the plan by drawing attention to its normative selectivity. Instead of arguing against the plan as if they knew better than the specialists what the consequences will be, it will be quite sufficient for them to voice their concern by asking a question such as this:

‘I am not sure who among the people in the region will have the means and skills to adopt this new agricultural method; doesn’t that mean the plan will serve only those who do have the means and skills?’ (emancipatory use of the ‘client’ question).

Or:

‘You say the local people will benefit because they get a new opportunity to make a living, but I wonder whether they will want to seize the opportunity or whether they will not rather feel this way of earning a livelihood is not part of their cultural heritage?’ (emancipatory use of the ‘worldview’ question).

And so on. What matters is not how sophisticated the challenging questions or comments are, but only that they put the plan’s proponents in a situation in which they can no longer take their boundary judgments for granted. As soon as these become a focus of attention, the proponents lose whatever advantage of expertise and status they may have; for, as we have seen, when it comes boundary judgments, experts and lay people meet as equals.

Unlike all other models of rational discourse currently available in the booming literature on practical philosophy and discourse ethics, this simple model of critical argumentation need not assume ideal conditions of rationality but works under everyday conditions of imperfect rationality. It achieves this by restricting itself to a critical purpose only; but for this critical purpose, it offers a cogent form of argumentation. Therein consists the emancipatory potential that I associate with boundary critique. It can secure to all the parties a gain in *‘symmetry of critical competence’* (Ulrich 1993, p. 604f; for a more comprehensive introduction to the emancipatory use of boundary critique, compare Ulrich, 1983, pp. 265-314, esp. 301-310; also Ulrich 1987, p. 281f; 1993, pp. 599-605; and 2000, pp. 257-260).

6. Recommended Readings

The basic source for the philosophical underpinnings of CSH remains Ulrich (1983).

A good first introduction is Ulrich (1987); a fuller account, with particular reference to issues of ecological management, is Ulrich (1993).

Ulrich (2000) provides an up-to-date statement of the author’s present thinking on CSH, with particular consideration of the relevance of boundary critique for developing a functioning civil society.

The focus of Ulrich (2003) is on methodological and theoretical issues; it explains the generic importance of boundary critique within a methodological context of critical systems thinking. This paper should be consulted particularly by those readers who would like to understand the ways in which CSH differs from the other main current strand of ‘critical systems thinking’, Total Systems Intervention, with which it is sometimes confused.

The focus of Ulrich (2006) is on the implications and use of boundary critique for grounding ethical practice – a difficult but fundamental issue. The paper proposes a new approach to professional ethics, ‘critical pragmatism’.

The two shortest available papers on CSH are Ulrich (2002a and 2002b); they should be read together (see the links at the start of the present article).

For additional materials, see the author's home page at <http://wulrich.com>.

7. References

Peirce, CS (1878). How to make our ideas clear. *Popular Science Monthly*, 12, January, pp. 286-302.

Ulrich, W (1983). *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Bern: Haupt. Paperback reprint edition, Chichester: Wiley 1994. (Note: the 1994 edition is still in print).

Ulrich, W (1987). Critical heuristics of social systems design. *European Journal of Operational Research*, 31, No. 3, 276-283.

Ulrich, W. (1993). Some difficulties of ecological thinking, considered from a critical systems perspective: a plea for critical holism. *Systems Practice*, 6, No. 6, 583-611.

Ulrich, W (2000). Reflective practice in the civil society: the contribution of critically systemic thinking. *Reflective Practice*, 1, No. 2, 247-268.

Ulrich, W (2002a). Critical systems heuristics. In H.G. Daellenbach and R.L. Flood (eds), *The Informed Student Guide to Management Science*, London: Thomson, 72f.

Ulrich, W (2002b). Boundary critique. In H.G. Daellenbach and R.L. Flood (eds), *The Informed Student Guide to Management Science*, London: Thomson, 41f.

Ulrich, W (2003). Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*, 54, No. 4 (April), 2003, 325-342.

Ulrich, W (2006). Critical pragmatism: a new approach to professional and business ethics. In L. Zsolnai (ed.), *Interdisciplinary Yearbook of Business Ethics, Vol. 1*, Oxford, UK, and Bern, Switzerland: Peter Lang Academic Publishers, 53-85.

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Suggested citation: Ulrich, W (2005). A brief introduction to critical systems heuristics (CSH). *ECOSENSUS project website*, The Open University, Milton Keynes, UK, 14 October 2005 http://projects.kmi.open.ac.uk/ecosensus/publications/ulrich_csh_intro.pdf

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An extract of this article has appeared in M. Ramage and K. Shipp (eds.): *Systems Thinkers*, London: Springer, in association with The Open University, Milton Keynes, UK, 2009, pp. 163-167.

Bibliographic notes: Paper prepared for the 'ECOSENSUS' web site, first published 14 Oct 2005; sources and links updated 3 Dec 2009
Text and pagination of this updated version are identical with that of the original publication.
ECOSENSUS (Electronic/Ecological Collaborative Sense-making Support System) is an international e-Social Science project (2005-2007) led by The Open University, UK