

CRITICAL SYSTEMS THINKING AND ETHICS:

The Role of Contemporary Practical Philosophy for Developing an "Ethics of Whole Systems"

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Abstract

Ethics and systems thinking have more in common than is generally recognized. Since the awakening of ethical reflection in ancient Greece, sound ethical thinking always distinguished itself by its consideration for the "whole," regardless of whether this whole was identified with the polis (as in Aristotle's ethics), with all of humankind (as in Kant's ethics), or with the global ecosystem (as in today's environmental movement).

This paper argues that the systems idea is indeed important for developing a new ethics, i.e., a theory of moral action that would match the ethical issues of our time. Following a critical overview of some limitations of traditional ethics, two potential candidates for such a new ethics are analyzed, namely, "communicative ethics" as advanced by contemporary practical philosophy, especially J. Habermas, and the idea of an "ethics of whole systems" offered by the dialectical systems approach of C.W. Churchman. The conclusion is derived that an ethics of whole systems can usefully be enriched by taking up the fundamental ideas of communicative ethics, but that both approaches are bound to remain mere programs unless they are reinterpreted and operationalized in the terms of a merely critical solution to the problem of moral judgment, such as it has been advanced by critical systems thinking. A few basic arguments for integrating the three approaches in a "critical systems ethics" are presented. The way to a new ethics, then, leads through critical systems thinking.

1. Introduction

Ethics has always been a difficult subject. With the ongoing increase of mankind's technological potential, ethics tends to become both more important and more complex. I think it is hardly exaggerated to say that the present state of ethical reasoning, both in Academia and in everyday social and political practice, does no longer match the moral implications of our capabilities to interfere with the nature of things, including our own nature. For the first time in the history of humankind, its own future existence, as well as the survival of the global ecosystem, have become objects of its moral responsibility.

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Ethics today is called upon to "do justice" to the demands of future generations. The fact that thus far we have not even managed to establish clear principles of justice for the present generations will not serve as an excuse. It should motivate us, however, to start searching for an entirely new foundations of ethics. In this paper, I will make a modest first effort of exploring the potential of critical systems thinking, along with the tradition of practical philosophy to which it has already opened itself up, to contribute to that task. Given the magnitude of the task, it will be advisable to begin by clearly stating the topic, the basic terminology, and the limitations of the present effort.

"Ethics." -- I suggest, first, that by ethics we understand the *theory (or philosophy) of moral action*, where "moral" means an action that is responsible (i.e., justifiable) with respect to the way in which it (effectively or potentially) affects others. In need of justification are thereby both the action's underlying intentions and, particularly, its life-practical consequences. This double perspective is important because good intentions do not secure morally acceptable consequences, nor do good results prove moral intentions -- a truism that has often been forgotten in the controversy between the partisans of an "ethics of conscience" (in which morality is made dependent on good intentions) and the advocates of an "ethics of responsibility" (in which consequences count).¹ Referring simultaneously to both issues of justification, I shall, for the sake of convenience, speak of an action's "moral implications" or of its "normative content"; the latter term has the advantage of reminding us of the importance of examining the norms of action embodied in the intentions or consequences in question.

Rational ethics. -- Second, we will restrict our topic to what might be called "rational" or "argumentative" ethics. As a subject of ethics, we shall regard moral judgment as *a form of rational argumentation* rather than as a subjective act of personal faith only. That means, I shall not consider purely subjectivistic and denominational (confession) forms of ethics, e.g., moral doctrines based on religious creed, ideology, or utopia, as providing adequate theories of moral action. I do not of course mean to say that only "rational" forms of moral experience and judgment are relevant; I only mean to say that we do not deal here with the subjective grounds of moral judgment but with the *meta-level* (theoretical) problem of how moral judgments can be argumentatively justified and criticized.

Critical ethics. -- Third, and in distinction to the bulk of ethical literature, I suggest that we focus on the *critical task of ethics* rather than on its "positive" task. While the latter aims at establishing binding moral justifications, the first focuses on the task of systematically identifying and discussing deficits of moral justification. This is important because in actual social practice, such deficits are unavoidable. Rather than pursuing a vain ideal of complete moral rationality, critical ethics will accept this situation and seek to help us in dealing reasonably with it.

2. Limitations of the "Old" Ethics

2.1. Three Core Assumptions

All traditional ethics appears to be based on a common core of tacit assumptions [18, p. 31; 20, p. 15]:

(1) Nature is once for all given. Both the nature of man and the nature of the physical world in which he lives are fixed and invariant; as a consequence, the human condition, too, is basically given.

(2) The good is intelligible and unequivocal. Based on (1), it is possible to discern what is good and what is bad.

(3) Responsible action is possible. The range of man's actions, and hence of his responsibility, is strongly limited, so that every man of good will can obtain the knowledge necessary to judge the moral quality of his actions.

None of these assumptions holds any more. Kant's [23] bold phrase of the "causality through freedom" exerted upon the causal law of nature by man's free will has become a reality that threatens the future existence of the global ecosystem. The scale of human action has extended, both in space and in time, beyond overseeable boundaries. The progress of our technological capabilities has made the task of anticipating the consequences of today's systems designs a precarious one. The moral quality of action is no longer plain and unequivocal, and consequently has been altogether excluded from contemporary concepts of rational purposive action. In sum, the nature of human action has changed, and since we have defined ethics as the theory of moral action, it would seem that our ethical concepts ought to have changed as well.

Yet our ethical concepts have hardly changed. It seems to me that one main reason, apart from the anthropologically deep-seated nature of the underlying assumptions, is to be seen in the fact that well-defined alternative concepts of a "new" ethics are not readily available. We do not as yet possess a theory of moral action that would explicitly state the counter-assumptions of a future-responsive ethics and would, on this basis, define practicable criteria of moral discourse.

As a first necessary step toward this goal, let us try to understand a bit more fully what are the crucial limitations of traditional ethics: How do the three stated assumptions translate into restrictions of presentday ethical discourse, and what alternatives might be pursued?

