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Is Engineering a Profession Everywhere?

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Abstract Though this paper is mostly about a sense of "profession" common in much of the West, it explains how the term might apply in any country (especially how the profession of engineering differs from the function, discipline, and occupation of engineering). To do that, I have to explain the connection between "profession" (in my preferred sense) and another hard-to-translate term, "code of ethics" (in the sense it has in the expression "code of engineering ethics"). To understand engineering (or any other occupation) as a profession is to adopt a certain conception of it, one neither old nor (yet) universal. With that conception in hand, it should be possible for social science to answer the question posed in the title.

Keywords Profession · Engineering · Code of ethics · Occupation · Discipline · Function · Morality

The purpose of this article is *not* to answer the question its title poses but to provide a conception (interpretation) of the key term "profession" that will help the social sciences (and common observation) to provide an answer useful for a certain purpose.

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I regard the question as concerned with a fact—but, I admit, an odd fact. Unlike "tan" or "dog", "profession" is not a simple descriptive term. Like "law", "democracy", and indeed "engineering", "profession" is a term connected with institutions, which interpret it and are, in turn, shaped by those interpretations. Right now, engineering's status as a profession seems to be disputed in several important countries, including France and Japan.[1] What counts as a profession may affect engineering in those countries, for example, by helping to decide whether a course in professional ethics will be required for the first degree or licensing made a condition of practice. Providing the appropriate conception of "profession" belongs not to lexicography or language analysis but to political philosophy (in the broad sense that includes legal and social philosophy). Lexicography and language analysis can give us only the concept, the most general guide to how to use a word properly. For most purposes, we need a more specific guide, one that abandons certain (proper) senses of the word in order to have a tool more useful for one purpose.

Discipline, Occupation, and Profession

"Profession" has several senses in English. It can be a mere synonym for "occupation"—an occupation being any typically full-time activity defined in part by an easily recognizable body of knowledge, skill, and judgment (a "discipline") by which one can (and people typically do) earn a living. It is in this sense that we may, without irony or metaphor, speak of someone being a "professional athlete", "professional beggar", or "professional thief", provided the person in question makes a living by the activity in question. While the *discipline* of engineering has not existed throughout history, its roots certainly go back many centuries—disappearing into the older disciplines of the stonemason, siege master, chief builder, and other ingenious men. The *occupation* of engineering, on the other hand, did not exist before the nineteenth century. Before then, almost everyone called "engineer"—that is, almost everyone sharing the discipline of engineers (mathematics, science, drawing, and so on)—was a military officer. Officers, being "gentlemen", did not work for a living (though we moderns might think otherwise). They did receive an income as an officer, but they fulfilled (or at least were supposed to fulfill) the duties of office not because they were paid for it but because doing so was proper whatever the pay. Those who claim that every civilization has had engineers (in the modern sense) must explain why the word for engineer in every language (unlike the word for stonemason, siege master, chief builder, and other precursors) derives from the same source, French. The history of the word "engineer" is the history of the discipline that corresponds to that French word (and French curriculum).[2] The occupation follows the discipline.

[1] See, for example, Tetsuji Iseda (2008) and Gary Lee Downey et al. (2007). For a non-engineering example of how the definition of profession can shape practice, see Franklin C. Pinch et al. (2003).

[2] I examine this history in some detail in the first two chapters of my *Thinking like an Engineer* (Davis 1998). Of course, one *function* of engineering (building on a large scale) does go back to the beginnings of recorded history (and, indeed, earlier), but that function is something engineers share with several other disciplines, including architecture and masonry. Indeed, that function is something engineers share with ants, beavers, and coral.

I shall not use "profession" in this broad sense (occupation) or even in the somewhat more limited sense (also common in English) of honest occupation: "Plumbing is a profession; prostitution is not." Our concern is "profession" as a special kind of honest occupation, the sense in which engineers say, for example, "Engineering is a profession; plumbing is not." Our concern is a special kind of honest occupation, one that we can compare to other similar occupations (law, medicine, architecture, and so on).

