

Notes on the Methodology of Normative Systems

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1. Hard and Soft Methodology

Historically, general methodological interest has concentrated on highly technical and prestigious science, like theoretical physics. One expects to hear about Einstein and quantum physics rather than about the methodology of questionnaires. The author of these notes belongs to those who relish in reading about the wonderful achievements in physics, cosmology, and related very “hard” fields of natural science. But in the last five years, an increasing number of methodological admirers of hard science have tried to do something meaningful in soft science, more particularly in chaotic areas where science and politics meet; areas such as how to save some unpolluted nature and reserve some possibilities for graceful and dignified life for our grandchildren. In these areas, such humble research instruments as questionnaires are important. Ordinary decent *pro et contra dicere* gets to be important. Methodology loses much of its scientific charm here. *There are, however, a vast number of important questions for the soft research methodologists to tackle.*

The following notes are formed in close connection with a definite example of a research project involving the development of a system of norms and hypotheses¹ and also with commitment in a social and political activity, “the deep ecology movement.”²

It is my contention that tentative formulation of normative systems is highly desirable in many kinds of activity, both purely theoretical and mixed theoretical, and pedagogical, ethical or political. They have so far received little attention.

2. “Norms” and “Hypotheses”

The sentences of normative systems are conveniently divided into two classes, those ending with a mark of exclamation, suggesting inducements to think or to act in certain ways, and those ending with a point, suggesting affirmations. The first I call norms, the second hypotheses. The latter name is chosen primarily to suggest testability, not uncertainty. Secondly, the name suggests a certain tentativeness or reversibility. These characteristics hold also for norms, as we shall see from the methodology suggested in what follows. Even basic norms are revisable. It has been objected that the term “norm” and the sign of exclamation make the norm-sentences seem absolutistic and rigid. Actually, their main function is that of proposing tentative guidelines. Little is gained by a more complicated, relativistic terminology. Decisions—the aim of normative thinking—are absolutistic in the sense of being either carried out or sabotaged.

3. Diagram Showing Top Levels of a Version of Systematization 1 of Ecosophy T

In order to avoid unnecessary abstractness I shall permit myself to introduce and elaborate in some detail a definite example. As a first step let me insert a diagram in the text. Explanations will follow in successive steps, not all at once.