2.2. Resulting Limitations

Table 1 summarizes a few characteristic limitations of the "old" ethics and contrasts them with possible counter-assumptions of a "new" ethics. Of course only an ideal-typical characterization of the two positions is possible here, a characterization that must abstract from many specific differences of perspective within each position. Even so, it may render obvious a few essential differences:

(a) Bounded systems ethics: The most crucial difference, I think, lies in the way in which the *context of application* of moral judgments is dealt with. Let me briefly explain what I mean by the "context of application" (an epistemological concept that is fundamental to critical heuristics), and how it applies to moral theory. I designate as the context of application that

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Table 1: Basic assumptions of "old" and "new" ethics compared

Aspect	"OLD ETHICS"	"NEW ETHICS"
<u>Focus</u>	<u>Anthropocentric:</u> nature is not an object of human responsibility; it cares for itself	<u>Universal:</u> nature is an object of human responsibility
<u>Orientation in time</u>	<u>Ethics of simultaneity:</u> the agent and those concerned by his action are parts of a shared present; their concerns are simultaneous ("we")	<u>Ethics of lost simultaneity:</u> an action's implications to be considered may stretch indefinitely into the future; the future generations and the future of the universe belong to the client community, their concerns have to be anticipated ("they")
<u>Orientation in space</u>	<u>Ethics of immediacy:</u> the consequences of an action can be known and judged from experience within the agent's life-world or its immediate environment ("here and now," e.g.: "love your neighbor as yourself")	<u>Ethics of remoteness:</u> the consequences to be considered may not be known from immediate experience
<u>Context of discovery of moral judgments: (source of moral consciousness)</u>	<u>The past:</u> traditional custom and value systems, as contained, e.g., in Christian ethics, are interpreted in the light of the requirements of the present	<u>The future:</u> anticipated needs and risks, as recognized by science (e.g., ecology, futurology) or other traditions of future-oriented thinking (e.g., the New Age Movement) are interpreted in the light of the resources and projects of the present (H. Jonas: "ethics of fear")
<u>Context of justification: critical instance of moral judgment</u>	<u>Volitional ethics:</u> good will ("conscience") is the bottleneck issue of moral competence	<u>Cognitivist ethics:</u> understanding ("con-science") is the bottleneck issue of moral competence
<u>Context of application: reach of moral judgment</u>	<u>Bounded-systems ethics:</u> boundary judgments are given or can easily be determined; they are part of the presuppositions of moral discourse (i.e., presupposed in the definition of "the problem")	<u>Whole-systems ethics:</u> boundary judgments are not given and are difficult to determine; they are part of the subject of moral discourse (i.e., part of "the problem")
<u>Cognitive requirements of moral judgment</u>	<u>Minimal:</u> available to ordinary people as private individuals ("knowledge-free" ethics of certainty)	<u>Maximal:</u> requiring a collective input of knowledge, reflection, and public will-formation (knowledge-based ethics of uncertainty)
<u>Resulting concept of responsibility:</u>	<u>Individualistic ethics:</u> - private affair - based on individual moral consciousness - secured through monological processes of self-reflection (principle of hypothetical universalization) - categorical ("moral duty")	<u>Cooperative ethics:</u> - public affair - based on collective processes of moral argumentation - secured through self-reflection and dialogical processes of conflict resolution (principle of factual universalization) - cooperative ("critique and consensus")

section of the "real world," and especially of "social reality," which is tacitly or explicitly taken to be relevant for identifying and evaluating the consequences of an action (or of a proposition as to how one could or should act). Think of the environmental and social impact assessment of a proposed design, e.g., for constructing a power plant. It is obvious that the assessment of benefits and disadvantages -- how they compare, and who gets them -- will strongly depend on how the context of application to be considered is bounded. In systems terms, the context of application defines the "total relevant system," i.e., the system of reference to which all subsequent conjectures and conclusions refer. It is equally obvious that the "systems rationality" of a design cannot be better than are the underlying assumptions about the "right" context of application.

The same observation holds of course true for any other concept of rationality, e.g., for a discursively conceived rationality. Systems thinking is only particularly apt to remind us of this difficulty, it is not responsible for our being humans only. We ourselves are responsible, rather, to take into account our human limitations whenever we assert or examine the rationality of some design or action. Thus we must systematically *make "the problem" the problem*, that is, lay open and analyze critically the points of reference of any claims to the rationality of "problem solutions." *Whose "problem," and whose rationality, are we dealing with?* It is a basic conjecture of this paper that not only theoretical-instrumental "problem solving" but also moral recognition of responsibility depends crucially on the definition of "the" context of application. Even when an agent is motivated by high ethical standards, his recognition of responsibility will hardly extend beyond the boundaries of the context of application that he considers as relevant for tracing and evaluating the moral implications of his action.

We must conclude that counter to the conventional assertion of the established theory of science (e.g. [25], [26]), according to which the context in which scientific findings are applied is irrelevant for their justification, the "context of justification" (the kind of experimental and discursive procedures convened upon by a community of inquirers to yield credible validations of disputed propositions) can at best secure rationality within the bounds of the assumed context of application. It is thus the latter whose careful study is really the bottleneck issue of rational justification, both in the theoretical-instrumental and in the practical or moral employment of reason. It is not difficult to state this bottleneck question in ethical terms: What is the use of the highest degree of "good will," of moral conscience and discourse on the part of agents, if there is no assurance linked to it that in assessing the scale and content of their moral responsibility, they consider the right context of application?

Let us, then, have a closer look at the way in which ethical reasoning traditionally conceived of its context of application. First of all, it is a striking feature of the literature on ethics that this epistemologically fundamental concept is totally inexistent in it, as if ethical questions could be neatly and entirely be separated from epistemological questions. It appears obvious to me that the right will depends on correct knowledge, i.e., that volition and cognition cannot be taken to be entirely separable -- especially not by rational ethics.

It is indeed characteristic of the "old" ethics -- this is my fundamental point of critique -- that it does not systematically, in each application, put into question the assumed context of application. Conventional ethics,

presumably because it does not clearly work out the complex interdependence of volition and cognition, simply takes the context of application as given. Worse, it does so tacitly and hence does not give any hint as to the context to be considered. Worst, it usually assumes a context of application that does not match the causal scale of our present-day technological capabilities.

(b) Ethics of simultaneity: The concerns of the agents involved (e.g., decision makers, planners, and experts) and those of the "others" of their action who are affected but not involved, are assumed to share the same time horizon. Usually that time horizon includes the present and the near future, so that on principle the parties concerned can know of each other, can mutually understand the other's needs and values or -- if necessary -- can meet and inform each other of their points of view. In other words, the client community of traditional ethics is limited to the present generation, so that there is a simultaneity of the concerns of those involved and those affected. Trade-offs between the needs of those affected today, and those among the future generations that may also be affected, are not systematically dealt with in such a framework.

(c) Ethics of immediacy: The moral universe of the old ethics is equally limited in space. With regard to the world of nature, the causal chains we set going have reached global dimensions, as illustrate the current discussions on the "ozone-layer hole" caused by fluor-containing spray propellants or on the threatening rise of the sea level due to the so-called greenhouse effect. Our ethical concepts are no longer up to this causal scale; they still center on the immediate circle of everyday action.

This limitation becomes even more precarious when we turn from "the" causal world of nature to "our" normatively regulated world of society. The old ethics requires us to observe a number of virtues that can easily be derived from the universalization principle of the *categorical imperative*, virtues such as the obligation to care for our neighbor as for ourselves or to treat all men equally as ends-in-themselves rather than as means for our own purposes only, i.e., to treat them with equal respect for their dignity.