There are at least three approaches to conceptualizing profession in this special-kind-of-honest-occupation sense. One, what we may call "the sociological", has its origin in the social sciences. Its language tends to be statistical. The statement of the conception, a definition of sorts, does not purport to give necessary or sufficient conditions for some occupation to be a profession but merely what is true of "most professions", "the most important professions", "the most developed professions", or the like. Every sociologist concerned with professions seems to have a list of professions that the definition must capture. Law and medicine are always on the list; the clergy, often; and other occupations commonly acknowledged as professions, such as engineering, sometimes.[3]

We may distinguish three traditions in the sociology of professions (what we may call): the economic, the political, and the anthropological. Though individual sociologists often mix their elements, distinguishing them as "ideal types" should help us to think about them more clearly, even in their less ideal (that is, mixed) forms. What I believe to be wrong with all three ideal types, a failure to understand how central ethics is to profession, remains even when the types mix.

The economic tradition interprets professions as primarily a means of controlling market forces for the benefit of the professionals themselves, that is, as a form of monopoly, guild, or labor union. The economic tradition has two branches: Marxist and free market. Among recent sociologists in the Marxist tradition, the best is still Magali Sarfatti Larson (1977; *The Rise of Professionalism*); among sociologists in the free-market tradition, Andrew Abbott (1988; *The System of Professions*) is a good example. For sociologist in the economic tradition (whether Marxist or free market), it is the would-be members of a profession who, by acting together under favorable conditions, create their monopoly. Successful professions have high income, workplace autonomy, control of who can join, and so on; less successful professions lack some or most of these powers (more or less). Morality, if relevant at all, is relevant merely as a means to monopoly, a way of making a "trademark" (the profession's name) more attractive to potential employers. The success in question may be independent of what participants in events sought. The economic tradition delights in discovering "the invisible hand" at work, for example, attempts to serve one's own interest that in fact serve the public interest instead. Like the monopoly itself, signs of the profession's success may be embedded in law, but need not be. What matters for the economic tradition are market arrangements ("economic realities"), not (mere) law.

[3] For more on the enormous variety of sociological definitions, see John Kultgen (1988), especially, pp. 60–62. See also the recent exchange between: David Sciulli (2005); Rolf Torstendahl (2005); and Julia Evetts (2006).

For the political tradition, however, the law is crucial. Often associated with Max Weber, the political tradition interprets profession as primarily a legal condition, a matter of (reasonably effective) laws that set standards of (advanced) education, require a license to practice, and impose discipline upon practitioners through formal (governmental) structures. "Professional ethics"—and, indeed, even ordinary moral standards—are, if distinguished at all, treated as just another form of regulation. To be a profession is to be an occupation bureaucratized in a certain way. For the political approach, it is the society (the government) that creates professions out of occupations, and the society (the public) that benefits (whoever else may benefit as well). The political approach substitutes society's very visible hands for the invisible hand of economics. The members of the profession have little or no part in the making of their profession. A recent work in this tradition is Robert Zussman's (1985) *Mechanics of the Middle Class*.

The anthropological tradition, often associated with Emile Durkheim or Talcott Parsons, interprets professions as primarily cultural facts, the natural expression of a certain social function under certain conditions. Neither the professionals nor society can have much to say about whether a certain occupation will be a profession. Professions are a function of special knowledge used in a certain way, a community created by a common occupation requiring advanced study. Its ethics are as much a natural product of that community as anything else about it. Among recent sociologists, the best of those working in the anthropological tradition seems be to be Eliot Freidson (2001; in, for example, *Professionalism: The Third Logic*).[4]

Distinguishing these three traditions helps make the point that the sociological approach has not yet yielded a single definition of profession and, more importantly, is unlikely to. Sociology's way of developing definitions, that is, abstracting from a (short) list of clear cases something common to most or all, is unlikely to yield a single definition—or, at least, is unlikely to yield one until sociologists agree on a list of clear cases sufficiently long to exclude most candidate definitions. Today, only two professions appear on all sociological lists (law and medicine). That is much too few to derive a widely accepted definition. Whatever the utility of a particular sociological definition for a particular line of social research, no such definition is likely to seem definitive to more than a minority of sociologists. Why sociologists continue to generate definitions in this way is an intriguing question, but one best left to the history (or sociology) of sociology. We may ignore it here.[5]

What we cannot ignore is that few, if any, of these definitions would rule out an immoral profession, for example, a profession of torturers. Let us assume that there is enough employment for torturers for them to form an occupation. (Whatever our moral objections to torture, we must admit that torturers might be useful—much as spies and assassins are.) Nothing in the *economic* conception of profession as such

[4] Emile Durkheim (1957) in fact discusses the customs or standards that *occupational* communities typically subject themselves to (whether morally permissible or not). Durkheim seems to lack any sense of profession as I have defined it. In contrast, Talcott Parsons, the most important representative of this approach in the US, really is a student of professions. See, for example, his "The Professions and Social Structure" (Parsons 1954).