Diagram 1: Ecosophy T

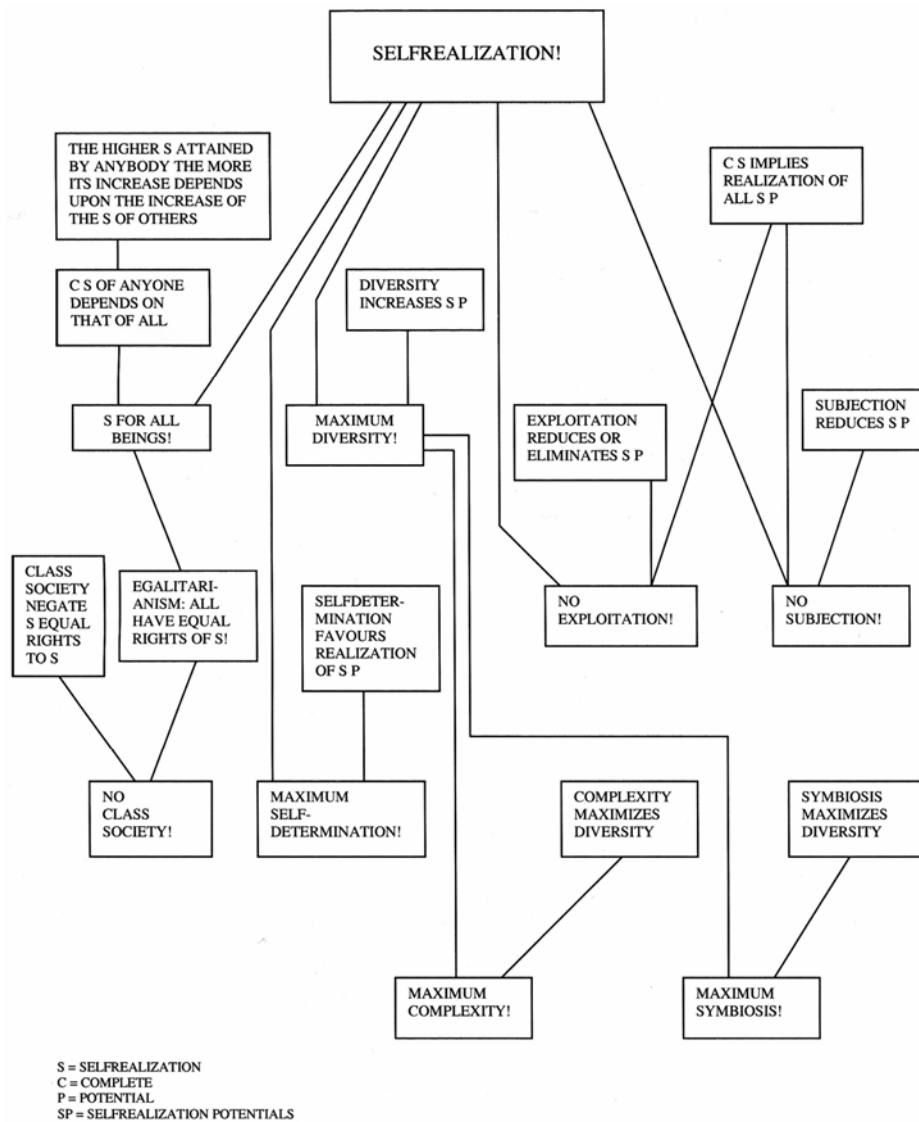


Diagram 1 expresses a tentative synopsis, or condensed survey, of a philosophy inspired by the ecology movement. I call such a philosophy an *ecosophy*. My relation to this philosophy is complex: on the one hand, I am an adherent and contributor to its development; on the other hand, I am a researcher interested in critical thinking about systems and interested in methodology as such.

Saying that the diagram “expresses” a synopsis, this must be understood elliptically: as a drawer of the diagram, I *intend* to express the synopsis through certain sentences. But it is of course more or less unlikely that the sentences convey exactly the same to any reader. Certain approximations are all that can be expected.

Modern ecology has been an inspiration to many ecologists and philosophers, and they, of course, do not arrive at the same results. In order to stress the possibility and even desirability of a diversity of tentative philosophies inspired by ecology, I name the system in Diagram 1 “Ecosophy T.” Here again I use a short-hand expression: Strictly speaking, no absolutely definite system is outlined. A set of sentences is offered. But plausible interpretations make up a class with more than one member. And my “definiteness of intention” is limited and constantly in flux.

A philosophy may be systemized in many ways. There is no one definite way of tracing lines of derivation. It is to some degree arbitrary which norms and hypotheses are chosen as ultimate in the sense of not derivable. And even if the norms and hypotheses are arranged in a definite, authorized way, there is still room for differences in wording. Four sentences can be arranged in 24 ways through simple permutations. The classes of meaningful sequences of *formulations* of one single systemization I call “versions.”³ The diagram shows one single version. It is important to have the trichotomy, *system*, *systematization*, and *version*, in mind in what follows. There is a one-many relation between the three items.

4. Lower Norms in the Sense of Derived Norms

The lines from top towards bottom of the diagram are meant to indicate derivations. The sentences lower down are meant to follow from those higher up. The “higher” norms are, however, not meant to have ethical or otherwise normative priority. They are not meant as more valid. The relations of levels are not axiological, but logical in a fairly wide sense—let us say as wide as in Spinoza’s “proofs.” The relation of higher to lower is often the rather trivial one of a more general to a less general norm or hypothesis.

5. Use of Vagueness and Ambiguity to Achieve Multiple Interpretability

The terms and sentences (including the many one-word sentences) are strikingly vague and ambiguous. They are *purposely* open to a variety of different interpretations.

There are serious methodological considerations that favour multiple interpretability. The highly tentative, “heuristic,” character of the survey has the character of an instrument of research, not a codification of results. It is made along the way, and modified along the way.