But if we now take any major social issue of our time, such as poverty, hunger and malnutrition, health problems, unemployment, etc., is it morally reproachable to feed the hungry in our own neighborhood or perhaps to launch a campaign against malnutrition at a national level, if we cannot at the same time feed all the other hungry people in the world? It is clear that the classical virtues demanded by the old ethics -- justice, compassion, respect for the autonomy and dignity of all people -- are unproblematic only under the tacit assumption of a rather narrowly defined context of application, a context limited to the "here and now" and perhaps to the immediate environment of the agent's social life-world.

(d) Anthropocentric ethics: The limitations that have thus far been described as characteristic of the old ethics betray not only its systems-theoretical inadequacy but also its anthropocentrism. I would like to highlight just one particular point of interest in this respect, for it may help us understand the anthropologically deep-seated nature of the deficit of critical systems thinking to be overcome in ethics.

From an anthropological perspective, the old ethics may originally have been quite justified in limiting its context of application to the everyday

world of men and women, for it could on good grounds assume what Jonas [18, p. 24; 21, p. 21] calls the "*immunity of the whole*," i.e., the stability or (cybernetically more correct) viability of nature. Nature was the total system that was beyond the causal range of man-made interventions. Although human interference might introduce some locally disastrous perturbations, it was until recently safe to assume that in the long run, nature would always "come back" and overgrow or wash away the impacts of such interference. Consequently, nature -- the biggest system -- was not an object of human responsibility. It could care for itself, as it were, and hence did not ever need to be included in the context of application.

2.3. Counter-Vision

With the appearance of long-term, cumulative, and partly irreversible causal processes caused by human intervention, the mentioned anthropocentric and systems-theoretical limitations of ethics are no longer tenable. A new ethics must be universal, cognitivist, and critically anticipatory in its outlook.

(a) Universal ethics: By a universal ethics I mean a theory of moral action that would not assume any tacit *a priori* limitations of the context of application to be considered. The point is not that we should be comprehensive (we never are) but that the choice among alternative definitions of the application context must itself become a major ethical issue. C.W. Churchman's [4] call for an "*ethics of whole systems*" will interest us in this regard.

(b) Cognitivist ethics: An ethics that is to live up to the new causal scale of our actions will greatly increase the cognitive requirements of moral judgment. Again it appears that the old ethics had probably good grounds for minimalizing these requirements: ethics should not be beyond the judgment (competence) of ordinary men and women, for that would run counter to its purpose. The limitation of the context of application to the agent's immediate social life-world had the obvious advantage of keeping cognitive requirements low: whatever knowledge was necessary to judge an action's moral implications did not go beyond the reach of personal experience and observation available to ordinary citizens. Even in Kant's days of the awakening age of the Enlightenment, an agent's good will could thus still be regarded as a sufficient requirement to qualify him for enlightened moral judgment.

Things have changed thoroughly. Today, good will and good judgment do not converge so easily. Given complex, remote, uncertain, and long-term consequences of many actions, theoretical expertise and future-related knowledge is now frequently necessary to anticipate and assess an action's impacts.²⁾ The once clear-cut boundary between ethics and expertise has become blurred and difficult to draw. Ethics can no longer be kept "knowledge-free," as it were. The situation has become almost reversed: sufficient knowledge about the potential consequences of actions is rapidly becoming a prime moral duty, and no reference to an agent's good will can excuse him from the high cognitive requirements that this duty may entail.

Knowledge-free moral judgment today must pass for being deficient of moral conscience, which is to say: the old distinction between "ethics of conscience" and "ethics of responsibility" has become antiquated. The old

moral duty of having the right moral conscience has indeed been superseded by the *new moral duty of being knowledgeable*, in the sense that the scale of an agent's action and that of his knowledge must match. In still other words, our understanding of moral "conscience" must rediscover its etymological root meaning of "*con-science*": conscience must go together with *scientia*, e.g., such knowledge and understanding of the moral issue at hand as there is available, and shared, in the community of those concerned. We shall examine J. Habermas' [11 - 12, 14 - 16] concept of a "cognitivist" and "*communicative ethics*" in this respect.

(c) Critically-anticipatory ethics: The new duty of being knowledgeable is further complicated by the insight that a new ethics must accept as a starting point the lost simultaneity and immediacy of the consequences of actions. The future generations, as well as the past generations and all others who cannot care and speak for themselves (e.g., the fauna and flora of whole ecosystems), must be part of its client community. From a critical systems point of view, the difficulty that presents itself here is that the presumption of knowledge and responsibility with respect to the future is hardly tenable. My personal conclusion is that a *critical turn of cognitivist ethics* is in order, similarly to the critical turn of systems thinking proposed in critical systems heuristics [29]. That is to say, we need to replace the old by a *new strategy of cognitive "minimalization,"* one that would reduce cognitive requirements not so much with respect to the examination of the context of application but rather with respect to the ideal justification standards presupposed in conventional rational ethics. It seems to me that from a critical point of view, taking into account the cognitive limitations of ordinary decision makers and agents is the foremost obligation of a cognitivist ethics.

It is on these three foundations, then -- whole systems ethics, communicative ethics, and critical heuristics -- that I suggest to rely for developing a *critical systems ethics*.

3. "Communicative Ethics"

3.1. The Problem

Due to the increase of cognitive requirements of moral judgment, ethics has definitely lost its epistemological innocence. The old dualistic split of morality and rationality is no longer a rationally defensible position to take, if it has ever been such a position in the first place.

On the other hand, we know of the failure of Kant's [23] attempt to overcome that split by offering an ultimate justification for the rationality -- the "objective necessity," as he could still say in the days before positivism perverted the ideal of objectivity -- of the *categorical imperative*. Hence a serious philosophical problem arises. We seem to be left with a choice between two unacceptable ethical positions. The one, we may call it ethical decisionism, by mere definition reduces moral judgment to an irrational act of faith. The other, I suggest to call it ethical rationalism, merely postulates the program of a rational justification of moral assertions but is unable to demonstrate a practicable alternative to Kant's failed attempt. A bottomless ethical relativism and skepticism might appear to be the only honest way out of the dilemma.

It is the merit of K.O. Apel [1, 2] and J. Habermas [9 - 16] to have made Kant's program of rational ethics - of founding a practical philosophy in general - a philosophically credible enterprise once again, by showing us a new way to conceive of Kant's problem. Although I am not convinced that this new way will in the end lead us to a practicable model of rational ethics, I do think that it has important insights to offer. As is so often the case with philosophical efforts, it is not so much at the end of the road but rather *en route* that the really essential discoveries are made.

