COMPLEX INTERTWINEMENTS IN ARGUMENTATION : SOME CASES FROM DISCUSSIONS ON BIOTECHNOLOGY AND THEIR IMPLICATIONS FOR ARGUMENTATION STUDIES

paper presented at the Third International Conference on Argumentation, June 21-24, 1994, Amsterdam

FRANS A.J. BIRRER
Mathematics, Computer Science & Society
Dept. of Mathematics and Computer Science
P.O. Box 9512
2300 RA Leiden
Netherlands
email birrer@rulwinw.leidenuniv.nl

ROB PRANGER
Faculty of Social Sciences
Dept. of Organization and Policy Studies
P.O. Box 90153
5000 LE Tilburg
Netherlands
email r.pranger@kub.nl

1. INTRODUCTION/ABSTRACT

In this article we discuss some patterns of argumentation we came across when studying policy advisory reports on the consequences of biotechnology, and we examine how these results could be positioned in the field of argumentation studies.
Our main focus here will be on the role of so called 'worldviews', as categorized by cultural bias theory. The argumentation used in the reports shows a strong presence of such worldviews. This suggests that argumentation may draw upon much wider networks of values and beliefs than a superficial examination might suggest. A research framework is needed that can deal with such complex intertwinements. Several options will be examined. Special attention will be given to the potential of 'constructive realism'.

2. WORLDVIEWS AND POLICY ADVICE

In public policy-making concerning the regulation of innovative technological developments, it is common practice to ask a committee of experts for policy advice. The results to be discussed here are taken from a study in which three advisory reports concerning the regulation of modern biotechnology[1] were analyzed. The general objective of the analysis was to provide insight in and to critically assess the way policy-advisers provide an input into the policy-making process concerning the regulation of biotechnology.

Analysis showed that expert-advisers can disagree about quite a number of issues. The advisers did not just disagree about, for example, the magnitude and probability of risks of applications of modern biotechnology, they also disagreed about what it means to give advice. For example, they disagreed about whether the report should mention alternative solutions for problems that were supposed to be solvable by biotechnology, and whether it should assess and compare these alternatives (including the biotechnological alternative). There was also disagreement about whether the report should discuss the socio-economic background, that is, whether the advisory report should just take current socio-economic arrangements for granted, or that it should also discuss the socio-economic mechanisms underlying specific problems (in other words : whether or not solutions should be searched for only in a technological direction).

In order to find some regularities in this messy world of disagreements, polarized debates and split policy advice, resort was taken to 'cultural bias theory', advocated most prominently by Mary Douglas, Michael Thompson and Aaron Wildavsky (Thompson, Ellis, Wildavsky, 1990; see also Schwarz, Thompson, 1990). Cultural bias theory is concerned with providing an account for differences in preferences and perceptions. Its central claim is that there is a mutually reinforcing relationship between cultural bias or worldview (i.e. a cluster of values and beliefs) and patterns of social relations in which people engage. One of the merits of cultural bias theory is that it provides a conceptual framework for the analysis of that relation and for the understanding of worldviews.

The framework, based on the so-called group-grid typology of social contexts of Mary Douglas (1978; 1982) consists of four ideal-typical patterns of social relations. They are characterized by two dimensions : the degree of group involvement, and the degree of external prescription of behaviour, which leads to a two by two matrix (see figure 1). The four ideal-types can be briefly characterized as follows:

[1] Reports from a Dutch, German and American advisory committee have been analyzed.

(i) Individualistic or market relations are characterized by a high degree of individual autonomy regarding the planning for actions and by a high degree of freedom to bid and bargain with others.

(ii) Egalitarian social relations show a high degree of incorporation of individuals in collective action within the boundaries of a group in which no one is allowed to exercise control over other group members by virtue of his or her position.

(iii) Hierarchical relations are characterized by incorporation of individuals in collective action too, but here individual action is restricted by formal rules which to a significant degree prescribe group members' behaviour.

(iv) Fatalistic relations show a high degree of external prescription of behaviour, but individuals are not incorporated in collective action and thus lack the protection by group membership.

