# The Moral Designer

Melissa van Amerongen Technical University of Eindhoven

Whitbeck, Caroline. *Ethics in Engineering Practice and Research*. Cambridge: Cambridge University Press, 1998, pp. 330.

### Introduction

The rise of applied and practical ethics as a field in philosophy has created a need to give answers to concrete moral problems. There is, however, no consensus about what ethical theory (utilitarianism, deontologism, virtue ethics etc.) should be adopted. Moreover, most ethical theories seem to be disconnected from cases. Thus the question what role ethical theories should play in moral practice is one of the most important issues in applied and practical ethics now (Clark & Simpson 1998; Rosen 1988).

Some have tried to rebuild existing ethical theories in order to be better applicable to cases. For example, Beachamp and Childress have constructed a theory of *prima facie* principles specifically aimed at dealing with moral questions arising from biomedical practice (so called 'middle-level' moral principles). Beachamp and Childress maintain that the process of moral deliberation should be a rational one consisting of arguments that are backed up by justified principles embedded in a coherent ethical theory (Beachamp & Childress 1989, p. 6-7).

Other authors have tried to develop a methodology that enables us to integrate demands from (different) ethical theories with demands that follow from professional standards and social conventions. Harris, Pritchard, and Rabins, for example, have tried to sketch a possible outline of such a metatheoretical framework in which a wide range of moral demands can be taken into account at once. Using what they call the 'line drawing' technique, answers to moral questions can be judged on several continuous scales. The task of the moral agent is to locate possible responses to a moral problem on those scales, and to identify the best possible configuration of positions on this, what I would call, 'moral equalizer' (Harris, Pritchard *et al.* 2000). They, like Beachamp and Childress, endorse an analytic and rationalistic approach.

Caroline Whitbeck is unsatisfied with these approaches, which she judges to be too rationalistic. She has constructed a *non-rationalistic* theory of moral reasoning. She insists, in her *Ethics in Engineering Practice and Research* 

(1998a), that moral problems cannot and should not be viewed as rational decision problems, but should be compared with (industrial or engineering) *design problems*. This, she argues, forces us to adopt a different view of what it means to deal with a moral problem.

I shall argue below that Caroline Whitbeck offers an original contribution to the debate in practical and applied ethics about the role and limits of ethical theory. Focusing on the process of moral decision-making, it allows for a more dynamic approach in practical ethics, and sheds a different light on questions related to the nature of moral dilemmas, and on the question of how to deal with several, seemingly conflicting, demands. Yet, the design analogy still has to be extensively developed, and it is unnecessarily embedded in a confused moral conservative theoretical framework.

### Rational foundationalism

Whitbeck's theory can be split into two major parts. Firstly, a defense of her analogy of moral problems with design problems (discussed in the next section). Secondly, a rejection of what Whitbeck calls rational foundationalism, in which the debate about the use (or uselessness) of ethical theory in moral practice, a debate that found its peek in the late 1980's early 1990's (Winkler & Coombs 1993; Rosenthal 1988), is revived. Whitbeck sides with the moral conventionalist or moral conservative camp (terms from Hare 1988; Clarke & Simpson 1998), relying heavily on the work of Bernard Williams, Annette Baier, Alisdair MacIntyre, Stuart Hampshire<sup>2</sup> and Stanley Hauerwas.<sup>3</sup>

Even though Whitbeck is not specific about what she means by rational foundationalism, I take it to be the search of a rational justification of moral concepts through (an) ultimate moral principle(s). This includes, for Whitbeck, normative approaches, such as utilitarianism and deontologism, but also foundationalist meta-ethical approaches. Her criticism, however, specifically targets principalist approaches in applied ethics, such as that of Beachamp and Childress<sup>4</sup>. According to Whitbeck, such approaches fail in moral practice for at least three reasons.

First, rational foundationalism has little to do with moral reality. Whitbeck adopts Annette Baier's criticism on ethical theory that moral philosophy has become "an intellectual, sometimes largely formal, game, a variant of chess" (Baier 1993, p. 132), while not producing anything particularly helpful in dealing with real-life problems. Consequently, philosophers' jargon is far away from the language people use in real life, and the outcome of their work

does not connect with real-life moral experience (cf. Baier 1985, p. 207-227). Whitbeck endorses an approach close to experience, which recognizes the influence of moral tradition and social context on moral terms (Whitbeck 1998b, Parts I & II).