3.2. The Contribution

The crucial discovery in this case can be seen in Apel and Habermas' uncovering the communicative dimension of reason, a philosophical development that enables us to see through the tacit "monological" limitations of the traditional philosophy of consciousness, including Kant's practical philosophy. Communicative ethics thus sheds new light on the basic idea underlying Kant's moral theory, namely, the *principle of universalization* (or generalization) embodied in the categorical imperative. According to this principle, an action is moral (and can be rationally justified as such) if its underlying norm of action is generalizable, i.e., can be shown to be acceptable to everyone concerned or affected by the action in question. "Shown" hereby refers to purely argumentative means, as distinguished from the use of deception, coercion, or other strategies not defensible on rational grounds. Whenever a norm can be argued to be generalizable, we have secured its impartiality in respect to the needs and values of all the parties concerned. In other words, generalizability is taken to preclude conflicts of interests among agents (those involved) and third parties (those affected); it is to avoid the ethically precarious situation of having to decide in favor of the one or the other interest. I deliberately say "avoided," rather than "resolved," for in a way the generalization criterion evades the "real" issue -- i.e., the fact that in real-world situations we *are* confronted with just this kind of decisions to be made. I shall argue a little later in what cases this reproach of problem avoidance is in order, and in what other cases it is not. For the moment, let us not look at the end of the road but rather continue to look for the insights to be gained alongside the road.

Kant, because he did not yet have at his disposal the concept of communicative rationality, had to conceive of a "monological" way for his lonely transcendental subject to assure itself of the generalizability of norms. It is precisely this purpose that the categorical imperative serves, though Kant did not of course introduce it in this manner. In order to realize the communicative (or "discursive") core of the categorical imperative, it is in fact sufficient to remind ourselves of its exact wording: "So act that the maxim of your will could always hold at the same time as the principle of universal legislation." [23, p. A54] The formulation obviously refers to a community of human agents; it requires our agent to ask himself whether his action might without self-contradiction become a general practice of that community. If it cannot be willed to become general practice, then it has failed the universalization test and cannot be justified.

Churchman [5, p. 122f] has given a nice example of the everyday meaning of this kind of generalization test:

If, on a street with heavy traffic, you cut in ahead of another car, its driver may roar, "What's the big idea?" If his question makes good sense to you, then it's easy to understand Kant's imperative. You are to imagine that every action you will to occur has a "big idea" -- that is, has a point to it. You are also to imagine that your will has universal legislative authority, so that you can will your "big idea" into a universal law, applicable to all other wills. . . . If you can tolerate the burden of having your big idea become a universal law, then your big idea and the action are moral. If you cannot tolerate it, then the big idea and the action are immoral. Thus if the big idea of cutting in on another driver is to shorten the time of travel, then your universal law says that all drivers must take any means available to shorten their trip home; I'll leave it to your imagination to picture the resulting traffic scene.

In the lonely world of Kant's transcendental subject, no other agent is there to shout and to question its "big idea." This is why Kant must require his lonely agent to consider himself as a universal legislator, i.e., to put himself into the position of all those conceivably concerned or affected by his action and to test whether he would then still want the norm in question to be recognized as right, or whether he would perhaps also have to shout, "What's the big idea?"

Contemporary practical philosophy, with its new focus on intersubjective communication rather than on the subjective consciousness of an abstract individual, has paved the way to reconstructing Kant's idea without incurring the complexities of his lonely but universal legislator. It is now possible to conceive of Kant's principle of universalization in terms of socially mediated *factual*, rather than merely hypothetical, *universalization*. The generalization principle of the categorical imperative is thus philosophically "brought home" to the genuinely social context in which problems of moral justification originate in the first place and from which it was abstracted, namely, a community of agents who mutually affect each other through their actions and thus have the choice of either resolving their conflicts of interests cooperatively, by argumentative means, or else resorting to brute force, deception, etc.

3.3. Critical Discussion

So far, so good. We need not follow Habermas in his effort to establish the "logic of argumentation" and the social setting required for an argumentatively reached consensus to be demonstrably "rational" (cf. [29, p. 116ff]). It suffices to consider the fundamental idea of factual communicative universalization in order to grasp both the true potential and the intrinsic limitation of communicative ethics.

The bottleneck question, it seems to me, is whether the shift from Kant's hypothetical to an argumentatively secured factual universalization test can really overcome the hypothetical character of the universalization principle itself. Only to the precise extent that norms of action are truly universal can we expect the test -- practical discourse according to Habermas' logic of argumentation -- to secure rational consensus; otherwise the test would not be discriminative enough, i.e., Habermas' model of rational practical discourse would be self-contradictory. But if we assume it to be valid -- we have no reason to assume the contrary -- we must accept another

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somewhat self-defeating implication of the model: it implies that whenever conflicts are genuine, i.e., cannot be shown to be merely the result of a deficit of intersubjective understanding which prevented the parties concerned from recognizing that in fact they do agree on the same basic norms, then the model cannot secure rational consensus. In other words, it cannot resolve "true" conflicts; its effectiveness remains limited to merely apparent or *pseudo*-conflicts of norms.

As an example of a true conflict of norms, we might think of the trade-off between the interests of present and future generations in nuclear energy policy. Replacing thermic by nuclear power may well be indicated by the norm of preserving life -- the global ecosystem -- today against the imminent danger of a climate disaster due to the greenhouse effect. At the same time, however, this policy is in conflict with the similar norm of preserving the health and lives of future generations from the uncalculable risks of long-term radioactive wastes. The trade-off between two alternative contexts of application for the same underlying norm -- "respect and preserve life!" -- here leads us into a genuine conflict of two specific norms of action, a conflict that cannot be resolved by referring to the generalizability of the more abstract underlying norm. Our example shows both how important it is to consider the context of application, and how doubtful the universalizability of the universalization principle must be. A closer analysis might well convince us that *there is no such thing as a truly and securely "universal" norm of action at all*, for the practical implications of even the most universal norm -- such as that of respecting life -- will always depend on the specific context of application considered. In my view, the concept of generalizable norms describes an unachievable ideal of reason, an ideal to which the concept of the context of application provides a necessary critically-heuristic counter-concept. Only so can the ideal of "universal" reason acquire the function of a practicable regulative (i.e., critical) principle of moral deliberation.

The harshness and radicality of my conclusion ³⁾ may come as a surprise. I do not of course mean to accuse Habermas of sloppy scholarship (that would be ridiculous -- at best an attempt at "Liberating Systems Theory" through amusement) but only to render clear the different, though in my view complementary, purpose that a critical systems ethics must pursue. Habermas, because he pursues a purely theoretical interest in exploring the conditions for, and demonstrating the possibility of discursively secured rationality, must adopt a concept of rationality that is so ideal in its reference to comprehensive reason that it is bound to remain unachievable. Critical systems ethics, because its interest is a practical one, cannot sacrifice the genuinely emancipatory purpose of practical philosophy, namely, of bringing more practical reason into the world of social practice, to such a theoretical project. If there is anything really surprising about my conclusion, it is the fact that the academic community of practical philosophers has thus far contented itself with a theoretical interest that ultimately militates against the genuine purpose of practical philosophy. My suggestion, therefore, is that we systems approachers must make practical philosophy our own business and try to put its theoretical insights to work on the job of helping practical people; we want them to become more competent in dealing *critically* with the unavailability of comprehensive reason. Therein consists the fundamental motivation of my proposed *critically-heuristic turn of practical philosophy*, and along with it, of the systems approach. So let us now return to our own

tradition of systems thinking and see how communicative ethics might help us to achieve our end.