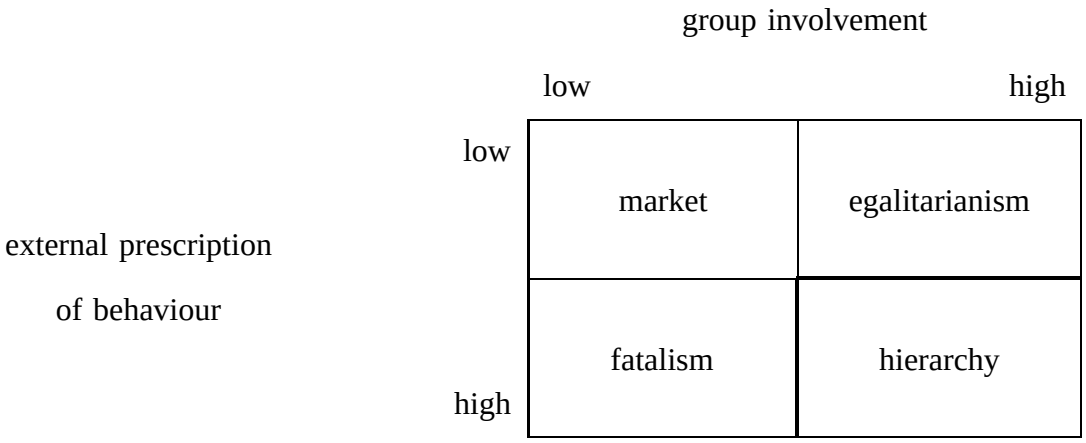

Figure 1: Typology of social relations

These four ideal-types are used as focal points in the analysis of worldviews. A good example of such an analysis is the way cultural bias theory deals with different attitudes towards risk. It links the four patterns of social relations to so-called myths of nature. The latter should be taken as conceptualizations of images of ecosystem stability, and can be graphically represented as follows (see figure 2):

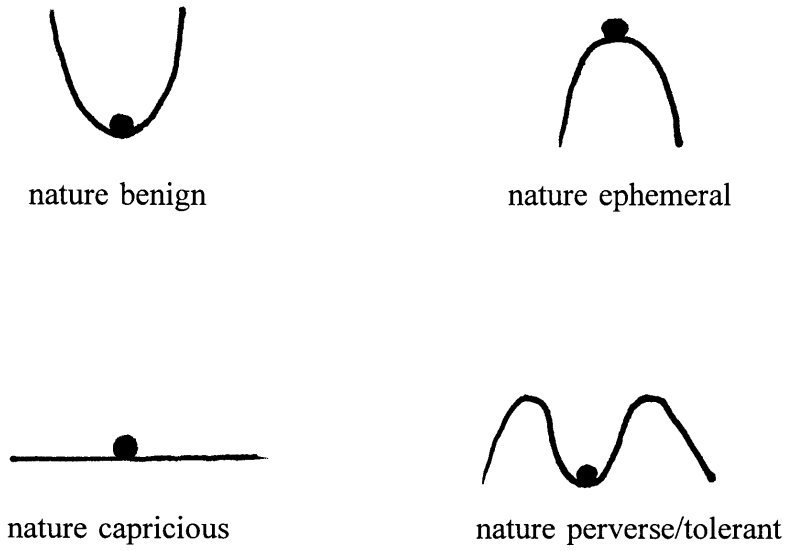

Figure 2: Myths of nature

(i) ’Nature
b e n i g n ’
pictures a world that is very forgiving. No matter what disturbances we produce, the ball will always return to the bottom of the basin. Clearly, this myth fits the individualist well, allowing for a laissez-faire attitude, encouraging and justifying trial and error.

(ii) ’Nature ephemeral’ tells us that the world is a very unforgiving place in which the least intervention may cause catastrophe. Such a myth suits the egalitarian. By pointing to the existence of continuous external danger, the need for collective action is sustained. The myth, so to say, does not allow for individual freedom of action; it sustains the feeling that we are all caught up in the same predicament, and urges for collective coordination of action.

(iii) ’Nature perverse/tolerant’ is forgiving of most events, but is vulnerable to an occasional knocking of the ball over the rim. This myth suits the hierarchist best. Everything hinges upon mapping and managing the boundary line between the zones of equilibrium and catastrophe. That calls for social control mechanisms, sustaining the need for some degree of hierarchy. The myth also goes along with a belief in the predictability of risk; for if prediction were impossible, the boundaries between the two zones could not be drawn, turning the myth into the ’nature ephemeral’ myth that does not tolerate hierarchy.

