

HUMAN SCIENCE IN A POLITICAL WORLD : THE IMPORTANCE OF CHECKS AND BALANCES

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1. INTRODUCTION

The world we live in is, amongst other things, a political world. This statement reflects not just the level of governmental politics, 'politics' exists as much at the micro level, in day to day interaction. All the time interfering preferences and conflicting interests arise, calling for compromise. This is not to say that such situations could not be handled in a cooperative spirit, or that human beings could not see each other in any other way than as opponents; it only says that we cannot live just by our own impulses and desires, that each of us has to take into account the wishes and interests of other persons too.

Science is not exempted from such problems. Scientific expertise is often called upon to give advice in difficult situations, to lay out available options and their consequences. One would hope that science deals with such questions in a responsible way, that it does justice to the different preferences and interests at stake, and that it puts them in a perspective that is as constructive as possible.

In this paper some of the requirements will be explored for science to be able to live up to this task.

2. EXPERTISE IN A POLITICAL WORLD

In this section some problems will be presented that occur when scientific expertise enters the political arena. Because it is convenient to have examples that are somewhat more specific, we will focus on aspects of risk. Many important policy issues of today have to do with some form of risk : economic risks, risks for the environment, risks for health, etc.; they provide excellent cases to demonstrate some of the problems and complexities of the role of scientific expertise. It is beyond the scope of this paper to provide an overview of risk issues.¹ Instead, some general types of problems concerning the role of scientific expertise will be formulated, each of which will be briefly illustrated in the area of risk issues.

(i) Quantification problems

In order to make a choice between different policy options, one would like to have quantitative information about the consequences of various options, and their probabilities. Hard data, however, are often difficult to obtain.

Technical risk assessment tries to provide quantitative information about risks. However, estimates are often very unreliable, either because the risk does not actualise so often that there is enough statistical material, or because the circumstances are changing all the time. This makes the outcomes of such risk assessments very dependent upon starting assumptions. Risk assessments made from various assumptions often become strategic instruments in the hands of various parties.

(ii) Getting beyond probabilities

There is a lot more to decisions than just quantitative data. Consequences have to be evaluated, and different consequences for different groups have to be weighted against each other. Thus, even decisions that from the surface look merely 'technical' may involve human aspects after all.

Debates about risk are usually about the acceptability of such risks. To evaluate this acceptability, one needs to know e.g. whether the risk is voluntary or not. It also makes a difference whether or not the person that is exposed to the risk can still take action when something goes wrong. All these aspects are not expressed in the occurrence probability of an accident. Risk assessment has often been misused to ban such aspects from the discussion by declaring them 'unscientific'.

Another type of bias in risk assessment is that it often assumes that people will act exactly

¹ For a somewhat more comprehensive look, see Frans A.J. Birrer : Risk : Problems and perspectives, paper presented at the workshop 'Sociology of Science : Social and technical risks - sociological and normative perspectives on the role of expertise and the construction of problems', may 13-17, 1991, Dubrovnik; Report CS 91-21.

Much of the following discussion is based on this article; some elements draw upon current work with Rob Pranger on evaluation committees for biotechnology.

according to the rules presumed by the researcher; the human part of the system is, as it were, fixed in some technically conceived, mechanical blueprint. In practice, however, unanticipated human actions are a more common cause of disaster than purely 'technical' failure.

(iii) Burden of proof

We just have seen that when scientific arguments have to be combined with non-scientific ones, expertise may easily obscure the political nature of the problem under discussion. A particular important factor not discussed so far concerns the burden of proof. When scientific evidence is ambiguous, it becomes crucial who has the burden of proof for what. Scientific experts often stick to abstract rules for the burden of proof that are custom in academic discourse. But this may not be the adequate way to attribute burden of proof in a societal discussion.

Does someone who wants to start a certain activity have to prove that there is no risk for others, or are opponents to prove that the activity is dangerous? The 'scientific' approach tends to obscure such matters. Scientists often talk about risk assessment as a most probable estimate. When the risks are largely unknown, this leads to the device that 'there is no risk, for we have no positive evidence that there is a risk'. Risk is treated merely as some scientific quantity, coinciding with the best estimate according to scientific method. What is ignored here is that the consequences of being wrong in a purely academic discourse may be very different from the consequences of being wrong in real life.

