Chapter XII

Software Engineering as a Profession: A Moral Case for Licensure[1]

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ABSTRACT

This chapter makes the argument that software engineers, as part of a program of moving toward more formal professionalization, should be licensed. It outlines the nature of the profession and the arguments that justify licensing in professions other than software engineering. It then traces the initial steps the software industry has already taken towards professionalization, including codes of ethics and educational standards. There are morally and practically compelling arguments, rooted in the professional's obligations to society, to do more: licensing, or some other sort of formal, binding and revocable certification, is also necessary. The chapter considers but rejects a number of reasons one might resist this as a goal.

INTRODUCTION

Software engineers should be licensed. Many other lines of work, especially traditional professions like law and medicine, justifiably require licenses and other sorts of professional certification of their practitioners. The software industry has already taken some initial steps towards professionalization, including codes of ethics and educational standards sponsored, developed and endorsed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and the Association for Computing Machinery (ACM). But these initial steps, while salutary, are not sufficient. For the same reasons so many other fields have more or less strict licensing requirements, the software industry should adopt analogous processes and procedures. It should move toward, even if incrementally, more formal professionalization, to include licensing or professional certification.

BACKGROUND:
WHAT MAKES A PROFESSION?

Consider the following argument.
Premise 1: Broccoli is better than nothing.
Premise 2: Nothing is better than sex.
Conclusion: Broccoli is better than sex.

The joke turns on an ambiguity in one of the key terms in the premises. The word *nothing* means something different in Premise 1 ("not having anything") than it does in Premise 2 ("there is no thing that"), allowing us invalidly to reach the (presumably) false and comical conclusion. Ambiguity in our terms can, apparently, get us into trouble.

Professional is another term fraught with ambiguity. It might describe nothing more than taking money for one's services. It has also been used to denote a certain high level of proficiency, as in "Joe's a real pro." One professional engineer, when pressed for what he thought made a professional, claimed (tongue in cheek) that professionals wore neckties.[2] And of course, there is the commonly held idea that professionals, whatever they turn out to be, are more esteemed in society than those in other lines of work, and are typically more highly paid. We want our children to be, or at least to marry, one.

There is a more focused and interesting sense of the term *professional*. It is the sense attached to a number of paradigm institutions and callings, which together seem to provide examples that answer to this more interesting conception of *profession*: law, medicine, the clergy, the military officer corps, teaching, public accounting, and many types of engineering, to name a few. There are no doubt other occupations that answer to this sense of being a professional—an exhaustive list is not needed for our present purposes. But it is important to make

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