4. "Ethics of Whole Systems"

4.1. The Problem

Let us go back to the same starting point from which we explored communicative ethics, namely, the increase of the cognitive requirements of moral judgment beyond the assumptions and limitations of the "old," non-cognitivist, ethics. Our guide this time will not be J. Habermas but C.W. Churchman, and he will lead us into quite a different direction. The promised land at the end of the road is no longer the ideal of finding a logic of argumentation that could positively justify moral judgments but rather the quest for comprehensiveness in seeing the whole range of available choices, and thus the relativism and narrowness of any specific judgment. Let us follow our guide and see what we shall discover along the road this time.

The first discovery is a question. What is really the ideal that philosophers pursue when they ask for the rational "justification" of theoretical (technical) and especially of practical (moral) assertions? It is, Churchman supposes, the ideal of *securing improvement*.

"*Improvement*," that is, of both our understanding and our actions, for the two are inseparable. Justification matters because we expect it to make a difference in the depth and reliability of our understanding: we want to rely on "just" (correct and "right") assumptions and conjectures. The common etymological root of justification and justice betrays the deep connection between the two ideas of justification and improvement.

"*Securing*," our guide adds after pausing for a moment of reflection, because the question of what guarantee there is -- or what kind of guarantee we must assume -- for our actions to secure improvement is really the test of validity that philosophers mean by talking of rational justification. How can we really understand what we mean by "improvement," and how in particular can we act responsibly toward improvement, if we cannot securely tell what kind of improvement our action will bring to whom, and what costs and disadvantages it may impose on others?

"The verb 'to secure' is (for me) terribly important, because problem solving often appears to produce improvement, but the so-called 'solution' often makes matters worse in the larger system (e.g., the many food programs of the last quarter century may well have made world-wide starvation even worse than no food programs would have done). The verb 'to secure' means that in the larger system over time the improvement persists." [6, p. 19]

Systems theory thus makes us redefine -- so as to secure improvement of our understanding! -- the problem of moral justification:

"How can we design improvement in large systems without understanding the whole system, and if the answer is that we cannot, how is it possible to understand the whole system?" [4, p.3]

4.2. The Contribution

All previous ethics tacitly identified moral action with *individually* good action. The moral quality of an action was either regarded as a function of the agent's good will, as in Kant's [22, 23] ethics of duty, or else associated with his acting responsibly in the sense that he "responded" to the needs of other individuals and made sure the effects of his action did not encroach upon their rights and human dignity, as in Max Weber's [38] ethics of responsibility. In both cases, morality meant the question of how individuals ought to act and interact so that their actions could be said to be "good," i.e., in accordance with established criteria of virtue (Aristotle), justice (Plato), universalizability, and hence impartiality (Kant), fairness (Rawls [27]), oppression-free mutual understanding and consensus (Habermas), future-responsibility (Jonas [18 -21]), or whatever.

Churchman is the first philosopher who has seen very clearly, I think, the systems-theoretical deficiency shared by all these approaches: regardless of what ideal -- measure of improvement -- we associate with morality, we cannot really judge progress toward it in terms of individual action, for the measure of improvement must be applied to the "whole system." In other words, we cannot understand individual morality without understanding the "whole system" that is to serve as a point of reference for defining improvement. It is because of their individualistic starting point that the conventional approaches to ethics must artificially "introduce" some principle of universalization, without being able to prove its objective necessity (why should whole systems improvement be a necessity for individual agents?) or at least to offer an agent of good will some help in identifying the "whole system" that is to provide the reference point for the universalization test.

Systems thinking from the start: that is perhaps the only way to overcome the problem. Once we have understood that both the moral idea of securing improvement in whole systems, and the critical idea of reflecting upon the incomprehensiveness of the underlying whole-systems judgments (boundary judgments), are intrinsic parts of systems rationality, we need not any longer "introduce" the moral principle as a mere add-on and corrective of an otherwise selfishly individualistic, utilitarian, calculus. How else can we hope to develop a rational ethics *without* falling back on a voluntaristic appeal to the "good will" of agents, i.e., the will to "add" some (merely subjective) moral conjectures to their otherwise impeccable rationality? Likewise, how else can a new ethics avoid presupposing what it really ought to secure, namely, an adequate understanding of the meaning of "improvement" in specific contexts of action? A systems ethics will not lose itself in the desperate search for a theoretical proof of the universalizability of the principle of universalization, as it were, for it works in the other direction: it accepts the counter-factual nature of universalization and gives us a sound theoretical basis for dealing with the incomprehensiveness and selectivity of our "un(w)holy" contexts of application. Moreover, in contrast to the heuristically rather helpless principle of universalization, systems thinking gives us immediate hints as to the way to proceed: namely, by systematically tracing and evaluating the normative content of boundary judgments in terms of their whole systems implications.

Of course we must be careful not to reintroduce the universalization principle through the backdoor of the equally impossible imperative "Thou shalt be wholistic" (that is, in tracing whole-systems implications). I see this

danger in Churchman's requiring the moral agent to go through a "sweep-in" process of expanding more and more the considered system, i.e., the context of application (cf. [7], [24], [33], [36]). The concept of the "sweepin" process leads

Churchman to adopt a total reversal of usual views on "systems analysis" and rational methodology. Counter to the common reductionistic assumption that we ought to start with simple and clear "facts" of observation (as the conventional empiricists have it) or that we should start with basic axioms and then apply deductive logic to them (as the traditional rationalists believe), we must start with the complex interconnections of things, i.e., with a *theory of the whole*. The quest for comprehensiveness is our fate: we cannot possibly understand the simple without understanding the whole. My worry is, how can we ever presume to have such acquired such understanding of the whole, especially if we consider the future generations (their way of being possibly affected by an action or a design of the present [36])? Let us, then, turn to a critical examination of the difficulties of a whole-systems ethics.

4.3. Critical Discussion

In my view, Churchman's ethics of whole systems considerably expands our understanding of the cognitive requirements of moral action. It shows the significance of the systems idea for developing a theory of moral action that would match those requirements. At the same time, it demonstrates the importance of the moral idea for critical systems thinking.

Yet it leaves me partly dissatisfied (or better, discouraged), for it represents such a tall order. Almost by definition, the moral imperative of going through the sweep-in process seems to exceed our given cognitive limitations as humans. Similarly to communicative ethics, which ultimately presupposes the rationality of argumentation that aims to secure, an ethics of whole systems runs the risk of presupposing what it aims to secure, namely, our ability to live up to the rapidly expanding cognitive requirements of morally defensible action.