(iv) ’Nature capricious’ pictures a random world. It argues that there are no gradients to teach us the difference between hills and valleys. All we can do is hope for the best. This myth

sustains the world of the fatalist: being expelled from group membership and being regulated by others, one justifies one's own social position by the belief that life, like nature, is just a lottery.

Cultural bias theory is, however, not only concerned with the understanding of different attitudes towards risks. The four ideal-typical patterns of social relations have been linked to a number of other categories of beliefs, for example : beliefs about the proper model of consent in policy-making, preferred economic theory, views of resources, and risk perception (Schwarz, Thompson, 1990: 66-67). In a number of empirical studies, such clustering of beliefs has been shown to occur (see e.g. Schwarz, Thompson, 1987: chapter 6; Hoppe, Pranger, 1993). That is, a number of specific beliefs can be quite well understood as part of a worldview that sustains a specific pattern of social relations.

3. SOME RESULTS FROM THE CASE STUDIES

We now turn to a discussion of some empirical results. The Dutch case-study will be taken as an exemplar. This case consists of a report of a broadly composed advisory committee that issued its report in 1983 (Broad DNA Committee, 1983). Here one group of advisers showed a great deal of optimism about these opportunities. This group claimed that remaining research questions and problems would almost certainly be answered and solved in the near future. With respect to risks, they claimed that these risks were small, could be calculated neatly, and could be handled by taking the proper safety precautions. There was a second group of advisers who were less optimistic about the opportunities. For example, they argued that living organisms show such a complexity that it was uncertain whether genetic modification could in fact produce the desired features. Regarding risks, the second group seemed convinced that risks could not be calculated precisely, and that there was a great deal of uncertainty about them, calling either for much more rigid safety precautions or for refraining from risky activities altogether.

The general line of argument of the first group of experts regarding risks seems to be that it is illegitimate to come up with all kinds of claims about risks as long as sound scientific proof cannot be provided. The burden of proof lies with the group that comes up with such risk scenarios. What counts are not mechanisms that *might* exist, but only mechanisms that have already been observed. As one adviser during an interview, held a number of years after the report had been issued, characteristically remarked: "Policy should not be based on ideas about witches on broomsticks". The other group takes the opposite point of view: as long as there is no proof that something is without risk, we should assume that serious risks are at

stake.

The first group e.g. claimed that the results of research on a particular type of genetically modified bacteria (showing only a very small chance of making these bacteria toxic) could be generalized into the claim that that kind of genetic experiments with similar types of bacteria would not present much risk. In reply to that claim, the second group of experts argued that no such generalization could be made: the experiment dealt with a specific kind of bacteria in a specific environment, so its results could not be generalized. Subsequently, the second group discarded the argument of similarity on the ground that seemingly 'similar' bacteria can differ quite strongly at the level of their genetic features and that it is unclear what such differences at the genetic level might mean.

These and other differences between expert-advisers can be quite neatly categorized and understood in terms of the framework of cultural bias theory. That is, the differences can be accounted for by assuming that there is a mutually supportive relationship between a particular cultural bias and a particular pattern of social relations. For example, the minority report that was part of the Dutch report and was issued by the earlier-mentioned second group of advisers, turned out to fit quite neatly with the egalitarian worldview. Its claims about opportunities and risks of biotechnology, its emphasis on socio-economic determinants of particular problems, and its emphasis on risk perception instead of risk probability as the most important issue in societal acceptability of risks, can be understood quite well as parts of a worldview that is organized around its function to sustain egalitarian patterns of social relations.

Implicitly, the two groups of advisors seem to be negotiating about the potential consequences for various groups in society whom they stand up for. Their arguments are often so strongly shaped by worldviews, that it even precludes them from entering into each other's arguments at all. In such cases, on closer examination we are not left with much of a genuine argumentative debate after all (and with not much real negotiation either). In interviews with a number of the experts from the Dutch committee, held a number of years after the report had appeared, they still accused their former opponents of unscientific, interest-oriented and even stupid behaviour. It seems that advisory committees easily become more and more polarized regarding a number of issues, resulting in split advisory reports.