[5] For an attempt to explain the attractions of the various sociological approaches, see Michael Burrage and Rolf Torstendahl (1990), especially the "Introduction".

rules out the grant to certain persons of a monopoly on torture—with resulting high income, workplace autonomy, control of who can join them, and so on. Similarly, nothing in the *political* conception as such rules out laws requiring torturers to be educated in certain ways, to pass certain tests, to be licensed, and to be subject to having their license revoked should they prove incompetent, careless, or otherwise unsatisfactory. Last, there is nothing in the *anthropological* conception as such to rule out special knowledge of how to torture defining an occupational community, a profession of torturers. Because there is nothing in the sociological approach as such to require professions to be moral undertakings, there is nothing in it to rule out a profession of torturers. Individual sociologists are, of course, free to define profession to exclude torturers (since none of the usual lists of clear cases includes any profession that routinely torturers). But sociologists are equally free to define professions as predominantly male—because law, medicine, and other professions on a typical list of clear cases are predominantly male.

The sociological approach offers a wilderness of possibilities, but little help choosing among them. So, for example, sociologists have long equated professions with consulting occupations (sometimes also called "free professions" or "liberal professions"), excluding from professional status (or at least "full professional status") most engineers, journalists, nurses, teachers, and others who work as employees in large organizations (groups that have not only long claimed to be professions but have been accepted as such by doctors, lawyers, and others the sociologist recognized as "true professions"). When doctors and lawyers themselves recently began to be absorbed into large organizations in the US, much was written about their "de-professionalizing", though these professions otherwise continued much as before. That, I think, is enough to make clear how unattractive the sociological approach (and the resulting definitions) should be, even though that approach continues to dominate discussion of what professions are.

Two Philosophical Approaches to Conceptualizing Profession

The other approaches to conceptualizing profession are philosophical. They offer necessary and sufficient conditions for an occupation to count as a profession. While a philosophical conception (that is, a conception resulting from applying a philosophical approach) may leave the status of a small number of would-be professions unsettled, it should at least be able to explain (in a satisfying way) why those would-be professions are neither clearly professions nor clearly not professions. Philosophical conceptions are sensitive to counter-example in a way sociological conceptions are not. Philosophers cannot use the standard defense of sociologists confronted with a counter-example: "I said 'most', not 'all'."

There are at least two philosophical approaches to conceptualizing profession. One, (what I shall call) the Cartesian, answers the question, "What do *I* think a profession is?" It attempts to piece together in a coherent way the contents of one person's mind. There may be as many Cartesian conceptions of profession as there are people who ask themselves what they mean by "profession". The Cartesian approach has no procedure for mediating between one individual's definition and another's. (That, indeed, is one reason I call this approach Cartesian: its tendency to

be solipsistic.) The differences between Cartesian definitions can be startling. For example, some are as indifferent to morality as any sociological definition. My favorite admits the *mafia* to be a profession.[6]

The other philosophical approach to conceptualizing profession is (more or less) Socratic. It answers the question, "What do *we*—philosophers and (self-described) professionals—('really') think a profession is?" Such a conception must be worked out through a conversation, a uniting of Cartesian *I*'s in a public *we* (a typical Socratic dialogue). A member of a profession (so called) says what he (or she) means by "profession". Philosophers, or other members of a profession, test the definition with counter-examples, consider the consequences of adopting the definition, and otherwise examine it in the way philosophers typically do. Any problem so discovered should be fixed by revising the definition in a way that seems to resolve the problem. The definition is again examined. And so the process continues until everyone participating in the conversation is satisfied that no problems remain. It is this critical conversation that underwrites the claim that the resulting definition is "what we *really* think a profession is" (that is, what we think it is after enough reflection).