My diagnosis, briefly, is this. Both communicative and whole-systems ethics appear to be oriented toward a common underlying concept of moral justification. This concept refers to the *Kantian ideal of a comprehensive rationality* that would overcome the eternally conditioned nature of human reason so as to be able to justify itself in an absolute, unconditioned, manner (the totality of conditions is itself unconditioned). Theoretically speaking, this comprehensive, self-referential concept of rationality is necessary; practically speaking, however, it is insufficient. It is *theoretically necessary* because any theory of rational justification must by definition aim at enlightening the theoretical conditions of perfect rationality. It is *practically insufficient* because in normative social practice, judgment must be reached under real-world conditions of imperfect rationality. It is with this diagnosis in mind that I would now like to draw a number of conclusions with regard to the question of how an ethics of whole systems might achieve a critically tenable reduction of its cognitive requirements.

5. Synthesis and Critical Turn: Toward a "Critical Systems Ethics"

5.1. Basic Conclusions

1. Whether we pursue the idea of a communicative ethics or that of a whole-systems ethics will not make an essential difference so long as we do not find a way to mediate between their shared ideal concept of rationality and the not-so-ideal world of social practice.

2. Such a mediation in turn will not be possible so long as we cling to the rationalist utopia of ultimate "positive" justifications, i.e., justifications that would establish the binding character (objective necessity) of certain judgments and actions.

3. The key to overcoming this situation for me consists in choosing a *third way* between (comprehensive) moral rationalism and moral skepticism. The first position is so ideal that it is bound to remain a mere program, the second immunizes normative assertions against rational criticism. Ironically, the two seemingly so opposite positions have the same effect: they both leave the stage of real-world decision-making to moral decisionism, the present-day situation in which no rational discussion of moral issues seems possible at all. Given the unavailability of a comprehensive solution, it appears to me that an alternative third way must seek to secure at least a *critical solution* to the unsolved problem of practical reason, the problem of how we can justify the normative content of our actions.⁵⁾

4. Applied to the idea of a whole-systems ethics, the critical turn first of all implies a different understanding of the "sweep-in" process. It is to become a "merely" critically motivated *process of unfolding* [33]; unfolding, that is, the whole systems implications of a design or planned action. It aims not at an ever more comprehensive definition of the considered context of application and, ultimately, at a positive justification, but "merely" at a conscious and critical employment of boundary judgments. The difference to the previous understanding of the "sweep-in" process may appear small but is important: *Not what our boundary judgments are but how we treat them will determine the rationality of our systems thinking in the first place.* We are "rational" not if we are comprehensive but if we deal critically with the fact that we never are. The point of the critical turn is simple but much neglected: namely, that although ultimate positive justifications are impossible with respect to both theoretical and practical assertions, cogent argumentation is none the less possible for merely critical purposes.

5. In addition to the critical turn, our analysis in this paper suggests that a *synthesis* of communicative and systems ethics is both desirable and possible. Possible it is because the two approaches origin in the same Kantian ideal of reason; desirable, because each approach offers insights that may help the other in dealing with its deficiencies.

5.2. Arguments For a Synthesis of Communicative and Systems Ethics

1. Alleviating the systems designer's heroic burden of whole-systems responsibility. -- Churchman's dialectical systems approach certainly gives much weight to debate among the systems planner and the "others" of his action who are conceptualized, e.g., in terms of the "enemies" of the systems approach [5]. Its orientation is certainly communicative in that it urges the planner to listen to the citizens who contest the rationality of his

designs. I am less sure about the underlying concept of rationality, and hence, of responsibility. It seems to me that this underlying concept remains rather monological; for it is the systems designer (agent) who alone carries the burden of whole-systems responsibility and who thus finds himself in the difficult situation of having to justify the systems rationality of his designs against the "enemies" of such rationality.

A pertinent example to illuminate the shift of perspective offered by communicative ethics is furnished by the role that the *categorical imperative* plays in the two approaches. Churchman understands and employs the categorical imperative in a genuinely Kantian fashion, e.g., when he lets the systems planner or the enemies ask the other party: "What is the big idea?" His requiring the planner to go through a "sweep-in" process serves the precise purpose of making certain that the moral principle embodied in the categorical imperative, the principle of universalization, will be correctly applied.

As we have seen, the problem with this systems-theoretical operationalization of the principle lies in its cognitive requirements. Similarly to Kant's original version of the principle, it relies on the planner's motivation and competence to go through the mental process of *hypothetical* universalization. At the same time, it strains this motivation and competence in an almost self-defeating manner, for as long as the design in question passes the universalization test successfully, the planner must assume that he has not "made the problem large enough" [4, ch. 8], i.e., that he has not sufficiently expanded the context of application. He is thus compelled to assume hypothetically, in his mind, a still wider conception of "the problem" -- and so on, until the process breaks down either because the test fails or else because of mental break-down.

This is different with communicative ethics. It also represents an operationalization of the principle of universalization, but in distinction to whole-systems ethics it does not require the planner to go through this sort of hypothetical universalization test. Instead, as I have argued earlier, it "translates" this mental process into a social process of *factual* universalization. To this end, it locates the instance of rational justification in the very structure of intersubjective discourse itself, rather than in the characteristics (e.g., the systemic comprehensiveness) of the propositions in question. It is thus the core idea of Habermas' pragmatic logic of argumentation (as distinguished from conventional deductive logic) that rational justification (and hence, morality) is not achievable for an individual mind but is intrinsically dependent on interpersonal consensus. My plea is that we ought to understand this shift of paradigm as a chance for alleviating the moral agent's burden of responsibility in systems ethics: not the planner alone, but the entire community of those concerned is to carry -- and share -- that burden.

2. Giving due attention to structural conditions. -- The concept of a communicative ethics has another important implication. Because it locates rationality in the structure of interpersonal argumentation and, at the same time, demonstrates that reciprocity of argumentative chances and freedom from oppression are necessary conditions of rational discourse, communicative ethics teaches us that problems of moral justification originate in asymmetrical structural conditions, e.g., unequal distribution of power or competence: So long as perfect reciprocity and hence authentic mutual understanding and consensus are given, no problem of moral justification

arises.⁶⁾ *Moral responsibility is a concept that intrinsically refers to a structural asymmetry of communicative situations.*

It is only such asymmetry of communicative conditions that puts planners and decision makers in the lonely situation of being responsible for others. Their moral choice, then, is clear: they can either accept the burden of "monologically" responding to the principle of universalization, e.g., by engaging in a "sweep-in" process, or else they can seek to eradicate the structural root of the problem, namely, the existence of an asymmetric communicative situation. The implication for critical systems ethics is that it should give attention, and even priority, to the structural conditions of moral discourse. Here we have an excellent example of the difference made by the emancipatory orientation of critical systems thinking as compared to the merely hermeneutic paradigm of interpretive "soft" systems thinking: Whenever possible, critical systems thinking applied to moral issues will seek to create situations of argumentative symmetry. Understanding the situation in which a moral issue originates is only second best; the preferable moral response is to change it.⁷⁾ Only where this is absolutely impossible, e.g., because those affected are unborn or handicapped for some other reason *and* cannot be adequately represented by third parties, critical systems ethics will need to fall back on a monological concept of responsibility.