Instead of tentatively rejecting one of the norms or hypotheses in favour of a completely different one, it is often better to introduce alternative interpretations of the *initial* or *point of departure* wording. The initial vague and ambiguous sentence expressing the hypothesis or norm may tentatively be given more precise meanings, resulting in new formulations called “precizations.” The concept of precization is one of the central concepts of a semantical subsystem, often called “empirical semantics.”⁴ Roughly, a sentence, s_1 , is more precise than another, s_0 , if and only if the latter (s_0) permits all interpretations of the former, whereas the former (s_1) does not permit all the interpretations of the latter (s_0), and does not permit any interpretation of the more precise sentence is a genuine subset of that of the less precise. The choice of a rather indefinite and ambiguous sentence in the most elementary survey makes it fairly short and easily understandable and opens a large variety of different possibilities of more definite character. Instead of more or less arbitrarily insisting that a sentence is to be interpreted, say, in the way expressed by No. 249, and in no other way, options are kept open as long as this is heuristically convenient. Strictly speaking, the change of usage of words in No. 249 makes its meaning fluctuate in time and place. Openness is unavoidable.

6. Function of One-Word Sentences and Other Primitive Utterances. “No Exploitation!”

A striking feature of the survey is the large number of one-word sentences. Just who are considered the senders and who are the intended receivers of the survey, considered as a means of communication, is a problem. If considered to be a kind of blueprint for a general utopia of self realization, the intended receiver is humankind at large. Humankind does not read, however. More concretely, the intended receivers may be conceived as “the economically well-to-do in the industrial societies,” and the sentences announce to them which norms should be followed and which goals (values) should be attempted and realized through changes of their society.

Thus conceived, the wording of one of the norms can be made more precise, as follows: T_0 , No exploitation!; T_1 , You (economically well-to-do in the industrial societies) work to, or support attempts to, eliminate economic and other kinds of exploitation. T_1 is more precise than T_0 in one direction of precization, namely the receiver directed, but the ambiguous term “exploitation” is still made use of.

What is exploitation? Evidently there is room for further precization. But, a highly precise sentence of the kind needed in a fairly abstract and general survey is apt to be very long and very complicated. Therefore, it cannot perform the special function of the less precise. The elaboration of the more definite, less vague and ambiguous survey of a system does not make the less definite and more vague and ambiguous valueless. *We have to work continuously at various levels of preciseness. Various degrees of multiple interpretability are needed.*

The survey has six vertical levels and, at the top, there is only one norm. With only one top norm we eliminate the complication of rules of priority in case of norm collisions among any larger set of top norms. On the other hand, the choice of only one norm that is not derivable from other norms, involves a fair amount of word magic or more-or-less arbitrary rules of interpretation. The term “self-realization” carries an inordinately heavy burden!

If we put up, let us say, 10 top norms, this makes it necessary to decide upon a great number of rules of priority. In general, the maximum realization of n_i is not compatible with maximum satisfaction of n_j (i and j taking the values 1, 2, 3 . . . 10) or the maximum effort to realize n_i . To regulate the relations between n_i and n_j a vast number of rules may be needed.

7. Some Interpretations of “Self-Realization”

Given different interpretations (in the sense of precization) of the term “self-realization,” the whole survey will get different meanings. Some derivations will not hold for some interpretations. In spite of this dependence upon one single term, it will not be wise to assign to it a definite meaning. The choice must, to some extent, depend on which derivations are considered valid and important. Thus the interpretation of the top norm sentences and of the others of the version is a continuous process, where tentative modifications at one level interacts with tentative semantical modifications at others.

The main semantical device used to adapt the term “self-realization” to ecosophy T is to distinguish three concepts:

- T₀ – self-realization
- T₁ – ego-realization
- T₂ – self-realization (with ordinary s)
- T₃ – Self-realization (with capital S)

The last kind of concept is known in the history of philosophy under various names, the “universal self,” “the absolute,” *ātman* a.s.f. Many Indo-European languages use terms corresponding to the English “self” in analogous ways. Thus, the Sanskrit *ātman* is used for all three concepts, but mostly as a simple reflexive pronoun.