In principle, either philosophical approach might yield a definition much like one that the sociological approach did. The definition yielded by an approach depends in part on the approach but in part too on the context to which it is applied. If, for example, professional status were a statistical phenomenon, then even a philosophical method could not (without error) generate anything stronger than a statistical definition of "profession". The advantage of both philosophical approaches is that they should find the necessary and sufficient conditions *if they exist*. The philosophical approaches do not settle for a merely statistical definition. The Socratic approach has an additional advantage. It automatically treats a profession as a self-conscious institution. It allows us to understand professions from the "inside", that is, as the professionals themselves understand it. For sociologists, what members of a profession think about their profession, or professions in general, is at best another datum, rather more like the lion's roar to the zoologist than like the opinion of a fellow human being with privileged access to the practice under study. For the Cartesian philosopher, much the same is true. There is no necessary connection between the definition reached and what those it covers think. For a practitioner of the Socratic approach, on the other hand, the perspective of members of professions is crucial (though no more crucial than the philosophers' perspective). The conversation between philosopher and professionals does not end until the professionals are satisfied with the definition.

The conversation need not, however, end with a definition that includes all the groups originally called "profession". The conversation may lead some participants to withdraw their claim to belong to a profession. In my experience, Masters of Business Administration (MBAs) drop their claims for professional status as the

[6] John T. Sanders (1993). Often, those using the philosophical approach avoid this conclusion only by adding morality as a side-constraint. See, for example, Asa Kasher (2005). His conceptions, resting on action theory, would justify the same conclusion about the mafia, p. 70, did he not eventually connect profession with democracy, p. 83ff, its morality providing a constraining "envelope". For another (more plausible) example of the Cartesian approach, see Daryl Koehn (1994). Like Kultgen, Michael Bayles (1981) seems to offer a sociological definition.

definition moves away from the sociological and they begin to appreciate what the physicians, lawyers, engineers, nurses, and so on have in mind. There is nothing canonical about the original list of professions (as there is in the sociological approach). The Socratic approach nonetheless provides a procedure for resolving disputes, something neither the sociological nor the Cartesian does. Individual insights must be incorporated into a single definition on which everyone agrees. The Socratic approach concludes only when there is no live alternative to its preferred definition, a definition that necessarily excludes individual mistakes and even widespread but indefensible prejudices (such as, for example, that MBAs must be professionals because they hold an advanced degree or that masons cannot be because they work with their hands). In this respect, the resulting definition is a product of reason rather than individual or social psychology (what people happen to think).

After many years of applying this method, I have reached the following definition: *A profession is a number of individuals in the same occupation voluntarily organized to earn a living by openly serving a moral ideal in a morally-permissible way beyond what law, market, morality, and public opinion would otherwise require*. For convenience, I shall hereafter refer to this definition as "the Socratic conception" (or "the Socratic definition") though it is technically only a conception (or definition) developed using the Socratic approach and the identical conception might have been developed using the sociological or Cartesian approach.

The Socratic Conception Explained

My purpose in this section is to explain the Socratic conception enough to forestall otherwise likely objections—to provide what amounts to a partial proof of the definition sufficient to satisfy most philosophers and professionals. I will leave to the reader to appreciate most of the differences between this definition and the sociological ones discussed above, but I shall point out a few particularly striking differences as I explain the definition.

I can offer only a partial proof here because a full proof would, in part, include the conversation that led to the conception (something space forbids me to reproduce here even if I had kept a record) but in part too because a full proof must include the reaction of members of the professions and philosophers to the conception once stated. The proof is always hostage to the future. The proof stands as long as members of professions, upon fair consideration, say (something like), "Yes, that's it." They cannot do that here. Since philosophy is not a profession (indeed, not even an occupation, most philosophers making their living as professors), philosophers can only object to this conception as university professors (if they consider that occupation a profession) or on the usual technical grounds on which philosophers would object to a conception of "law" or "democracy". Their objections would begin the discussion again—but they cannot, by themselves, settle the question one way or the other. The Socratic approach does not give philosophers or professionals the last word (though it does give the two groups different roles).

According to Socratic definition, a profession is a group undertaking. There can be no profession with just one member (though there can be a last member, as the

profession dies out). This is one respect in which members of professions differ from mere experts, artists, or other knowledgeable, skillful, or inventive people. Such people can be one of a kind.