As I have sought to demonstrate on several earlier occasions (e.g. [29 - 31], [37]), critical systems thinking indeed holds a key to improving communicative situations in respect to structural asymmetries. With its tool of the "polemical employment of boundary judgments" (or of whole systems judgments), in conjunction with the systematic representation of those affected but handicapped by "witnesses" (another critically-heuristic concept),⁸⁾ it can at least *secure a symmetry of critical competence.*⁹⁾ Counter to what some commentators [17, 39] have written, namely, that critical heuristics be "idealistic" and "silent" on this issue, it seems to me that more than any other methodology or theory before, critical heuristics specifically addresses the structural problem of unequal power: it effectively puts those not in control of decision power back in a situation of symmetric argumentative chances. (For recent discussions of this important issue, see [8, p. 23f; 37].)

In conclusion, it makes indeed sense for a critical systems ethics to take up the core ideas of communicative ethics; not only because these ideas are important, but also because critical systems ethics in fact is in a unique position to live up to the structural implications of communicative ethics -- more than present-day communicative ethics itself!

5.3. Arguments For a "Critical Turn"

1. Facing the counter-factual nature of moral universalization. -- The core idea of communicative ethics, of embedding the principle of universalization within the social context from which it had been abstracted by Kant, offers us a number of conceptual advantages (cf. Section 5.1 above). But it cannot of course remedy the fact that the ideal of the universalizability of norms will rarely, if ever, obtain in practice. Must we conclude that except in a few ideal cases, a rational discussion of moral issues is not really possible? Lest we are willing to accept ethical skepticism, we cannot be content with this implication of communicative ethics.

A better position seems to be this. To the extent that a rational justification of norms is bound to remain an ideal, due to the counter-factual nature of the universalization criterion, let us at least deal critically with

this situation and make certain that the normative content of those propositions on which we rely for practical action can be uncovered and criticized rationally. This is the basically simple idea of my call for an at least critical solution to the problem of practical reason: let us concentrate our intellectual forces on the practically achievable and urgent task of improving our critical competence in dealing with everyday conditions of imperfect rationality, rather than continuing to pursue theories and methodologies aimed at, and ultimately presupposing, conditions of complete rationality.

This call is certainly apt to raise the skeptical question: How can we deal rationally at all with moral questions, once we renounce the ideal of positive moral justification? I would like to counter the skepticist's question with a simple question: How, if your assumption were correct, would science be possible at all? To my knowledge, nobody has ever taken the inevitable imperfection of rationality in all endeavors of the human intellect as a serious argument against science; why should this on principle be different with practical reason?

Note that the unavailability of universalization is also a key problem of the theory of science; it is well known there as the "problem of induction." The problem arises because we cannot justify theoretical propositions without assuming a logical principle of generalization ("induction") that would allow us to infer general statements (e.g., "laws of nature") from particular observational statements (e.g., experimental findings of laboratory research), yet no such principle exists. Science would be an entirely irrational enterprise if its rationality depended on logically conclusive, positive, justifications. It is obvious that the success of science rests not on empirical universalization ("induction") but on a critical handling of the unavailability of such universalization. The rationality of science consists only in its critical method; a conclusion that in turn explains why the rationality of applied science has become so frequently questionable in our age: namely, because its critical method has historically become oriented toward securing instrumental rationality only.¹⁰) Is it not paradoxical that the moral skepticist, in denying the possibility of rational discussion on moral issues, tacitly leaves the stage of applied reason to applied science?

The lesson for us must be this: *Ethics must and can regain equality with science in respect to its rational practicability.* I can see no convincing reason of why it should not be possible to achieve for ethics what the scientific method has achieved in the domain of theoretical and instrumental reason, namely, developing a systematic and intersubjective way of dealing with the inescapable deficit of complete rationality in all of human practice.

2. Securing at least a critical solution to the problem of practical reason. -- With the "polemical employment of boundary judgments," we have available at least one form of argumentation that can secure the envisaged symmetry of critical competence. Other such tools may yet be discovered; but even if they are not (the worst possible scenario), the moral skeptic will have to grant that a critical solution to the problem of rational moral discourse is on principle possible. What then follows from this new position for a critically tenable *and* practicable handling of the principle of moral universalization?

In a way, the universalization principle still furnishes the critical standard (the regulative critical idea) for our critical solution, for the latter consists in demonstrating rationally the non-universal (because context-depend-

ent) character of any specific claim to rationality or morality at issue. Hence we do not really *reject* the principle of universalization; rather, we restrict its function to that role which it can really play, namely, the role of a merely critical *a priori* concept of practical reason [29]. Such a concept cannot serve as a vehicle of positive justifications. Effective normative validity remains dependent on *a posteriori* concepts of practical reason [29], i.e., criteria that have been established in democratically representative and legitimate discourse of all those concerned. Such a discourse can play an emancipatory, enlightening role to the extent that it meets the criteria of an at least critical solution.

As a vehicle for establishing such *a posteriori* concepts of practical reason, we understand our above-introduced concept of a *symmetry of critical competence*. It is the practicable counter-part to the impracticable concept of moral universalization. It represents, as it were, the "negative" or "merely critical" employment of the universalization principle, i.e., that kind of employment which really can be achieved. Counter to other conceptions of restricted but practicable rationality such as H.A. Simon's [28] "bounded rationality," it does not imply that "incrementalism" or "satisficing" is rational; it implies, rather, that a systematic critical *process of unfolding* (as defined in Section 5.1 above) is an unavoidable task of practical reason.

3. Overcoming the divergence of rationality and democracy. -- I have referred above to the importance of institutionalizing democratically representative and legitimate discourses. But what about the democratic idea of "one person, one vote," i.e., of the equality of free citizens regardless of their critical argumentative skills? Lest we either sacrifice the democratic idea or else fall back on mere decisionism, as many a reader may suspect, it is vital that we find a systematic methodological link between the *democratic idea* of "justification through representation and legitimate procedure" and the *rational idea* of "justification through argumentation." In other words, we must be able to bridge the gap between the obviously conflicting demands of cogent argumentation (on the part of all those involved) and of democratic participation (on the part of all those affected): cogent argumentation requires knowledge and a certain ability of abstraction, while democratic participation demands that every affected citizen has equal access and influence regardless of his cognitive capabilities.

Once again the straw at which we grasp is provided by the concept of a critical solution. The important point, this time, consists in the fact that the critical employment of boundary judgments in fact does not require any special knowledge or argumentative skills: "ordinary" citizens, if only they have been demonstrated the power of the polemical employment of reason, can expose the dogmatic character of any false claims to rationality -- e.g., the expert's "objective necessities" -- *through their own subjective arguments*, without even having to pretend to be "objective" or knowledgeable in the issue at hand. This is so because the merely critical employment of boundary judgments entails no positive validity claims and hence requires neither theoretical knowledge nor any other kind of special expertise or competence. Therein, I believe, lies one of the significant critical potentials of the concept of the polemical employment of boundary judgments [29, p. 305].