In prevalent individualistic and utilitarian political thinking in modern Western industrial states, the terms “self-realization,” “self-expression,” and “self-interest” are used for what is above called “ego-realization” and “self-realization.” One stresses the ultimate and extensive incompatibility of the interests of different individuals. In opposition to this trend there is another, which is based on the hypothesis of increased compatibility with increased maturity of the individuals. The compatibility is considered to have an ontological basis (compare with the “illusion” of a separable ego). The ecosophy T leans heavily on such ideas, excellently developed in the *Ethics* of Spinoza. Self-preservation, or in our terminology, self-realization, cannot develop far without sharing joys and sorrows with others or, more fundamentally, without the development of the narrow ego of the small child into the comprehensive structure of a Self that comprises all human beings. The ecological movement—as many earlier philosophical movements—takes a step further and asks for a development such that there is a deep identification of individuals with all life.

The development of life forms, especially since the Cambrian period, shows an extreme degree of expansion of life space and a corresponding diversity of forms making use of different climatic and other conditions. There is no merely passive adaptation, no mere self-preservation in any narrow sense. Thus, the term self-expression, or -realization is better suited than self-preservation. If the term “self” is felt to be unfitting, we can use “life unfolding” or “life expansion.”

Whereas the top sentences, both norms and hypotheses in our survey, are somewhat metaphysical, the next levels introduce crucial ecological terms: diversity, complexity, symbiosis. If a particular way of life is

such that different species or different communities must compete and struggle with each other merely to survive, conditions are worse than if they somehow can specialize, making use of each others' activities, and thus "live and let live"; that is, practice symbiosis. The symbiotic coexistence as conceived in modern ecology does not exclude killing—elk and wolves have lived in symbiosis, the wolves keeping the population of elk within a limit necessary to uphold good, not too competitive life conditions and stable elk communities.

Other terms of course need elucidation. The main point, however, is that from the top norms and hypotheses, *general* ecological and ecopolitical principles are derived. Thanks to the normative aspect of the system *it does not merely describe, but prescribes*. Thus, we are able to take care of the social and political views within the international ecology movement, of which environmental concerns are only a part.

8. Main Conclusions of Sections 1 to 7

I have used many words in order to render some of the hypotheses of the survey understandable. I am not trying to persuade anybody of the tenability of the hypotheses!

1. Systematizations of norms and hypotheses are needed in research motivated by pedagogical, ethical, political, or other large-scale movements.
2. The systematizations visualize complicated logical, or more generally, cognitive relations between important clusters of prescriptions and descriptions. They bring to focus the basic premises and fundamental norms that guide concrete actions and minor research units having meaning only, or mainly, within a major normative framework. They help to unify and coordinate enterprises involving diverse groups and many persons.
3. Systematizations as research instruments must be flexible and be expressed at various levels of preciseness and in alternative terminologies. A multiplicity of versions are needed, each adapted to special functions.
4. Modifications can be carried out through reinterpretation of terms and sentences as well as through negating or modifying propositions.
5. Whereas the simple categorical way of announcement of norms and hypotheses makes survey and derivation most simple,

assessment of degrees of uncertainty and qualifying phrases should be attached as notes and comments.

9. Normative Systems: Role in Social and Political Context

Now to say some words about the extrinsic or social use of a survey or synopsis; it has pronounced multiple uses in social contexts. Let me hold fast to the survey used in the deep ecology movement.

The destruction of ecosystems due to population explosion, heavy industry, and other factors has made it necessary to reform laws and regulations of many kinds. For example: Whereas until recently, laws specified exceptions to general *permission* to kill wild animals, laws are now specifying exceptions to a general *prohibition* against killing or injuring. A corresponding development is going on in relation to wild plants.