The group forming a profession must share an occupation (though its members may be a subset of the occupation rather than the whole).[7] Whether the occupants of a certain collection of job descriptions constitutes one occupation, two, or several is as much a matter of decision as of fact—much as is the amount of hair one must have on one's head to defend against a charge of baldness. To decide, we need to know how similar the skills in question, how much movement between jobs of different descriptions, how similar the work of occupants of different jobs, how different from neighboring occupations the "occupation" in question, and so on. There is usually room for argument—and, often, room even for more than one good answer. For example, for the purpose, say, of membership in the Institute for Electrical and Electronic Engineers, computer scientists may count as belonging to the same occupation as electrical engineers. But, for some other purpose, say, the study of engineering ethics or curriculum, computer scientists may be too different (since they have their own code of ethics and a distinct curriculum). Though occupations do have fuzzy boundaries, their boundaries are not infinitely flexible. Law and medicine will never be one profession; nor will engineering and journalism. The underlying disciplines are just too different.[8]

According to the Socratic definition, the group in question (the would-be profession) must organize to work in a morally permissible way. Where there is no morally permissible way to carry on the occupation, there can be no profession. There can, for example, be no profession of thieves or torturers (since theft and torture are—almost always—morally impermissible). Morality thus limits what can be a profession. Some professions ("professional thief" and "professional torturer") are conceptually impossible. Of course, if morality changes over time, or from country to country, then some professions may be possible in one time or place and not in another.

The moral permissibility of a profession's occupation is one way that, according to the Socratic definition, profession is conceptually connected with morality. There are two others. One concerns "moral ideals". A moral ideal is a state of affairs "everyone" (every rational person at her rational best) recognizes as a significant good. (That the state of affairs in question is a good is shown by everyone's wanting it—at her rational best; its significance is shown by her being willing to help realize it in at least minor ways.) For most professions, stating the distinctive moral ideal (roughly) is easy: physicians have organized to cure the sick, comfort the dying, and protect the healthy from disease; lawyers, to help people obtain justice within the law; accountants, to represent financial information in ways both useful and

[7] A number of occupations seem to have a profession as a subset. For example, financial analysts are divided into those who work as individuals (the non-professionals) and those who claim the status of Certified Financial Analyst (and satisfy the Socratic definition).

[8] Of course, never is a long time. We certainly can imagine two disciplines (law and medicine or engineering and journalism) changing over time until they become enough alike to become one occupation. The point, though, is that such changes would be so radical that neither would be much like the present occupations. We would have the usual problems of distinguishing individuals.

accurate; architects, to build durable, convenient, and beautiful structures; and so on. Health, a comfortable death, justice within the law, accurate financial information, beauty, and the like are goods we all recognize as significant. The moral ideal engineering serves is also easy to state: the construction, maintenance, and improvement of safe, efficient, and useful physical systems (or, in short, the material progress of humanity).

"Moral ideal" is a term of art. Though "ideal" has its usual sense (a good state of affairs hard to achieve fully but worth approaching even a little), "moral" does not. We may, I think, understand morality as consisting of those standards of conduct everyone (at his rational best) wants everyone else to follow even if that means having to do the same. The "moral" in "moral ideal" resembles morality so defined insofar as it involves something everyone wants enough to do something. It differs from morality in not involving a standard of conduct as such but merely an outcome (important enough to be worth doing something to help approach it). The analogy is, I think, close enough to justify the term "moral", especially since such ideals routinely have an important place in moral discussions (as ideals such as the perfect chess opening or perfect orchid do not). But, for those who think otherwise, I am happy to let them substitute another term. What is important is the conception "moral ideal" names, not the name itself.

"Moral ideal" is, I should add, not a mere synonym for "public service". The ideals I just listed are all easily understood as forms of public service. But some are not. For example, the natural sciences typically seek to understand "nature" (different sciences focusing on different parts of nature). They seek the truth about nature without necessarily claiming to serve anyone but other scientists. The truth about nature is a moral ideal if, and only if, we are *all* (at our rational best) interested in knowing about nature, even about parts of nature, such as distant galaxies, knowing about which does us absolutely no good (or, at least, no good beyond satisfying curiosity). That scientists do not seek to serve us all ("the public") is consistent with their in fact serving us all. Not the intentions of scientists but "human nature" (what interests us at our rational best) determines whether the ideal that scientists seek to serve is a moral ideal and therefore whether science can be a profession.

Perhaps I can be a morally decent person without actively serving any moral ideal, but an occupation cannot be a profession unless it serves one. A profession serves its chosen moral ideal by setting (and following) appropriate standards for carrying on its occupation that go beyond what law, market, morality, and public opinion would otherwise require.[9] At least one of those standards must be *special*, that is, something not imposed by law, market, (ordinary) morality, or public opinion. Otherwise the occupation (the candidate profession) would remain nothing more than an honest way to earn a living. So, for example, what distinguish the professional soldier from the mere mercenary (however expert and honest) are the special standards of a professional soldier. To be a (good) mercenary, one need only

[9] There is no need for the moral ideal to be unique. Several professions may share the same moral ideal. So, for example, osteopaths (O.D.'s) seem to have the same moral ideal as physicians (M.D.'s). What distinguish osteopaths from physicians are their special standards, especially their educational standards and standards of practice.

competently carry out the terms of one's (morally permissible) contract of employment, but to be a (good) professional soldier, one must do more, for example, serve one's country honorably even when the contract of employment, ordinary morality, law, and public opinion do not require it.