4. DEALING WITH COMPLEX INTERTWINEMENTS

We will now turn to the question how argumentation on issues like the one just discussed could be accommodated in the field of argumentation studies. Obviously, risk issues are very

complex issues. Even when we find each of the ideal-typical worldviews rather extreme, the wide range of elements they contain do make some sense in the context of a discussion on risk. For instance, when the costs and benefits are distributed over various actors, questions of justice, decision procedure etc. do become relevant. Given the high complexity of the issue, it is also not surprising that not every aspect is always explicitly discussed. The reasons for a discussant at any particular moment to accept or reject any particular claim draw at least in part upon realms that are not explicitly present in the argumentation. Acceptance and rejection are anchored in values, associations, worldviews etc. which may not even be conscious to the holder her(him)self. A further drive towards implicitness and intertwinement is provided by components of negotiation.

Apparently, the explicit argumentation that is exchanged is often just the tip of an iceberg. Much remains implicit, or even unconscious. But 'implicit' by no means implies 'irrational' or 'arbitrary'. Humans are capable of many things without knowing *how* exactly they do them. One of the main lessons from research in Artificial Intelligence is that even rather simple looking tasks are not so easily automated, because we cannot (at least not at present) figure out exactly how we accomplish them. So even though the role of deeper, partly hidden layers is not explicit, when we want to make sense of argumentation we cannot proceed simply as if these deeper, hidden layers did not exist.

When beliefs and values are not isolated elements, but form integrated complexes, like e.g. world views, an argumentation process will reflect a wide range of spheres rather then one singular topic. It is not surprising that many authors in the field of argumentation studies have stressed the importance of situatedness, interaction (e.g. Willard,1989) and context (e.g. Walton,1989).[2] But when argumentation is so messy, it may not be easy to find more than a few interesting generalizations about how argumentation proceeds. On the one hand, applications of cultural bias theory seem to suggest that there are such generalizations. On the other hand, worldviews are most discernable when the argumentation process becomes pathological and unproductive; a strong presence of worldviews prevents rather than stimulates discussants to enter into each other's arguments.

Normatively oriented researchers reduce this complexity with the help of normative restrictions.[3] They focus on what they consider to be 'proper argumentation', and prefer to ignore the messier stuff. But they too have to confront the fact that 'proper' argumentation is not always explicit argumentation. It may be difficult to find normative generalisations that

[2] Willard even believes that there are parts of argumentation that cannot be understood in propositional form. This is his so-called non-discursiveness thesis (Willard,1983).

[3] Van Eemeren (1984) e.g. mentions surveyability and discernment as main advantages of a normative approach.

do not impose unreasonable constraints. To illustrate the point, let us take a brief look at three normative rules for argumentation formulated in the literature.[4]

(1) Speakers mean what they say.

Comment : Usually it is implied here that there is something like 'the (unique) meaning of what is said'. But a unique reconstruction of complex, partly implicit intertwinements will in general not be feasible. Implicit negotiation components will not have a unique interpretation either.

(2) Discussants understand each other's statements.

Comment : When statements do not have a unique interpretation, it is not clear what this demand means, or how it could be established that it is fulfilled in a particular case. (3) The discussants are acting cooperatively, not strategically.

Comment : Again, it seems assumed that statements are unambiguous, and that they can be uniquely positioned on this scale. Moreover, is it possible to eliminate negotiation from argumentative discussions anyway?

We see that even rather innocent looking rules may in fact demand too much, or at least demand things that are not immediately clear or empirically verifiable. But suppose for a moment that the demands would allow verification, and that we could agree on their desirability; then still the assumption that the demands are fulfilled would mean to ignore a lot of relevant questions, like how in practice the fulfilling of such demands could be guaranteed, or at least could be advanced; e.g. : what makes actors sometimes behave non-cooperatively? or : how could non-cooperative behaviour be prevented?