The reason given for all these prohibitions mostly specify narrowly utilitarian aspects of the crisis. Or they stress in more general terms the interconnection of human life conditions with those of other forms. But the strongest motivation among the most prominent advocates of a new attitude towards nature and its ecosystem has been more philosophical. They have struggled for the recognition of the intrinsic value, and the value-in-itself, of the various lifeforms, and the right, in principle, of all of them to blossom. The ecological movement in the West from the time of Rachel Carson's *Silent Spring* has been inspired by philosophy, and still is. The survey is a crude instrument with which the main, general outline of this philosophy can be codified. It is not that all participants in the movement need to subscribe to the same hypotheses and norms, but that they can *verbalize their own convictions in relation to the survey*. Very few of the active participants have any special training in systematic expositions of a combined *philosophical and scientific* character. And the methodology of normative systems does certainly not belong to the curriculum of any traditional school. Thus, the survey facilitates *reasoning and argumentation from first principles* within the ecological movement—and of course, as a reaction within the groups who fight what they call the “prophets of doom.”

10. Role of Arguing From First Principles in Technocracies

Why is it so important in some western industrialized states to reason and argue from first principles?

One reason depends on a value judgment concerning technical expertise. I wish, therefore, not to mention it as a universally valid reason for argument from the first principles.

The vast majority of experts with influence on the policy of western industrial states avoid argumentation from fundamentals. They prefer to state the *preferences of the majority*, or that which is in harmony with *the stated goals of the democratically elected government*. The goals are, in part, vaguely formulated through slogans such as “welfare” or, in more specific ways, defined as “continued economic growth,” “less than four per cent unemployment,” and so on. In any case, experience shows a marked unwillingness, perhaps sometimes combined with inability, to argue from fundamentals.

Confronted with people from the deep ecology movement who argue from fundamentals, the experts are induced to do the same. This nearly always results in conclusions favourable to the movement. It exposes the absence of argumentation from fundamentals that is a necessary condition of short-sighted, unecological policies. When such argumentation is introduced, inconsistencies appear between basic norms and hypotheses and current policies. Personally, on the whole or very often, the experts have the same basic value commitments as those in the ecology movement. But their public function is primarily to help realize goals not stated by them, but by some other authority and backed by powerful special interests. Less powerful interests cannot afford to hire the experts.

Through argumentation from fundamentals, the experts are pushed into controversial issues, and are led to criticize unecological policies and their own bosses. Thus, the more clear and explicit the argumentation from fundamentals among supporters of responsible ecological policies, the greater the possibilities of introducing such argumentation among policy makers.

These *hypotheses* about the increase of possibilities do not imply any definite level of influence. It is easy to overestimate the influence of arguments in politics. The impact of ecological thinking upon policies has been slight compared to what ecologists think is necessary to prevent catastrophic conditions within a single century from now. And if such argumentation is introduced, it favours, on the whole, the goals of responsible ecological policies. But this is perhaps too much talk about the ecology movement, especially with the use of unclarified, value-laden expressions such as “responsible” ecological policies! Let

us inspect the survey considered at a *point of departure formulation*—a “T₀-formulation”—of the uppermost levels of a normative system.

11. Preponderance of Non-Normatives in a Normative System

Some elementary observations:

1. A normative system does not consist only of norms. Most codifications of normative views show a marked preponderance of non-normative sentences.
2. Norms are, in general, derived from other norms *and* hypotheses, not merely from norms.
3. The existence of at least one hypothesis as a premise for the inference of a norm, establishes the *hypothetical character of derived norms*. Their *validity* depends on the validity of non-normative assumptions, postulates, theories, observations.

Methodologically, the last point is of decisive importance in argumentation: when the intricate interconnections between norms and hypotheses are left unarticulated, each norm tends to be taken to be absolute or ultimate. This eliminates the possibility of rational discussion. In harmony with the methodology here proposed, it is always, when norms are opposed in debate, appropriate to ask the opponent: Which hypotheses do you think are relevant to the adoption of your norm?