Secondly, Whitbeck objects to the rational foundationalist approach as it suggests that it is possible to formulate general theories and rules first, and apply those to specific social practices later. According to Whitbeck, rules can only be found bottom-up (e.g., rules attached to social and professional roles) as they are subject to change and revision, and acquire their actual content through social practice. As a good alternative methodology, Whitbeck recommends the casuistic approach of Stephen Toulmin and Alfred Jonsen in *The Abuse of Casuistry* (1989). They plead for case-to-case reasoning, which recognizes the historical and cultural embedding of the case at hand, instead of a top-down approach. Whitbeck specifically embraces their view of the agent: an actual agent-judge, employing analogical reasoning from other paradigm cases (Whitbeck 1998b, Part II, 3).<sup>5</sup>

The concept of practice is important to Whitbeck. When Whitbeck speaks of practice, she has a MacIntyrian notion of practice in mind: a distinct, "coherent and complex form of socially established co-operative human activity" (MacIntyre 1984, p. 187). Even though Whitbeck does not adopt the typical MacIntyrian notions of excellence and goods internal to a practice, she does consider a practice to be a domain with its own moral status, which produces its own norms and values. This idea takes its form in her notion of professionalism. Professionals (i.e., engineers) have access to specialized knowledge, which gives them a special kind of insight and responsibility. The activities of these professionals are, however, not easily judged 'from the outside.' Therefore, professionals construct their own professional codes (to be considered as practice-based rules) which should, according to Whitbeck, be taken seriously in their own right, and which form a legitimate input for moral reflection.

Whitbeck's third point is that rational foundationalism, though one possible approach to practical ethics, is certainly not the only one (Whitbeck: 1998b, Part I, 2). When addressing a particular moral problem, Whitbeck argues, an agent can take into account the *whole* spectrum of moral judgments and justifications, and is not limited to just one ethical theory. Thus she claims that "the reflective person engaging in moral reflection need not adopt some foundationalist position nor restrict attention to only a few types of moral reflection" (2; note that this idea is also endorsed by Harris, Pritchard and Rabins). A moral agent should not be forced to choose between theoretical

principles; (s)he can draw from the *whole* moral vocabulary (which includes both utilitarian and deontological principles, as well as, for instance, considerations of care and rules attached to social or professional roles). Note that rule- and principle-based approaches are included in the moral vocabulary, but that this is only so because they are part of the (individualistic, right based) Western moral culture, and not because reason tells us they are (cf. Whitbeck 1998a, 21).

Even though Whitbeck's criticism of rational foundationalism should primarily be read as an indication of her philosophical background, some critical remarks are in place here. Firstly, Whitbeck has not really tried to build a coherent theory of her own, but has only pointed out fragments of ethical positions she agrees with. Her defense of a moral conventionalist approach and her rejection of rational foundationalism in ethics consist mainly of lengthy quotations of authors she sympathizes with (her position could be seen as the 'common denominator' of these theories). This is defendable, however, given Whitbeck's modest aim to just indicate her philosophical position, and given the fact that the originality of Whitbeck's theory lies elsewhere: in her analogy of moral problems with design problems. More problematic is that Whitbeck's argumentation is sometimes rather imprecise. To name just one example: Whitbeck discards the criticism on MacIntyre that he is unable to show how the ethics of a community or practice could be criticized on the ground that MacIntyre is no communitarianist (Whitbeck 1998b, Part I, 5). As lack of a critical standpoint is a threat not only to communitarianism, but to all moral conventionalist theories, this argument is clearly flawed.

Secondly, as a moral conservative, Whitbeck will have to show *herself* how the ethos of a specific community, or, more appropriately in this context, a profession, can be criticized. The fact that some norm has passed the test of time or is strongly embedded in a social context does not automatically justify that norm. Whitbeck seems to agree with this, as she claims that the sort of relativism springing from theories like those of MacIntyre and Baier (and of Whitbeck herself) does not imply that "an action can be criticized only by the criteria commonly used in that period". For example, "the principle of informed consent only came about around 1940, [but] it *is arguably* a superior standard" (Whitbeck 1998a, 11; my italics). But, even though Whitbeck wants to be able to evaluate moral standards, she cannot tell us *what* arguments could *arguably* be brought up to defend such a claim.