Should we then give up any prescriptive pretention? Should we stop bothering about truth or falsity of claims, and just try to describe how people argue? Such a relativistic strategy has been dominant in e.g. the sociology of science. However, we would not recommend such a strategy. It tends to cut off the links between research and the social practice it is about (where truth and falsity *do* matter). It would also not be in line with the development of argumentation studies so far, where there has been a strong - and in our opinion very stimulating - dialectic between normative and descriptive approaches. Instead of talking in terms of either/or, we prefer to ask whether there are ways in which the two lines of approach can be brought into synergy. We believe that the two approaches could benefit from each other. Is it possible to develop a coherent, conciliatory perspective that on the one hand does justice to social complexity, while on the other hand it is able to bring some order in this complexity? For this purpose, we would like to draw attention to some recent developments that go under the name of 'constructive realism'.

[4] Each can be found in (Van Eemeren,Grootendorst,1984), but many authors make similar assumptions. We realize that the merits of various normative principles deserve a more extensive treatment than we can give here.

5. THE POTENTIAL OF CONSTRUCTIVE REALISM AS A PERSPECTIVE ON ARGUMENTATION

'Constructive realism' is a label for a number of recent attempts to blend (some amount of) realism with (some amount of) constructivism (Van Dijkum,Wallner,1991). In this article we will confine ourselves to the line that is being developed by Birrer (1993b).
In constructive realism it is assumed that beliefs cannot entirely be traced back to indisputable facts, but that neither one can make sense of (reasons for) beliefs without assuming any facts at all. So reality construction is some kind of permanent bootstrap process. All the time a human being is adapting her(his) conception of reality in order to make it more 'fit' : in the end, the test of any conception of reality is the degree to which it enables us to cope with what we experience. All the time each human being is repairing the boat which carries her(him) over the sea; one cannot take apart the whole boat and construct an entirely new one, only piecemeal changes are feasible.[5]
So we are not so much working according to one big overall plan; rather at any moment we are busy making those corrections to the existing state that seem the most urgent to us at that moment. This perspective does of course not only apply to our research subjects, it should be applied to the researcher as well.[6] With respect argumentation research, it suggests that it might be more 'natural' not to focus not on how argumentation could be optimally conducted, but on what are the most important respects in which current argumentation processes could be improved.[7] Instead of building our research around the question how positive results come about, we could focus on the more modest question of how definitely negative results get about, i.e. how processes of argumentation can lead to clearly undesirable results, and how these undesirable results can be prevented. To a significant degree this is of course what already happens in argumentation studies. Rules for reasonable discussions, for instance, can in some cases be interpreted as rules that keep discussions away from mechanisms that could turn them unproductive; the same goes for the identification of fallacies. Here constructive realism only provides a more fundamental underpinning of an already existing practice. There is also divergence, however. In particular, a constructive realism perspective as outlined would put a much stronger emphasis on the ways in which undesirable processes come about, and how to prevent them, and it would take that as the main starting point for generalisation. Modern scientific research sometimes seems to have

[5] The boat metaphor stems from Otto Neurath.

[6] An important principle in constructive realism - as in e.g. second order cybernetics - is that researchers are part of the social system they observe. Cf. (Birrer,1991).

[7] Cf. (Goodnight, 1993), who argues that a 'new rethoric' is needed, dealing with argumentation under non-ideal circumstances.

a slight preoccupation with finding recipes. Our point is that undesirable patterns do allow systematic research programmes just as desirable patterns do, and that at least in some cases the former option might have a more immediate prospect of progress. There are at least two reasons for this expectation of progress (Birrer,1991;1993b). First, the diagnosis of a practical problem suggests a natural selection of relevant elements that is not so easily available in a more decontextualized setting. Second, what goes wrong is often due to more reductionistic or mechanistic processes, to (too) simple heuristics, etc., which are much more easily analyzed. In the foregoing we already indicated some general patterns in what 'may go wrong' in an argumentation process, e.g. :

- dogmatically held worldviews which prohibit discussants from entering into each other's arguments
- manipulation of burden of proof[8]

We do not claim that 'positively' directed research is impossible, or a priori undesirable. All we are saying is that there is a fully viable alternative, namely the systematic study of how things may go wrong, that is very often overlooked.