(iv) Credibility

Not only the scientific evidence and its presentation are drawn into the politics of the debate, even the researcher as a person, or researchers as a group, cannot be kept entirely out of the spotlight. Scientific experts often start from the premise that they are right, and that therefore they simply *have* to be believed. Ordinary citizens, however, cannot by themselves verify the statements of experts. For them, believing expert claims can only be based on a certain amount of trust. In the past decades there have been numerous occasions where experts turned out to be biased or simply wrong. The credibility problem that this has created is almost invariably overlooked by scientists.

Examples of risk issues where distrust with respect to expert claims was a main problem are numerous. Such distrust was almost invariably dismissed as 'irrational'. But taken into account how much depends upon the trustworthiness of experts, it is not irrational at all.

(v) Integration of beliefs, views and norms

By now it will come no longer as a surprise that in policy there is no such thing as a completely isolated issue. Policy decisions bear upon the relations between people, relations that are not constant, but evolving over time. In spite of what science sometimes seems to suggest, we do not treat the world as if it were split up in a large number of relatively independent domains. What we perceive as a problem in one domain is not unrelated to what

we perceive as problems in other domains.

Attitudes towards risk form a part of much larger complexes of beliefs. Empirical research shows a strong correlation between attitudes towards risk and general 'worldviews', i.e. integrated views on the world, how it operates, and how it should operate.²

A number of conclusions can be drawn from this brief discussion.

(1) Problems are not merely 'discovered', they are constructed and negotiated by actors.³ (2) Scientific expertise plays an active role in this shaping of problems. This role is not necessarily positive, there may e.g. occur undue shifts in the burden of proof.

(3) Questions about the credibility of experts are a natural part of such debates.

(4) Issues cannot be treated as completely isolated, there is a web of relations that connects one issue to a great many others.

(5) The use of methods from the natural sciences (e.g. quantitative risk assessment) may lead to pseudo-certainties, and to the concealment of factors that are difficult to quantify.

As already said, discussions about risk occur in a wide variety of areas, technical as well as social. Our deliberations so far have shown that even in the case of risks of a more technical nature, relevant considerations reach much further than the technical sphere alone; therefore, methods from the natural sciences are not adequate to deal with them in every respect. Clearly that goes all the more for scientific expertise in issues of which the social character is evident from the start. It underlines the more general point that for an adequate framing of the role of scientists in a political world a much broader, and much more integrated approach is needed, including an acceptable perspective on the relations between human beings.⁴ We will now investigate whether hermeneutical approaches could fulfil such a task.

3. THE DILEMMA OF HERMENEUTICS

The term 'hermeneutics' does not stand for one particular approach, it refers to a large variety of approaches. Nevertheless, some core assumptions in hermeneutics may be distinguished (even though they are not shared by all such approaches, and the emphasis they get greatly

² Especially the work in 'cultural bias theory' must be mentioned here, initiated by ideas from Mary Douglas. For a very readable introduction see :
Michiel Schwarz, Michael Thompson : Divided we stand. Redefining politics, technology and social choice, 1990, Harvester Wheatsheaf, New York

³ Including the researcher, who may articulate a problem that was not recognized by the other actors as such, but which is after being pointed out.

⁴ I shall not deal with our relations to other than human beings here, e.g. our relation to animals, or to our planet. I have no doubt, however, that the perspective of natural science is in need of certain corrections here too.

differs) :

(1) Hermeneutics assumes that there is more to the human, social world than the methods of natural science can show. Two major aspects have been brought to the foreground :

(a) 'Verstehen'

Unlike our relationship to e.g. lifeless things, we can have a more direct understanding of other human beings. By being a human being ourselves, we can to a certain degree put ourselves in the other's place, and as it were replay the experiences of this other human being as if they were our own.

(b) Interpretation/context

Whereas the behaviour of lifeless things may be framed in more or less context-free terms (e.g. natural laws), human expression and action can only be understood with reference to the situation, to the context in which it takes place.

(2) Embedding of the interpreter

An interpreter of another person's expressions or actions is not standing aside, at some neutral, archimedean point. The interpreter is embedded in the social process of existence (of which the other person's expressions or actions form a part as well). We cannot completely back out of this existential process, we are absorbed in it whether we want or not.⁵

The various characteristics just described are of course not unrelated. When there is indeed some kind of 'resonance' between human beings that provides them with an understanding that cannot be objectified and controlled in the same way as in the natural sciences, then it is hard to see how this understanding can be singled out from the totality of the situation to be interpreted. This again suggests that we cannot withdraw from this totality, unless by entirely secluding ourselves from the social world.