Whitbeck's choice for a strict conventionalist approach makes it hard, if not impossible, to add normative criteria independent from cultural context or a

specific period. As I shall try to show below, this weakens her thesis about ethics-being-as-design (discussed in the next section). For in the end, this analogy requires a theory of justification, and her moral conventionalism provides little ground for introducing one.

### Ethics-as-design

To be able to appreciate Whitbeck's theory of ethics-as-design, it must be kept in mind that Whitbeck aimes to construct a theory in which fundamental ethical questions can be avoided. Ethicists have, in her view, focused too much on such fundamental issues while people seem to be quite able to solve moral problems in practice without waiting for philosophers to agree with each other (see also Jonsen & Toulmin 1989, prologue). Moreover, with Baier (1985), Whitbeck is unhappy about the seemingly undecidable competition between ethical theories. This explains her plea for a tolerant and broad moral vocabulary. Whitbeck's solution aims at showing that we can deal with such a wide range of (apparently competing) moral demands.

In addition, and, perhaps, even more important, Whitbeck's ethics-as-design thesis is about the nature and structure of moral problems. According to Whitbeck, moral problems are often framed as a multiple-choice dilemma: a problem with a fixed number of possible alternatives of which one, and only one is right. This is misleading, says Whitbeck. In her view, moral problems resemble (engineering) *design problems*, which she characterizes as follows:

Although for interesting or substantive engineering design problems there is rarely, if ever, a unique correct solution, two solutions may each have advantages of different sorts, so it is not necessarily true that, for any two candidate solutions, one must be incontrovertibly better than the other...Although no unique correct solution may exist, nonetheless, some possible responses are clearly unacceptable—there are wrong answers even if there is not a unique right answer—and some solutions are better than others (Whitbeck 1998a, 58-9).

Whitbeck's characterization of a design problem can be clarified using two concepts used in design methodology: *ill-structured problems* and *well-structured problems* (or ill- and well-defined problems<sup>6</sup>). In design methodology, the notion of an ill-structured problem is used to describe design problems. Well-structured problems (such as, for instance, basic arithmetical calculations or crossword puzzles), mostly have clear goals, fixed alternatives to choose from, usually maximally one correct answer and rules or methods that will generate more or less straightforward answers. Ill-

defined problems, on the other hand, have no definitive formulation of the problem, may embody an inconsistent problem formulation, and can only be defined during the process of solving the problem. Moreover, ill-structured problems may have several alternative (good, satisfying, etc.) solutions, that are not easily compared with each other (cf. Cross 1989, 11-2; Rittel & Webber 1984; Van der Poel 2001, p. 431).

Whitbeck argues that moral problems are like design problems, they are ill-structured problems. Being practical problems, moral problems are seldom clear-cut or completely given at first hand. When dealing with a moral problem, new problems and possible solutions may arise, and (should) become part of moral reflection. It must be noted that Whitbeck has argued plausibly that moral problems can be considered to be *practical problems* (ill-defined, ill-structured etc.), but she has not shown how design problems and moral problems resemble *each other* besides both being part of the same class. This need and will not be really problematic: Whitbeck can show how the way in which designers solve design problems, being practical problems, may be *instructive* in dealing with moral problems. Indeed, this is exactly her point:

Because engineers recognize the importance of engineering design as well as engineering theory, they appreciate the importance of practical as well as theoretical problems and of synthetic as well as analytic reasoning. Devising a good response requires synthetic reasoning. Ethics has been more involved with analytic reasoning... (Whitbeck 1998a, p. 55).

The notion of synthetic reasoning is central in Whitbeck's thesis. When designing, engineers try to satisfy as many demands as possible by finding solutions that do justice to as many as possible demands. The idea that we can fulfill only one demand should, says Whitbeck, be abandoned—instead we could try to find a solution or response that goes a long way toward meeting a variety of demands simultaneously. Even though some moral problems may be irresolvable, it is misleading to present them as such from the start. "The initial assumption that a conflict is irresolvable is misguided, because it defeats any attempt to do what design engineers often do so well, namely, to satisfy potentially conflicting considerations simultaneously" (p. 56).