One important point remains to be clarified : what exactly do we mean by 'go wrong' or 'undesirable'? It seems unwise to look for an absolute criterion or authority here. More or less in line with authors like Habermas[9] we believe that the ultimate point of reference should be the democratic community itself[10]; the results of research should be enlightening for the discussants themselves, they should help them to participate.[11]

How then would such a perspective, based on constructive realism, deal with the normative principles discussed earlier? Constructive realism would not so much bother whether there is 'complete' understanding or cooperation on the part of the discussants; rather, it would ask whether and how the argumentative practice they are engaged in could be made more productive.

6. CONCLUSIONS

[8] Walton has rightly stressed the context-dependent character of questions of burden of proof (Walton,1989).

[9] Cf. 'the ideal speech situation', in (Habermas,1982). Our framework, however, does by no means coincides with that of Habermas.

[10] Here too we should stick to a negative criterion : we should not so much try to formulate rules that specify an ideal democracy; rather, we must ask what are major undesirabilities, and how they could be prevented.

[11] Actually, the inequality between (scientific) expert and non-expert forms one of the major problems for democratic aspirations in our society. How (and to what degree) can a discussion be made 'democratic' when not all participants have the same expertise? We cannot go into this matter in detail here (Birrer, 1992; forthcoming), but here is a potential area of work for argumentation studies waiting to be explored.

Cases where argumentation involves complex intertwinements of values, beliefs and associations, often only partly explicit, present a serious problem for theoretical framing. Nevertheless, they are worthwhile studying. Constructive realism is a perspective that can deal with such complexities. A detailed theoretical framework for argumentation studies based on constructive realism has yet to be constructed. We hope, however, to have shown some of the opportunities that constructive realism as a basic philosophy can provide for the study of argumentation.

REFERENCES

Frans A.J. Birrer : Reflexivity as reducing distortion of judgement, Systemica 8 part 2, pp. 43-52

Frans A.J. Birrer : An interventionist perspective on controversy studies, or why not always to take controversies at face value, 1992, Report 92-08, Dept. of Computer Science, Leiden University

Frans A.J. Birrer : Counteranalysis, in Thomas Brante, Steve Fuller, William Lynch (eds.) : Controversial science. From content to contention, 1993(a), State University of New York Press, New York

Frans A.J. Birrer : Reality construction as problem oriented decomposition : between (social) constructivism and realism, 1993(b), Report 93-27 Dept. of Computer Science, Leiden University

Frans A.J. Birrer : Wetenschap, technologie en samenleving, in Jos Delnoij, Rob Pranger (eds.) : Reactie of reflectie, forthcoming

Mary Douglas : Cultural bias, 1978, Occasional Paper no. 35, Royal Anthropological Institute of Great Britain and Ireland

Mary Douglas (ed.) : Essays in the sociology of perception, 1982, Routledge and Kegan Paul, London

G. Thomas Goodnight : A "new rethoric" for a "new dialectic" : Prolegomena to a responsible public argument, Argumentation 7 (1993) 329-42

Jürgen Habermas : Theorie des kommunikativen Handeln (2 volumes), 1982, Suhrkamp, Frankfurt am Main (english translation : Theory of communicative action)

Hoppe, R. & R. Pranger : Cultural bias and regulating risky technologies. The Dutch debate on regulating LPG-related activities, in Thomas Brante, Steve Fuller, William Lynch (eds.) : Controversial science. From content to contention, 1993, State University of New York Press, New York

Michiel Schwarz, Michael Thompson : Divided we stand, 1990, Harvester Wheatsheaf, New York

Michael Thompson, Ron Ellis, Aaron Wildavsky : Cultural theory, 1990, Westview Press, Boulder

Cor van Dijkum, Fritz Wallner (eds.) : Constructive realism in discussion, 1991, Socrates Science Publisher, Amsterdam

Frans van Eemeren : The normative reconstruction of argumentative discourse, in T. Ensink, A. van Essen, T. van der Geest (eds.) : Discourse analysis and public life, 1986, Foris Publications, Dordrecht/Providence

Frans H. van Eemeren, Rob Grootendorst : Speech acts in argumentative discussions, 1984, Foris Publications, Dordrecht

Douglas N. Walton : Informal logic. A handbook for critical argumentation, 1989, Cambridge University Press, Cambridge

Charles A. Willard : Argumentation and the social grounds of knowledge, 1983, University of Alabama Press, Alabama

Charles A. Willard : A theory of argumentation, 1989, University of Alabama Press, Tuscaloosa