

# VALUE-LADENNESS, THEORETICAL VIRTUES, AND MORAL WISDOM<sup>1</sup>

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## INTRODUCTION

Why do we teach more than one ethical theory? Why do we offer arguments that highlight the theoretical advantages and costs of several incompatible theoretical frameworks? Why not just tell the students that Kant was right, gloss over the problems with his view, and create some “true believers” who act according to maxims that conform to the Categorical Imperative? Why do we think that students ought to be able to understand arguments and see value in not *one* but a host of ethical-theoretical-frameworks? The reasons behind our methods here may have to do with lessons from contemporary epistemology, particularly the philosophy of science. Contemporary philosophy of science has shown that science teachers and ethics teachers have something to learn from each other. Ethicists are uniquely trained to provide metaethical understanding of the values which philosophy of science has shown to be at work in scientific inquiry. But science educators can illustrate a model of multidimensional dialectical evaluative reasoning from which ethics teachers across the curriculum can benefit. Given the recent proposal for a post-formalist model of moral wisdom, ethicists in all areas (including Philosophy) stand to gain a great deal from the adoption of a more non-foundational pragmatic/scientific approach to both the introduction and evaluation of ethical theories.

## LESSONS FROM THE PHILOSOPHY OF SCIENCE

### The Traditional Image of Science

Traditionally, the foundationalist project in science has included attempts to find a level of preferred judgments on which to base the credibility of scientific theories. Some candidates for this special status have included those judgments which are “observational,” “perceptual,”

or just “obviously true.” Such judgments have been claimed to yield objective, theory-neutral, certain truths, and thus to ground our scientific knowledge. In *The Structure of Scientific Revolutions*, Thomas Kuhn describes the traditional image of science as issuing largely from a study of finished scientific achievements as they are set forth in scientific textbooks. Scientific development as it is presented there is a process of the accumulation of the facts, theories, and methods that are affirmed in such texts. The traditional image of science presents science as a search for the truth about nature which is inexorably driven by reason toward the acceptance of more and more items in a cumulative catalogue of truths and finally toward *The Truth* about the world; science is teleological and is directed toward the truth as its goal. Furthermore, this search is an objective and value-free one; it takes notice of only the hard empirical data at hand (as against, for instance, mystical, religious or metaphysical speculations). The view holds that the acceptance of scientific theories is based on an unproblematic rational comparison between the theory and the hard empirical data. This process of comparing evidence and hypothesis is held to be unproblematic because of a clear distinction between observational and theoretical statements. Although theories are speculative attempts to explain the observed phenomena, observations are unquestionable and unproblematic; they are simply given. But the history and philosophy of science over the past thirty years have been extremely damaging to the traditional foundational image of science.

### The Myth of the Given Observation

According to the traditional image, observations are unproblematically given as theory-neutral arbiters of which theory we should adopt. The facts are the same facts for whichever theory wants to explain them. But philosophers and historians of science since Kuhn have argued for the acceptance of the theory-ladenness of facts. That is, facts can only be observed from within a theoretical framework; we cannot make theory-neutral observations. Thus, what counts as a fact for us is, at least in part, determined by which theoretical framework we are committed to. The discovery of novel and unexpected facts (facts which don't easily fit into the dominant paradigm) and the invention of new theory to account for those facts are not separable. When a “discovery” conflicts with the dominant theoretical framework, it is not a discovery until the framework has been altered to accommodate it. Since discovering a new sort of phenomena “involves recognizing both *that* something is and *what* it is,”<sup>2</sup>

there was no discovery of oxygen until the concept of oxygen had overthrown phlogistic chemistry.

These claims about theory-ladenness are not confined only to scientific observation statements. A host of psychological experiments justify the extension of the theory-ladenness of scientific observations to the theory-ladenness of the human perceptual process itself. After listing the characteristics which he sees as common to new and unanticipated discoveries in science (i.e. the previous awareness of anomaly, the gradual and simultaneous emergence of both observational and conceptual recognition, and the consequent change of paradigm categories and procedures often accompanied by resistance), Kuhn lays out some evidence that these characteristics are built into the nature of the perceptual process itself. The “anomalous playing card” and “inverted lenses” experiments are meant to serve as empirical evidence that our observations are theory-laden even at the most basic (perceptual) level. After his discussion of the “inverted lenses” experiment, Kuhn concludes that:

The subjects of the anomalous playing-card experiment discussed in Section VI experienced a quite similar transformation. Until taught by prolonged exposure that the universe contained anomalous cards, they saw only the types of cards for which previous experience had equipped them. Yet once experience had provided the requisite additional categories, they were able to see all anomalous cards on the first inspection long enough to permit any identification at all. Still other experiments demonstrate that the perceived size, color, and so on, of experimentally displayed objects also varies with the subject’s previous training and experience. Surveying the rich experimental literature from which these examples are drawn makes one suspect that something like a paradigm is prerequisite to perception itself. What a man sees depends both upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see.<sup>3</sup>

Psychological work with ambiguous figures and optical illusions as well as studies into expectation effects have pointed to the conclusion that all observation statements are theory-laden hypotheses to account for the flux of sense-information. Thus, we are presented with an extension of Kuhn’s work with scientific facts. Not only are scientific facts theory-laden, but all facts, even at the perceptual level, are theory-laden.

What we take as a fact is, at least in part, determined by which theoretical framework we bring to the task of perception.