By presenting moral problems as well-structured or multiple-choice problems, ethicists have implicitly suggested that we should choose one of the given alternatives through a rigid analytic methodology. This is misleading, Whitbeck argues, because it is in the nature of moral problems to resist such rigid methodology, and because synthetic reasoning may lead to more preferable, creative, and middle-way solutions. Three of Whitbeck's examples, to be understood as rules of thumb for solving moral problems, illustrate what such synthetic moral reasoning may look like.

Firstly, the *unknowns and uncertainties* in the situation have to be considered. Some uncertainties cannot be resolved immediately, and should then be understood as a defining characteristic of the problem situation. Secondly, the development of possible solutions is separate from the definition of the problem and may require more information. Whitbeck puts forward the traffic signs case. In this case there are two intersections, one in a rural area suffering from a small number of fatal deaths, and one in an urban area suffering from a large number of small accidents. There is only money for making safety improvements at one intersection. The moral philosopher would tend to present this dilemma as a forced choice between spending money on one intersection or on the other. This is misleading, says Whitbeck, because there are alternatives that might be morally better: for example, the solution to build cheaper traffic signs on both intersections. Furthermore, a lot of information might be missing in this case. If in the urban area most accidents are caused by drunk drivers, it would hardly help to change the physical characteristics of that intersection. Thirdly, it is often important to start pursuing several possible solutions simultaneously in case one of the solutions meets insurmountable obstacles. Since there is only limited time to deal with a moral problem, there should be a good balance between keeping options open, and, at the same time, avoiding spreading one's energy too broadly.

In general, Whitbeck's approach focuses on issues and strategies that are part of the process of problem solving. For her, dealing with moral problems is not only or primarily a matter of *moral knowledge*, it is a matter of *moral skill* or *wisdom*, implying flexibility, interpretative skills and creative solution finding. Her Aristotelian approach has much in common with virtue ethics. Indeed, Whitbeck shares its rejection of approaches that emphasize rules and principles rationally derived by a critical evaluating spectator. Yet, Whitbeck's theory differs from virtue ethical approaches in that the idea of character or disposition hardly plays a role in her theory. Moral skill, in my interpretation of Whitbeck's view, does not derive from a certain character, but must be interpreted as a cognitive ability, literally an engineering skill. Whereas virtue ethics focuses on the question 'who should I be,' Whitbeck's approach is about the question 'what shall I do' or 'how shall I handle this problem.' And whereas classical ethical theory tends to focus on moral

judgment and justification, and virtue ethics on moral character, Whitbeck tries to lay bare a different ethical issue: moral acting and the process of moral problem solving.

Whitbeck's analogy of moral problems with engineering design problems has a number of attractive features. It shows that moral acting is not only about deciding between a fixed number of alternative actions or values, but that it also involves a process of acting in which the moral problem unfolds itself and new options may arise, options that may bring together seemingly conflicting moral demands. Moral reasoning is not only about defending a solution; it is also about *finding* one. Her dynamic approach allows for uncertainties and changing interpretations of the moral problem.

# The risk of black boxing

By emphasizing the process of moral problem solving, Whitbeck has tried to avoid the controversial issues in philosophical justificatory ethics. She believes that much controversial ethical debate needs not be imported when dealing with everyday life moral issues. Justificatory ethics, in as much as it uses cases, treats those cases in an instrumental way: to test or to reject a certain justification or even to show that such justification is not possible. Because of this role, these cases are often about extreme situations (think of Sophie's famous choice). But, according to Whitbeck, such examples rarely occur in real life, and the answers philosophers have come up with are relatively useless as well. In practical ethics, answers to more ambiguous and realistic cases are needed.

In Whitbeck's cases, the norms and values at stake are often clear and unproblematic. In her favorite example, the case of a superior who wants you to dump chemical waste through the drain, the ideal solution would be one that would be both loyal and truthful. A good product design would be as safe, for as many people, as possible, taking into account individuals' rights, and so forth. Whitbeck focuses on the questions of how to make sure that all of these values are appreciated, and how to synthesize and satisfy these different demands. She does not question how these values can be justified. For Whitbeck, a moral problem is about dealing with a number of given ethical constraints (Whitbeck 1998a, p. 72) using designing skills rather than applying moral theories. This sounds attractive, for it puts aside the question what moral requirement should be called for in a particular case, and how it should be justified, and suggests that it is possible to satisfy all these, sometimes conflicting, requirements.