If experts refer to public opinion in support of a norm, it is today important both to ask for evidence in the form of published investigations of opinions, and for norms justifying the *derivation* of a norm from descriptions of opinions, whether they are those of a majority or an authoritative minority. Opinions are unfortunately reported as if they can be isolated from (implicit) normative systems. A survey concluded that three out of four Norwegians think that the Norwegian standard of living is too high, 28 per cent even “much too high” and only one per cent too low. Supporters of economic growth contended that a different way of asking would show that a lesser majority are against present average high standard of living. Subsequent surveys proved this. But it is plausible that a “deep interview” covering fundamental norms and hypotheses would indicate that more than three out of four think that the standard is too high. What is needed for methodological purposes is the use of a substantial number of different systemic contexts. As it is, different political parties use only one

questionnaire for each survey and form the questions in a way that is not unfavourable to the party line.

12. Ultimate Norms: The Equal Right to Live and Blossom

The term “ultimate norm” is used mainly in two senses, “norm not derived from any other norm” and “norm of highest priority” (or “of absolute, unconditioned priority”). In normative systems of the kind envisaged only the first sense is used. In that case, there is a rational methodology for changing an ultimate norm. Any proposal for ultimateness will fundamentally have the character of a working hypothesis.

Given a consistent set of norms and hypotheses there is in principle a plurality of possibilities of deriving them from a less numerous set. It primarily involves a process of generalizations. If the ultimate norm concerns adult humans, it may be generalized to make it concern all living beings with certain characters, determining the traits in a way that one can infer that all adult humans fall within the *range of intended validity*, but that others also *might* fall within that range. Whether we believe that there actually are such beings (e.g., angels, Martians) is not relevant to the previous question of derivation. We would get an ultimate norm from which the previous ultimate norm concerning adult humans is derived.

The more frequent source of change of an ultimate norm is, however, the derivation of a (non-ultimate) norm that we are certain we will *not* accept as valid. It must be remembered that a *systemization* is a methodological device made by certain persons for certain purposes. It has no independent authority.

If, for instance, from “All living beings have equal right of self realization” is taken to be derivable from the ultimate norm “Complete self realization,” and “If your little daughter has an extreme hunger, and food can only be brought to her by killing the last tiger, nevertheless do not kill it” can be derived from “All living beings have equal rights” (plus some hypotheses of unquestioned validity), then some of us would tend to reject the ultimate norm. That is, we might say, “It is my duty to rescue my child, whatever the consequences for the tigers.” (But not whatever the consequences for my human neighbour, that is, it is not my duty to kill him, even if he were the only food available for my

daughter.) The rejection of an ultimate norm has normally a kind of intuition as one of its presuppositions.

The principle of equal right for all living beings to blossom is at the moment controversial, but there seems to be a rising opinion in its favour. In order to avoid undesired consequences, especially in our world of increasing famine, the necessary injuring and killing of animals for food must be admitted through special hypotheses and norms. These have to do with mutual aid among beings of the same or similar kinds. There are obvious advantages for a species in which parents take special care of their offspring, and in which kindred beings take special care that may be obnoxious to “out” groups. Exactly where is the line to be drawn? Obviously, there cannot be general agreement here, and attempts to codify detailed norms covering all sorts of norm-collisions are unrealistic and methodologically unjustified. There is, however, a movement towards establishing a norm against “inflicting unnecessary pain of injury to animals.” What is here meant by “necessary”? It obviously depends on a complex structure of norms and hypotheses.

Clarification of concepts of “natural right” has never been very successful. Clarifying the egalitarian norm under consideration, I propose that a stipulation of definitional rule is added: “The right of A to live and blossom does not automatically exclude the justification of B to injure or kill A.” In order to avoid confusion, I would not say B may have the right to kill; there are many kinds of justification other than through a so-called “natural right.”

13. *De Principiis est Disputandum*

Now back to our consideration of norms placed as ultimate in a normative systemization. From the above, it follows that the rule *de principiis non est disputandum* does not hold. Every proposal of ultimate norms is open to discussion. And the critical assessment can take many forms: non-acceptance of consequences, invoking norms from which the proposed ultimate norm can be derived, and other argumentative moves.

14. Team Work and Action Research

Hypotheses of central importance in an ecosophy exhibit an extremely wide range of subject matter, from quantum mechanics to political science and theory of communication. Team work is therefore essential

in every ecosophical research, however modest. There are no specialists in ecophilosophy. The research project resulting in the systemization illustrated in this paper comprises teamwork. The members are in constant touch with a very wide circle of researchers *and* participants in political and social struggles. This makes the research, to some extent, manifest the character of *action research*.