Some philosophers may object to building morality into a conception of profession. "We should," they might say, "leave the moral status of profession to be settled by argument. Settling the moral question by definition is always a mistake." For those committed to a profession, though, "profession" is a term that carries a moral charge. What the philosophers are suggesting is, a professional might say, like defining "murder" as "an unlawful killing without legal justification or legal excuse" rather than as a violation of the moral rule against killing. The definition may be adequate for some purposes (say, criminal prosecution), but it is fundamentally incomplete; it leaves out precisely what distinguishes murder from other sorts of killing. Methodological neutrality would omit a crucial feature of profession. If we want to understand professions "from the inside", we must regard the demand for neutrality as involving a serious mistake in method (a refusal to consider professions from the inside).[10]

The third way that professions are connected with morality is that their special standards are *morally binding* on every member of the profession simply because of that membership. These binding standards are what constitute the profession's essential organization, not (as many sociologists suppose) its learned societies or regulatory agencies. But how is it possible for standards that are morally permissible but not otherwise part of ordinary morality to be morally binding on members of a profession? That, I think, is the central question in the philosophy of professions. Here is my answer.

Professions must be "professed" (that is, declared or claimed). Physicians must declare themselves to be physicians; lawyers must claim to be lawyers; engineers must say they are engineers; and so on. They need not advertise or otherwise *publicly* announce their profession. There is nothing conceptually impossible about a secret profession, for example, a profession of spies. But even members of a profession of spies would have to declare their profession to potential clients or employers. Professionals must declare their profession in order to earn their living by it. (This is, I think, a conceptual truth—assuming certain general truths about us, such as that we cannot often, if ever, read one another's mind.) Members of a profession cannot be hired as members of that profession—say, chemical engineers—unless potential employers know that they are "chemical engineers" (in the special-standards sense). They cannot, that is, be hired as a chemical engineer if they only claim to know a lot about chemical plants, to have earned a living by designing, managing, or overseeing the maintenance of certain chemical plants for several years, and to be good at it. If chemical engineers have a good reputation for what they do, the (truthful) declaration of membership in that profession ("I am a chemical engineer") will aid them in earning a living as a chemical engineer. They will find appropriate employment. If, however, their profession has a bad reputation (or none), their declaration of membership will be a disadvantage (or, at least, no help).

[10] For an extensive discussion of this mistake in another context, see Davis (1983).

Compare, for example, our response to the declaration, "I am a chemical engineer", with our response to "I am an alchemist". Chemical engineers have proved themselves in a way alchemists have not.

Where members of a profession freely declare their membership, the profession's way of pursuing its moral ideal will be a voluntary, morally-permissible cooperative practice. The members of the profession will be members because they were entitled to be, wished to be, and spoke up accordingly. They may cease to be members simply by ceasing to claim membership.

In general, members of an occupation free to declare membership in the corresponding profession will declare it only if the declaration seems likely to benefit them (that is, serve at least one purpose of their own at what seems a reasonable cost). The purpose need not be self-interested, though it often is; there is nothing to prevent some, or even all, members of a profession entering it, for example, simply to be in a good position to help others in a certain way. If hired (in part) because they declared their membership, members of a profession will be in position to have the benefits of the profession, employment as a member, because the employer sought such-and-such and they declared themselves to be one. They will also be in position to take advantage of the practice by doing less than the standards of the practice require, even though the expectation was that they would at least do what the standards require (because they declared the appropriate profession).[11] If cheating consists in violating the rules of a voluntary, morally permissible cooperative practice, then every member of a profession is—because of that membership—in a position to cheat. Since, all else equal, cheating is morally wrong, every member of a profession has a moral obligation, all else equal, to do as the special standards of the profession require. The professional standards are morally binding much as a promise is.