But behind this logic goes a major dilemma. On the one hand, hermeneutic understanding only seems conceivable as a separate category of understanding if it is immersed in the situation of which the interpreter is part; on the other hand, the stronger this aspect of immersion, the more the hermeneutic interpreter becomes subordinate to this situation, and the less likely it seems that the interpreter could ever be critical of this situation. We already saw the force of this problem when we discussed how in risk issues actors are led by worldviews, often polarised ones. Such polarised worldviews are no doubt interpretative understandings, but ones that lead astray, and block learning processes.

This problem has led to the emergence of 'critical hermeneutics', with Apel and Habermas as

⁵ This existentialistic theme is dominant in the work of e.g. Heidegger. In the work of Gadamer it takes the form of 'Vorurteil'.

its major exponents. Critical hermeneutics developed mainly in discussion with Gadamer.⁶ Apel and Habermas acknowledged the contributions made by Gadamer, but they believed that he had bound the interpreter so tightly to tradition and historic processes, that emancipation was precluded. This criticism seems not entirely deserved. It is true that Gadamer has strongly emphasised the existential embeddedness of the interpretation. But it would be too strong to say that he has actually excluded critical judgement from hermeneutics. In his reaction to Apel and Habermas, Gadamer has maintained that his conception of hermeneutics is entirely compatible with critical judgement. One could say, however, that Gadamer has done little to articulate this possibility. Apel and Habermas have tried to address this matter more explicitly. Both have come up with (quasi)transcendental arguments, purported to show that communication presupposes some kind of mutual cooperative attitude. One may have doubts about the cogency of these arguments, but there is a more important problem here. Putting an overriding emphasis on the benefits of a cooperative attitude goes at the expense of an substantive analysis of the origin and nature of non-cooperative behaviour. Yet there is reason to believe that the key for improvements lies precisely there : the trouble is not so much that actors do not know the blessings of cooperation, it is that nevertheless they drift towards non-cooperative behaviour. Habermas has made an attempt to catch this phenomenon in his notion of 'colonization of the lifeworld' : the communication of daily life is attacked and distorted by systems imperatives. But not only is Habermas ambivalent about whether and how actors can actually detect these mechanisms playing behind their backs⁷, the imperatives themselves are portrayed as something alien, as coming entirely from the outside, there is no real understanding of what moves the actors inside.

So we are still left with our problem : how do we provide a perspective on the 'human' components of our existence when dealing with the role of science in political issues. In the following, an alternative perspective will be sketched that might give some improvements in this respect.

⁶ The discussion goes back mainly on Gadamer's major work : Hans-Georg Gadamer : *Wahrheit und Methode. Grundzüge einer philosophischen Hermeneutik*, 1960, Mohr, Tübingen
Critical articles by Apel, Habermas and others, as well as a reply by Gadamer can be found in : Karl-Otto Apel u.a. : *Hermeneutik und Ideologiekritik*, 1971, Suhrkamp, Frankfurt am Main

⁷ See e.g. Jürgen Habermas : A reply to my critics, in John B. Thompson, David Held (eds.) : *Habermas. Critical debates*, 1982, Macmillan, London
On page 266 Habermas suggests an actor always can know whether (s)he is adopting a strategic or a communicative attitude; but at the same page he also states that an actor may deceive him(her)self.

4. SKETCH OF AN ALTERNATIVE PERSPECTIVE : THE STRUCTURE OF TEMPTATION

To incorporate the possibility of emancipation and criticism, the notion of 'temptation' may be helpful.⁸ Actors can fall into a 'trap', in the sense that in striving after (short time) benefits they disregard long term or collective disadvantages. Actors may or may not be aware that they are giving in to such temptation; often the awareness of counterproductive aspects is repressed.

For examples we may turn again to the problems with the role of scientific expertise discussed in section 2. We saw there that a purely technical perspective on risk is often (mis)used to justify certain activities that pose risk to others. For those who want to pursue these activities the benefits of this type of risk perspective are rather evident. For the risk experts involved the incentives may be more complex. Sometimes such experts are to a certain extent dependent upon financing by pursuers. But they also have their own preference for 'hard data', because of their cultural and educational background, and because it makes their claims less open for dispute (and thus makes the role of the expert easier). The disinclination of experts from seeing their own credibility as an issue can be understood along similar lines. As a result of all this, scientific expertise may come to function in such a way that it is beneficial to a small group (experts/financiers) while obscuring the interests of other parties, or even the long term interests of the experts and pursuers themselves. It should be stressed that these effects are usually not the result of conscious calculation; gradually and imperceptibly they are woven into the actor's complex system of beliefs.