In conclusion, the critical turn offers us the prospect of developing a critical systems ethics that would at least partly reconcile the two divergent

requirements of rational argumentation and democratic participation in moral issues. We have hardly begun to think through the implications of such a new approach. I imagine, for instance, that it promises quite new prospects not only for the self-understanding of professional systems practice but also quite generally for a citizens' training in citizenship. Perhaps this idea constitutes only a small step toward the great *emancipatory utopia* of an enlightened, open, and democratic society in which free and equal (not equally skilled!) citizens debate and decide argumentatively, i.e., without recourse to power and deception, about matters of common concern. But even so it would, I believe, be worth all our efforts as critical systems thinkers to help realize this emancipatory potential of our one shared idea, the *systems idea*.

Notes

- 1) A distinction originally introduced by Max Weber [38] in his famous lecture on "politics as a profession."
- 2) It is worthwhile to note that not only long-term impacts but also short-term social impacts tend to become ever more complex to assess, as the German sociologist Ulrich Beck [3] exposed brilliantly in his book on the "society of risk." The distribution of social risks such as unemployment, poverty, disrupted family, etc. in the population tends to become much more complex and unstable than it has traditionally been; their link to social stratification appears to be weakened; statistical anticipation in terms of class risks becomes difficult.
- 3) To readers who are not familiar with my writings on critical systems heuristics, I should point out that my argument for the necessity of a critical heuristics to be added to critical theory does not depend entirely, and not even primarily, on this conclusion. My main points of dissatisfaction with Habermas' model of practical discourse are its elitist implications and its helplessness in regard to the critically-heuristic task of regulating critical deliberation on moral issues under real-world conditions of imperfect rationality. To those readers who *are* familiar with Apel and Habermas' work, it will be useful to point out that the conceptual framework of critically-heuristic deliberation, in distinction to that of practical discourse, does not exclusively focus on the problem of the "*a priori* of argumentation" but deals equally with the "*a priori* of experience." For a detailed account of the essential differences between the two positions of critical theory and critical heuristics, see [29, ch. 2, esp. p. 152-172].
- 4) To readers not familiar with Churchman's work I should point out that in recent years he also used another formulation of his basic question: "(How) Is it possible to secure improvement in the human condition by use of the human intellect?" [6, p.19] By means of this question (in its "How" version) he used to introduce his students at the University of California, Berkeley, to his courses on planning. From the point of view of critical systems thinking, the two basic questions mutually imply each other and thus are equivalent. For my present purpose, I will stick to the chronologically earlier form of the question, for it offers us a systems-theoretical "translation" (or explanation) of the later form.

- 5) Developing the philosophical foundations of such a "critical turn" of contemporary practical philosophy (and with it, of systems thinking) is the concern of my *Critical Heuristics* [29]. For reasons of space, I must here presuppose the reader's familiarity with the key tools that critical heuristics uses for the purpose of "operationalizing" a critical solution to the problem of practical reason, I mean especially its tool of the "polemical employment of boundary judgments" (or of whole-systems judgments). Introductory accounts can be found, apart from the book, in [30], [31] and [37].
- 6) Habermas [14, p.40] therefore argues that "the ethos of reciprocity that is embodied in the fundamental symmetries of possible situations of speech is indeed the only root of ethics" (my transl.). Similarly, though quite independently, Jonas [21, p.174ff] speaks of "responsibility as a non-reciprocal relationship" and of the "duty of power": an agent's responsibility *for* another person originates in his power *over* him, as is typically the case in our relationship with the future generations.
- 7) A shrewd soft systems thinker or a hermeneutic philosopher might be tempted here to say: Yes, that is precisely why I care for mutual understanding, for its implication is equally emancipatory: authentic mutual understanding presupposes a symmetric speech situation. True, the critical systems thinker will respond; this is why I consider mutual understanding (interpretive rationality) as a necessary and integral part of critical systems rationality. Its being a necessary part of critique does not however imply that it is also sufficient. The point is that mutual understanding cannot secure by itself that a consensus reached is moral, i.e., that its normative content is generalizable [8, p. 19f]. Authentic mutual understanding requires only that all those involved understand each other and agree; it does not automatically make sure that their agreement has also morally justifiable implications (those not involved might not agree). In particular, hermeneutic thinking has no way to criticize the deficit of universalizability that becomes apparent when one starts considering the "larger system," i.e., alternative contexts of application.
For the very same reason we have concluded in the present paper that communicative ethics, although it ought to become an integral part of critical systems ethics, is not a sufficient basis for *practically* securing rational moral criticism. Only in the ideal case of perfect rationality do the practical interest in mutual understanding and the emancipatory interest in self-reflection and critique converge (i.e., imply each other); under real-world conditions of rational criticism, at which critical systems thinking aims, mutual understanding does not automatically secure critique.
- 8) With special regard to the future generations, I think we should not give up too quickly on the moral task of "somehow" bringing in their concerns both structurally and materially. Creativity is asked for in finding ways of representing, reflecting, and debating on, their possible concerns. Certainly we can do more than customary thus far to give those willing to argue their case all the heuristic and institutional (structural) support possible. Critical heuristics, for instance, seeks to achieve this end by means of two major strategies: (a) It includes within its conceptual framework for tracing (tacit) boundary judgments/whole systems judgments the critically-heuristic category of the "witnesses," The witnesses are meant to represent and argue specific concerns that cannot be represented otherwise, e.g.,

the concerns of the fauna and flora of entire ecosystems, or our obligations vis-a-vis the past as well as the future generations. Conceiving of these concerns in terms of a critically-heuristic category means that in rational critical deliberation, any specific design or decision at issue must systematically be examined with respect to both who *ought* to represent the case of those affected but not involved, and who actually *does* represent them. (b) It gives to the actual witnesses a systematic place to play in securing the readiness of those who can care and speak for themselves to take into account the concerns of those others who cannot speak for themselves; this is achieved through the earlier-mentioned tool of the polemical employment of boundary judgments (cf. on this Section 5.3, point 2 below).

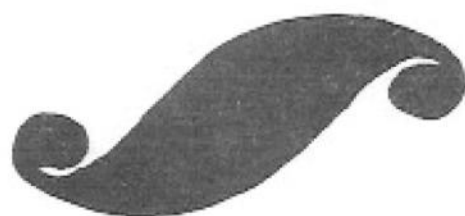
9) A concept introduced and explained in [37].

10) Note that my proposed "critical solution," although it shares with K.R. Popper's [25, 26] "critical rationalism" the denial of universalization, is quite different from Popper's. While Popper's solution reduces practical to instrumental reason and thereby accepts moral decisionism, critical heuristics aims at securing rational criticism of practical assertions with respect to their normative content.

TOWARD A JUST SOCIETY FOR FUTURE GENERATIONS

Volume I: Systems Design

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