I am not, I should add, describing the psychology of any individual member of the profession. A particular member of the profession may not know what moral ideal the profession serves. He may not understand the purpose of the discipline he has mastered (though it is hard to practice a complex discipline competently without understanding its purpose). He may have entered the profession because, and only because, "you make good money doing this". He may have no idea why the pay is good—or even care. He has nevertheless undertaken the obligations that go with that good pay. If he fails to serve the ideal in question in the appropriate way, he should be disciplined (that is, brought to understand what the profession requires of him). If he cannot be brought to understand what is expected of him (or, at least, to act as if he does), he may, and indeed should, be expelled from the profession. He is a threat to the profession's reputation—and to the long-term benefits of membership. He is a "free rider".[12]

[11] They are, of course, in position to take advantage of the professional practice, in large part at least, precisely because law, morality, market, and public opinion do not enforce those standards (or at least enforce them effectively enough to make following the standards prudent without the additional moral obligation arising from profession).

[12] In licensed professions, expulsion is simply a matter of withdrawing the license. But in unlicensed professions, such a journalism or university teaching, expulsion is more complicated. Members of the profession must cease to treat "expelled" members as members, for example, by refusing to write letters of reference for them or declining to work with them.

An occupation "professionalizes" by organizing as a profession, that is, by adopting special standards; it "de-professionalizes" (ceases to be a profession) by abandoning those standards. "Professionalism" is (strictly speaking) simply acting as the standards of the (relevant) profession require. To be a "professional" (or "a real pro") is to be a member (in good standing) of the profession in question—or (by analogy) to act as if one were (that is, to act in the way the relevant standards require or, perhaps, should require). Professional standards are, of course, open to interpretation. Part of being a professional is interpreting the relevant standards in ways the profession recognizes as legitimate, for example, interpreting a certain technical standard taking into account the moral ideal it was designed to serve. Conduct is "unprofessional" if it is inconsistent with the profession's standards (properly interpreted). Since only members of a profession are subject to the profession's standards, only they can violate them. Someone not a member of the profession can be a charlatan, mountebank, or impostor, but cannot engage in unprofessional conduct.

Another important difference between most conceptions of profession and this one is that, according to this one, any occupation can become a profession if (a) what it does is morally permissible and (b) it organizes to serve a moral ideal in the appropriate way. Professions as such need not be "learned". (Learning, that is, higher education is necessary only for competence in the corresponding occupation.) In practice, even many morally permissible learned occupations are not professions. Perhaps some are not because they cannot agree on a moral ideal, but most are not because their members (or at least a large number of them) only want to do an honest day's work. They are willing to give up the special benefits of profession to avoid its special burdens. In the US, this seems to be the reason why, for example, the police, though now largely college educated, do not constitute a profession (or, at least, why police disagree among themselves about whether policing is or should be a profession).

Professional standards may, and generally do, vary from profession to profession. There is no reason why the professional standards of engineers should be the same as those of lawyers—or even architects. A profession's standards depend, at least in part, on opinion within the profession and therefore change from time to time as opinion changes. They are, within wide bounds, contingent. A profession's standards generally appear in a range of documents, including admission requirements, rules of practice, and disciplinary procedures. A profession is organized (successfully) insofar as its special standards are realized in the practice of its members, in what they do and how they evaluate themselves and one another.

One of the documents stating professional standards may be (what is often called) "a code of ethics", a formal statement of the most general rules of practice. Yet, while many definitions of profession require such a code as a condition of being a profession, the Socratic definition offered here does not. That omission is important. While a formal code of ethics is a central feature of professions in the US, Canada, Britain, and most other English-speaking countries and has been since early in the twentieth century, few such codes seem to have existed outside English-speaking countries until after the Second World War. I say "almost" because there certainly seem to have been some codes of professional ethics outside the English-speaking world before the Second World War. For our purposes, the most interesting of them

is the code ethics of the Japanese Society of Civil Engineers adopted in 1938 ("Beliefs and Principles of Practice for Civil Engineers"). Perhaps, if we looked, we would find many more such examples.

Determining Whether Engineering is a Profession Here or There

The use of the word "profession" in anything like the special-kind-of-honest-occupation sense discussed here seems to have begun in English-speaking countries only in the last hundred years or so and to have spread elsewhere only in the last 50. There is, I think, little reason to doubt that "profession" (in the sense discussed here) is an English invention much as the railroad engine and parliamentary democracy are—and, like the railroad engine and parliamentary democracy, has spread to much of the rest of the world. Every new thing must be invented somewhere.