But does all this convince? I think it does not—or, at least, not enough. Whitbeck may be able to avoid fundamental justificatory issues, but cannot eliminate them. In the example of the traffic lights we do not, in Whitbeck's view, *have* to make the fundamental choice between either a small number of fatal accidents or a large number of minor ones. If we put cheaper signs on both intersections, we can by-pass the ethical dilemma. But that is exactly what this is: by-passing. The fundamental issue, in my opinion, remains unresolved. For, the third solution is not an answer to the fundamental dilemma of how, when and whether minor accidents can be balanced against fatal ones. Whitbeck is right in stating that when dealing with concrete moral issues, such fundamental questions need not be solved immediately, and that sometimes a better solution may be at hand. But this does not imply that those fundamental issues have disappeared completely and some may want a plausible answer to them.<sup>7</sup>

Whitbeck does not address 'ethical' issues at all, if we understand 'ethics' as the study of fundamental moral questions, begging a well-informed (i.e., a justified) answer. Even if we grant that concrete moral problems can be seen as ill-structured design problems, and admit that in practice they can often be solved as such, it is not at all obvious that the same is true for 'ethical' problems. Fundamental ethical issues require rational, systematic answers, which are properly justified and communicable, rather than pragmatic, design-like, solutions. Whitbeck has neither shown that such fundamental issues have been solved, nor that her theory allows us to solve them. Fair enough: Whitbeck may of course just acknowledge this, claim that at least she has shown that it is possible to solve *many* dilemmas without getting into fundamental debate, and to take the remaining ethical issues for granted. Her theory has a blind spot, but this may be compensated for by the fact that it seems to be able to give guidance in many practical situations where moral issues are involved.

But does it really guide? Here, again, Whitbeck owes us some answers. Above, I mentioned Whitbeck's inability, due to her moral conservatism, to justify moral norms. But, Whitbeck's theory not only lacks such external justification (concerning the values and principles at stake), it also raises many questions about what we may call internal justification (concerning the evaluation of a moral course of action). Whereas Whitbeck states that a variety of principles and rules *may* be relevant in a certain concrete situation, she does not give us anything to go by in deciding *which* principles, rules, or standards should be or should have been selected, and *how* they should be brought together. If the moral agent is to practice his/her design-like skill, and choose in a designer-like way if and what principles are relevant and how

or to what extent they should be met, how can we tell, in the end, if his/her choices were *right*? Furthermore, if moral agency is viewed as a skill, how can we test whether or not this skill has been adequately performed, or if someone masters this skill? And, given Whitbeck's claim that moral problem solving is better understood as a constructive process rather than as a single decision, wouldn't we need some specific criteria to evaluate such a process? Without such criteria or a decent methodology, Whitbeck is just 'black boxing' the moral decision process, and leaving us without a clue as to how the moral agent could (rationally) justify his/her decisions.<sup>8</sup>

Note that my claim is *not* that, if we view moral problems as design problems, there are no answers to these questions. What I do claim is that Whitbeck's assertion that her theory is able to deal with several conflicting demands at once is a very ambitious one, and begs far more argumentation than she has given. 'Designing,' in Whitbeck's book, remains some kind of magical device, apparently able to solve some very difficult problems. But apart from giving some generally useful practical tips (try to gain as much information as possible, try to keep your options open, etc.), the design analogy is quite empty. At the very least Whitbeck should have shown how designers analyze and structure their design problems, and gain more insight into the problems at hand. She could have shown how designers deal with trade-offs (which is the usual way of designers to deal with conflicts between requirements) and how such choices are evaluated (cf. Van der Poel 2001, p. 432). Or she could have tried to give a systematic account of the several characteristic phases (for example: synthesis, setting requirements, analysis, evaluation) of the design process (see, for example, Cross & Roosenburg 1996, p. 334), and show how these phases compare and interact with each other, and what practical and cognitive skills are involved in them. I think that Whitbeck has stressed the synthetic aspect of designing too much, at the cost of the, just as important, rational and analytic aspects of it.