Action research has acquired a bad reputation among stern methodologists who favour the hard natural sciences. This is unfortunate because an increasing number of high quality research problems have time limitations. The researchers get to know the dates say $d_1, d_2 \dots d_{10}$, as approximate dates of social and political decisions with grave ecological consequences. The researchers are asked to furnish evidence for or against certain crucial hypotheses before definite dates. Genuine questions of scientific methodology are specific to this unfortunate situation: the researcher has to solve the maximization problem of how to arrive at a maximum of evidence for or against a hypothesis given limited resources, the severest limit being available time. Furthermore, the researchers have to accept modifying or reshaping the project after each political decision. Team-work is essential because of the many shifts of relevance from one kind of subordinate problem to another.

The ecologically relevant researchers concerning atomic energy installations are typical: safety investigations require atomic physicists, chemists, and engineers in the hard sciences; consequences for vegetation, fisheries, and so on require soft natural science participants; the "human error" factor requires people with social and psychological competence; and the political implications (plutonium in the hands of an increasing number of governments, increased centralization, etc.) also require researchers in many social and humanistic fields. Therefore, all are subject to merciless requirements of priorities. Every relevant question may open interesting investigations that might take 100 years and require the total material resources available.

The bad reputation of action research is mainly the result of two defects and one good thing: the uncertain character of certain hypotheses is not formulated with sufficient emphasis in research reports or in popularized forms in mass communication; the researchers plead a cause in a way that hampers the utilization of their information by people of different opinions; and action research sometimes strikes narrow, vested interests that then hit back, trying to discredit action research as a whole.

Whereas military action research in established sciences of nature has been going on for a long time without the name being used, social science action research is new and must be expected to meet opposition. It is of great importance that it is led by researchers with some experience; otherwise valuable contributions can be misused or neglected because of flaws in the way they are presented to the public. An example, a government institution involved in the efforts to protect forests hired scientists to report on different aspects, one of which was recreation. A young team investigated the conception people have of a forest and what they expect and wish to experience in the forest. The public clearly expected and wished for diversity in the ecological sense. Those who have economic interests on the whole favour monocultures, broad highways for transportation, and other features that are ecologically undesirable. A hot public debate resulted, and the papers written by the young scientists were heavily criticized. Some of the criticism could have been avoided if they had *foreseen the clash* between opposite interests. In short, in action research the participants should be generalists, with a field of study covering the question of how a scientific report is likely to be read and made use of or attacked by various power groupings. Theory of communication and political science is relevant whatever the special topic of an action research project.

It is my hope that the present paper may inspire some friends in the field of “hard” methodology to shift towards the broad fields of “soft” methodology. Their general attitude of concern for “objectivity” may contribute to being fair and unbiased, which is so important in the hot conflicts surrounding present day social and political problems.

Notes

¹ Norwegian National Research Council, project A79.24-15.

² Some of the authors of central importance to the deep ecology movement are Gregory Bateston, Kenneth Boulding, Ottar Brox, Rachel Carson, Barry Commoner, Erik Dammann, René Dubos, Paul R. Erlich, Anne H. Erlich, Clarence J. Glacken, Edward Goldsmith, Ivan Illich, Sigmund Kvaløy, Ian McHarg, Joseph Mecker, E. J. Mishan, Ivar Mysterud, Marshall Sahlins, E. F. Schumacher, Harvig Sætra, and P. W. Zapffe.

³ What holds of theories in science holds of normative system. For elaboration of the trichotomy theory/systemization/version as used in this article, see Arne Naess, *The Pluralist and Possibilist Aspect of Science*, Chapter 3. (Now *SWAN IV*, Springer 2005.) – For definiteness of intention see *Communication and Argument*, p. 34 et seq.

⁴ For a short exposition see Arne Naess, *Communication and Argument*, London & Oslo, 1966. For more technical treatment see *Interpretation and Preciseness*, Oslo 1953. (Now *SWAN I* and *VII*, respectively, Springer 2005.)