Yet some non-English-speaking countries without a (formal) code of professional ethics or their own word for profession seem to have entities otherwise like professions in English-speaking countries. So, requiring a *formal* code or requiring it to apply to something called a "profession" seems unnecessarily Anglo-centric—as well as settling by definition what would otherwise be an interesting empirical question. It is therefore important that the Socratic definition offered here does not require a profession to have a formal code of ethics (or to be called "a profession") but instead instructs us how to determine by empirical research whether a particular occupation is organized in a certain way. What it tells us to look for is the triple connection between occupation and morality just described. It is this complex connection that, according to the Socratic definition (and no other), distinguishes profession from many otherwise similar forms of social organization, such as labor unions, learned societies, and licensed trades.

In many countries lacking formal codes of professional ethics, technical standards incorporate the same standards a code of ethics would in England, Australia, or the US, though implicit in details rather than explicit in the more general terms characteristic of a code of ethics. In those countries, the code of ethics *may*, in this sense, be both in writing and still "unwritten" (that is, not formalized as a "code of ethics"). Whether the technical standards of engineers in a certain country in fact serve as an implicit code of ethics will depend on the attitude that engineers there generally take toward those standards (assuming the standards to be morally permissible and designed to serve the same ideal other engineers serve). If engineers in a certain country regard local technical standards as (primarily) external impositions, the standards count as law, not as an (implicit) code of ethics (whatever their content). If, however, each engineer (or, at least, most of them) regard them as standards they want every other engineer there to follow even if that would mean having to do the same, that is, as part of a cooperative practice, then (all else equal) the standards do constitute a code of ethics (even if an unusually detailed one and even if enacted into law)—and a profession of engineering exists there.

I have informally carried on such empirical research for more than a decade, mostly by asking questions of engineers or professors of engineering I meet in my travels. I have been left with the impression that some countries, such as the Netherlands, clearly have an engineering profession even if their engineers do not

have a formal code of ethics or a term for profession not borrowed from English.[13] I also have the impression that some countries *may* lack an engineering profession. For example, French engineers I questioned seemed to understand themselves as government agents (even if working for a private employer). They served "the state" (*l'état*), not some more familiar moral ideal (such as "the public welfare").[14] They understood themselves as bound by law and morality but not by a code of professional ethics (as I understand that term). Indeed, they initially understood "profession" to be a synonym for "occupation" (even when speaking English) and had great trouble understanding what I meant by "professional ethics". They thought I meant the application of moral theories (what philosophers teach in courses called "Ethics") to engineering. These conceptual difficulties not withstanding, their resolution of practical problems of engineering ethics, including the reasons they gave, seemed to track what engineers in other countries would say. I therefore regard France as an "interesting case" rather than as a clear example of a country with engineers but no profession of engineering.

My impression of Japanese engineers, that is, those reasonably fluent in English, is that they are more like the Dutch than the French, but most of them owe their fluency in English to having had part of their technical education in the US. They cannot count as a good sample of ordinary Japanese engineers. We will not know how far the profession of engineering extends in Japan or elsewhere until we (well, social scientists), go to all those places and ask engineers questions that bring out how they understand their work and their relationship to other engineers. My complaint about research so far done is that researchers asked the wrong questions (questions one or another sociological conception suggested) and therefore discovered much about certain occupations but almost nothing about professions as such.

Understanding engineering as a profession has many consequences for both teaching and research. So, for example, if engineering is a profession everywhere, all engineers (and only engineers) belong to one community, engineering—whether they belong as well to other communities—a country, language group, company, industry, or occupational category ("technologists"). To understand engineers as engineers, we would have to study their profession (as well as their function, discipline, and occupation). If we are to teach engineering ethics, we must take into account not only the substance of their code of ethics but also the special reason a professional has to obey it ("Don't cheat").

[13] While the Netherlands' Royal Society of Engineers was then working on its first code of ethics, the Dutch engineers I talked to seemed to think of the code as explicating what they already accepted rather than as a new standard.

[14] I am assuming that "serving the state" is not a moral ideal. In political philosophy, there is a recent debate about (in effect) whether patriotism is a moral ideal—or, like loyalty or nationalism, morally suspect. Because I'm inclined to think patriotism (properly understood) is a moral ideal, I'm inclined to think that "serving the state" might be too. What is certain, though, is that "serving the French state" cannot be (since most non-French have no reason to care about that ideal). French philosophers might help us understand how to understand "serving the state" so that we can recognize it as moral ideal.

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