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FIS494 / Week 6

What struck me most about this week's reading were the divergent approaches to one central question: how can (should?) engineers relate to ethical problems?

I can see how if you're talking to a group of engineers about how to deal with ethical problems, an approach like Whitbeck's makes sense. Engineers are already familiar with the steps involved in engineering design. Presumably, they have already internalized many of the core competencies needed to make them adept designers. They also already have extensive training in they key phases of design: determining the problem, exploring possible solutions, selecting and implementing the chosen path. It makes sense to attempt to extend their problem-solving skills to other domains - including ethical and moral problems.

However, as El-Zein and Hedemann point out, it is precisely the problem-solving focus of engineers that inhibit their ability to be successful in other domains and that act as barriers to other kinds of thinking. Unlike professions that contain an inherent deference to (or maybe reverence for, depending on your perspective) the "public good," engineers work without such a reference point. Engineers are able to produce technologies of violence and are not required to defend their actions. In fact, the creation of technologies of violence and destruction is one of the most common tasks that engineers do in their workplaces.

How, then, can engineers who regularly do work so contrary to nearly any definition of the public good, be expected to negotiate moral and ethical domains?

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I appreciate Whitbeck's identification of the aspects of engineering design, and her ability to operationalize the steps involved in solving practical moral problems. One must not only act on *a* right choice, but must first determine the problem space and explore any of a number of right choices available. This is helpful; it makes ethical issues into logical, rational things that can be bounded and dealt with. Problems that have boundaries and sets of requirements often have solutions. However, many ethical or moral problems do not have solutions, as Whitbeck does point out. In some cases, the best solution would be categorized as a coping strategy."

I agree with El-Zein and Hedemann that problem solving is not all that we need when it comes to ethical issues and that we're failing to train and enculturate engineers properly.

If problem-solving orientations are barriers to robust thinking and if Whitbeck is proposing an acutely logical and problem-solving approach to ethical problems - what approach can we propose that breaks us out of that paradigm? The literature is split on whether or not a system like virtue ethics could help here (Schmidt says yes, Furey says not really)? What would a system for negotiating ethical challenges for engineers look like if it were not logic-based? How can we move away from the problem-solving orientation that El-Zein and Hedemann have discussed as barriers to thinking about the implications of our work?

Furey, H. (2017). Aristotle and Autism: Reconsidering a Radical Shift to Virtue Ethics in Engineering. *Science and Engineering Ethics*, *23*(2), 469–488. https://doi.org/10.1007/s11948-016-9787-9

Schmidt, J. A. (2014). Changing the Paradigm for Engineering Ethics. *Science and Engineering Ethics*, *20*(4), 985–1010. https://doi.org/10.1007/s11948-013-9491-y