Another aspect of the 'trap' character of temptations is a certain degree of irreversibility: it is easier to start 'sinning' than to stop. As we saw with respect to risk, actors get stuck in a polarised worldview which constantly reinforces itself and its rejection of other worldviews. As a result, parties are not listening to each other any more, discussion is no more than an declaration of preconceived standpoints; potential learning processes are blocked from the start.

Even though there are striking parallels between 'temptation' in the religious sense and the

⁸ This section draws upon more extended material elsewhere, particularly :
Frans A.J. Birrer : Wetenschap, technologie en samenleving, text of lecture held in 1992, to be published
Frans A.J. Birrer : An interventionist perspective on controversy studies, or why not always to take controversies at face value, paper presented at the 4S/EASST Conference, 12-15 August, 1992, Gothenburg
Frans A.J. Birrer : Counteranalysis, in Thomas Brante, Steve Fuller, David Lynch (eds.) : Controversial science. From content to contention, 1993, State University of New York Press

way the term is used here, the notion of temptation is of course not to be understood as a religious one here. It does, however, comprise normative judgement. The suggestion that someone might yield to a certain temptation implies an opinion on the undesirability and unjustness of such behaviour. We must therefore face the question on what basis such a claim could ever be made and justified. We must realise that it may conflict with the basic understandings the actors themselves held so far. The critic must anticipate, as it were, on what these actors might accept once it has been pointed out to them. There must be some kind of 'emancipatoric anticipation', and the relation between actor and critic is to a certain extent a therapeutic one. In the end, however, we cannot vest the critic with absolute authority, for that would get us into the problem of a decision elite once again. The only way this problem can be circumvented is when the critical judgement is reported to the community as a whole, and the members are left to decide themselves what they do with it. The critic is then coupled to, in the service of, and anchored in the democratic process.

Criticism should proceed by what I have called elsewhere 'problem-oriented decomposition'⁹ : its focus is derived not from some preconceived frame, but from the problem it tries to address, in this case : the task to expose major violations of individual or common interest. The political problems that derive from the inequality between expert and non-expert cannot be solved within one of these two groups : non-experts are not able to check scientific expertise on their own, they need help; the expert, on the other hand, is not the person most suited to check his own role. So a third party is necessary, a party which can take some distance with respect to what is going on. Critics are needed to identify undesirable drift processes that are not recognised by the actors themselves, and to propose measures to counter such drift processes. Critics are necessary as safeguards to provide an environment in which it is relatively safe to cooperate. Hermeneutics can play its part in this set-up. The understanding of temptation involves all the characteristics of hermeneutics that were mentioned earlier. There is the aspect of putting oneself in the other's place. There is the importance of context. There is the embedding of the interpreter in the process (but without being imprisoned in it this time).

What picture emerges from these considerations? The problems with scientific expertise are not likely to be solved by a change of paradigm. Rather, the solution lies in a more balanced application of various paradigms. At the same time we must differentiate between roles, e.g. between on the one hand ordinary scientists and on the other 'critics' who check for major injustices in the operation of ordinary science; different roles will in general call for different (mixes of) paradigms. Criticism is part of the checks and balances that are prerequisites of

⁹ Frans A.J. Birrer : Science and society : between (social) constructivism and realism, paper presented at the conference 'Explorations in constructive realism', 29-30 June, 1993, Amsterdam

a cooperative society in which expertise plays a role.¹⁰

The operation of the whole system, comprising the various tasks, may be understood in one scheme, but this scheme can only specify the different tasks and the reason why they are required; it cannot fuse the different perspectives of these various tasks into one unifying frame.

There is an important task for education to create understanding for the different roles and tasks in society, and for how these parts can make a good whole. It must give attention to cooperative attitude; but it must also give attention to the safeguards that are needed to produce and sustain a more cooperative society. Finally, it must convey sensitivity as to the mechanisms by which learning processes may get blocked.

¹⁰ The differences with the perspective taken by Habermas are many. Instead of focusing more or less exclusively on the ideal of a cooperative (communicative) attitude, it is directed towards how we could eliminate some obstacles on our way to improvement. Emancipatoric anticipation and final acceptance by the actor are firmly distinguished (the critic's claim being merely a proposal), and the final acceptance is tied to the democratic process itself. By this we may dissolve the unsatisfactory asymmetry of Habermas's therapeutic discourse, as well as his somewhat problematic emphasis on consensus. Cf.

Jürgen Habermas : *Theorie des Kommunikativen Handelns* (2 volumes), 1982, Suhrkamp, Frankfurt am Main