Whitbeck could also have been far more convincing with regard to justificatory theory. Perhaps she could well have defended her theory with a pragmatic justificatory theory. In fact, she seems to be in favor of a pragmatic approach. In her comments on moral wisdom, for instance, she writes: "Everyone makes mistakes, but responsible people exercise care not to make many and learn from their mistakes. Wise people learn from the mistakes of others and so do not have to learn everything 'the hard way'" (Whitbeck 1998a, p. 68). More specifically, Whitbeck is close to what Arras calls the "new philosophical pragmatism" (2002, p.35) in bioethics with respect to her criticism on rational foundationalism and her emphasis on finding practical solutions to apparent fundamental dilemma's. But, as Arras rightfully states,

pragmatism still needs a 'criterion of success' (or, in Whitbeck's case, a criterion for mistake) and a way to choose between rival value judgments. This is, Arras claims, and I agree with him, "the traditional role allotted to moral principles in ethics and the theory of justice" (49-50).

Whitbeck, however, appears to be totally indifferent to the justificatory issue, and does not make plausible in any way how such (pragmatic) justification or systematization might be accounted for. All this renders her design analogy too vague and too unsystematic to be of real use in ethics, and also does little justice to design methodology itself.

### Conclusion

Whitbeck has tried to construct a descriptive moral theory, which aims at diverting fundamental justificatory issues in order to be more helpful in dealing with moral problems. She has tried to show that designer skills can help satisfy relevant moral demands in an integrative way, and has claimed that this allows us to include a large set of norms, values and principles in the moral vocabulary. Whitbeck has stressed that moral problems are in fact practical problems, and has argued that this allows people to deal with moral issues in a more pragmatic way.

But her design analogy has turned out to be a reduction of moral problems to practical ones in which she has both ignored the special justificatory nature of moral problems, and has failed to give adequate content, which might have made it more convincing, to her design analogy. By rejecting (or neglecting) rational foundationalism and other justificatory approaches, Whitbeck lacks the necessary normative sources to evaluate the norms and values at stake, as well as the moral design itself—thus debarring both external and internal justification. Original as it may be, Caroline Whitbeck will have to show that her theory is more than an ethical potpourri, which lacks a criterion to help construct or justify a particular moral mix.

#### References

Arras, J.D. "Pragmatism in Ethics: Been there, Done that". In: *Social Philosophy and Polici*, 2002, 19 (2): 29-58.

- Baier, A. *Postures of Mind. Essays on Mind and Morals*. Minneapolis: University of Minneapolis Press, 1985.
- Baier, A. "Trust and Distrust of Moral Theorists". In: Winkler, Earl R., Coombs, Jerrold R., Applied Ethics, a Reader. Oxford and Cambridge: Blackwell. 1993, 131-142.
- Beachamp, T.L. & Childress, J.F. *Principles of Biomedical Ethics*. New York: Oxford University Press, 1989.
- Clarke, S.G. & Simpson, E. (eds.). *Anti-theory in Ethics and Moral Conservatism*. Albany: State University of New York Press, 1998.
- Cross, N. Engineering Design Methods. Chichester: John Wiley & Sons, 1989.
- Cross, N. & Roosenburg, N. "Modelling the Design Process in Engineering and in Architecture." *Journal of Engineering Design* 3: 4 (1996): 325-337.
- Dorst, K. Describing Design; A Comparison of Paradigms. Dissertation, 1997.
- Hare, R.M. "Why do Applied Ethics?" in Rosenthal, D.M., Shehadi, F. (eds.), *Applied Ethics and Ethical Theory*. Salt Lake City: University of Utah Press. 1988, 71-83.
- Harris, C.E., Pritchard, M.S. & Rabins, M.J. *Engineering Ethics: Concepts and Cases*. Belmond: Wadsworth, 2000.
- Jonsen, A.R. & Toulmin, S.. The Abuse of Casuistry; A History of Moral Reasoning. Berkeley: University of California Press, 1989.
- MacIntyre, A. *After Virtue: A Study in Moral Theory*. Notre Dame: University of Notre Dame Press, 1984.
- Morton, A. *Disasters and Dilemma's; Strategies for real-life decision making*. Oxford: Basic Blackwell, 1991.
- Rittel, H.W. J. & Webber, M.M. "Planning Problems are Wicked Problems." in Cross, N. (ed.), *Developments in Design Methodology*. Chichester: Wiley. 1984, 135-144.

Rosenthal, D.M. (ed.). *Applied Ethics and Ethical Theory*. Salt Lake City: University of Utah Press, 1988.

- Van der Poel, I. "De analogie tussen ethische problemen en ontwerpproblemen [in English: The analogy between ethical problems and design problems]." in Baars, J., Starmans, R. (eds.), *Het Eigene en het Andere: Filosofie en Globalisering*. Tilburg: Katholieke Universiteit Brabant. 1999, 243-257.
- \_\_\_\_\_. "Investigating Ethical Issues in Engineering Design." in *Science and Engineering Ethics* 7:3 (2001): 429-446.
- Whitbeck, C. *Ethics in Engineering Practice and Research*. Cambridge: Cambridge University Press, 1998a.
- \_\_\_\_\_. The Philosophical Theory Underlying "Ethics in Engineering Practice and Research". http://onlineethics.org/bib/part1.html?text 1998b.
- Winkler, E.R. & Coombs, J.R. (eds.). *Applied Ethics, a Reader*. Oxford and Cambridge: Blackwell, 1993.

## Notes

- <sup>1</sup> For example by Arras (2002).
- <sup>2</sup> Relevant papers by these authors can be found in Clarke & Simpson (1998).
- <sup>3</sup> Whitbeck's design analogy is worked out in her book; her critique on rational foundationalism is mainly dealt with in the online (i.e. unpublished) philosophical appendix of this book.
- <sup>4</sup> Note that, for Whitbeck, rational foundationalism and principalism are more or less the same, or they carry at least a number of shared features she wants to criticize.
- <sup>5</sup> Whitbeck does not claim that rational foundationalism has no empirical basis whatsoever. Most ethical theories, including rational foundationalist ones, seek support from examinations of moral intuitions or particular moral judgments. For as far as Beachamp and Childress have suggested otherwise in the first print of their *Principles of Biomedical Ethics*, they have long since admitted that moral principles are not just applied to particular judgments, but actually grow out of them (see Arras 2002, p. 47). Both Beachamp and Childress, and Jonsen and Toulmin favor a bottom-up-top-down approach, in that particular judgments may help discovering moral regularities (principles, rules, guides), which can, in their turn, be used for

(applied to, guide) particular moral judgments (compare, for example, the two models in Jonsen & Toulmin (1989, p. 34-5). The "general warrant based on similar precedents" compares reasonably well with this interpretation of Beachamp's and Childress' moral principles). Whitbeck suggests, however, that such investigations of our moral intuitions can never lead to more general principles to be used as guides for moral actions. We can only decide what to do when confronted with a particular moral problem. As far as this is concerned, Whitbeck's philosophical framework turns out to be closer to particularism than to casuist approaches that allow for inductive theorising through bottom-up analogical reasoning, in that it both denies the possibility of formulating general principles, and promotes a contextual (holistic) view on moral judgement (see, for example, Hooker & Little (2000).)

<sup>&</sup>lt;sup>6</sup> The terms 'ill-structured' and 'ill-defined' are related and are both considered to be characteristic features of design problems. Even though there is, strictly speaking, a difference between ill-structured and ill-defined problems (one referring to the structure of the problem, the other referring to the way the problem is defined), the terms generally are used interchangeably (cf. Dorst 1997, 48-9).

<sup>&</sup>lt;sup>7</sup> I find support for this claim in Adam Morton's interesting work on moral dilemma's. Morton claims that even when there are tactful ways to prevent moral dilemma's to arise, the root of the dilemma remains, and both horns of the dilemma may be 'intrinsically difficult to balance' (Morton 1991, p. 4).

<sup>&</sup>lt;sup>8</sup> I fully agree with Van der Poel here, who has claimed that "solving a moral problem properly not only requires the skill to design possible solutions, but also requires the skill to assess such solutions on its moral acceptability" (my translation, Van der Poel 1999, p. 255). Also, van der Poel emphasizes the possible role of ethical theory in structuring an (unstructured) problem (p. 254).