### The Myth of a Given Method

According to the traditional image, scientific methodology is unproblematic. We simply compare theories with the given facts according to accepted scientific standards and we come up with the best theories we could want to hold. This methodology, it is claimed, will move us inexorably closer to the truth, toward seeing the world as it really is. Well, if facts are theory-laden, then the traditional image of science was wrong about the way we choose between competing conceptual frameworks. We can't simply compare two theories to one independent theory-neutral set of observed facts and then choose the theory that agrees with them. When we are considering large-scale or global alternative conceptual frameworks, there is no set of data that we can agree upon. Each framework will describe the data in its own terms. But if we don't choose between competing conceptual frameworks based upon a flat comparison with a set of theory-neutral facts, then how do we choose? Contemporary philosophers of science argue that such shifts are based upon a comparison of global theoretical frameworks to each other in their relative success at satisfying certain qualities that have been called "theoretical virtues" (characteristics we value in our theories). No scientific theory is perfect. Every one has problems and it is only competition between alternative views that ever actually results in the adoption of a new theory by the scientific community. The credibility or belief-worthiness of a scientific theory is determined by how well it measures up to theoretical virtues like simplicity, explanatory power, coherence, predictive ability, etc.

### The Theory-Ladenness of Methodology

Although there is some overlap and (rather vague) agreement about which theoretical virtues actually guide scientists in choosing between theoretical frameworks, there is much disagreement about the status of these virtues. Are they epistemic virtues? Are they socially relative? Are they merely devices for getting what we want out of science and essentially not connected to the goal of truth?

When we look at the history of science, with an eye to determining the method by which our most rational institution chooses between alternative conceptions of reality, it becomes very difficult to maintain a belief that there is any objectivity or stability to 'the scientific method.' A close examination of the history of science suggests that, like observation, sci-

entific methodology is, at least in part, determined by the commitments imbedded in an accepted scientific paradigm. That is, scientific methodology is theory-laden. Each paradigm gives its followers a view, both of the world and of science itself. Consequently, when scientists shift paradigms they not only “come to live in a different world,”<sup>4</sup> they also come to accept different methods, problems, and standards of solution. Kuhn argues for this theory-ladenness of scientific methodology by citing examples of differences between the methodological practices accepted within different paradigms. He describes how scientists belonging to different traditions use different standards of solution and different methods to solve problems that are seen as important from within their own normal-scientific tradition. Thus, his careful investigation into the actual history of science shows that when scientists come to fully accept the conceptual framework of a new theory, they not only change their views about which objects inhabit their world, but also about which problems are important and which are minor, and about which types of solutions they can accept as legitimate.

### The Value-ladenness of Facts

It follows from the theory-ladenness of methodology that the view of science as a purely value-free investigation of nature is misleading. If what I observe as a fact is in part determined by the theoretical framework through which I view the world, and if which theoretical framework I adopt is in part determined by what I value in theories (by which particular set of theoretical virtues I apply in theory-choice), then which facts I recognize is in part determined by what I value. From the theory-ladenness of facts and the theory-ladenness of methodology, we can infer that all facts are value-laden. The image of science as pure value-free inquiry must be abandoned; there is no understanding nature independently of values. Science is not at all “value-free” and scientists (especially science teachers) need to recognize this fact about the enterprise in which they are engaged. Professional science teachers can look to ethicists in order to try to understand the axiological status of the values they transmit in their work.

Paul Feyerabend concludes from the theory-ladenness of both facts and methods that we ought to proliferate both theories and methodologies.<sup>5</sup> After all, if facts are theory-laden, then there are some facts that are inaccessible from within the currently dominant theoretical framework. Scientific wisdom, then, consists not only in the ability to deploy the dominant framework (being a “true believer”), but also in the ability to

deploy a host of incompatible alternatives, to attempt to understand connections between them, and to see the value choices at work in our adoption of one way of seeing things over another. We arrive at a view of science that is quite comparable to what psychologists are calling “post-formal thought.”

### SCIENTIFIC AND MORAL WISDOM AND POST-FORMAL THOUGHT

According to Piagetian psychological theorists, human cognitive development invariably proceeds through several stages: sensorimotor, preoperational, concrete operational, and formal operational. Formal operational thought is characterized by the ability to think abstractly, and by the ability to employ hypothetico-deduction to test theories in the world. Formal thinking is the most sophisticated stage of Piaget’s theory of cognitive development and is the sort of thinking we see in the most morally mature children according to Lawrence Kohlberg’s scale of moral maturity.<sup>6</sup> A consistent Kantian “true believer” who is able to abstract from the particular interests she may have in a situation before her in order to see the general rule at issue and to follow the Categorical Imperative in her actions would qualify as a competent formal-operational thinker.

But, for the past fifteen years, psychologists who study *adult* development have been describing a kind of thinking they call “Postformal.”<sup>7</sup> The essence of postformal thought is the self-conscious ability to order several systems of formal operations.<sup>8</sup> Postformal thinkers differ from formal operational thinkers in two ways. First, they have the theoretical resources and the ability to deploy more than one conceptual framework in their experience. They can shift back and forth between incompatible alternative conceptual schemes and between different levels of analysis in search of a practical “best fit” between theory and experience. Thus, whereas the formal-operational thinker can correctly apply one particular consistent system of thought in order to see a universal principle at work in the world, postformal thought (in ethics and in science) is marked by a progressive ability to compare and evaluate the relative merits of entire systems of thought.

Second, although they recognize that there are many ways to conceptually order the (moral or perceptual) world and that several incompatible systems may have value, postformal thinkers are able to self-consciously commit to one “best” system in a given situation. This autonomous post-relativist or post-skeptical attitude toward one’s moral

commitments is a sign of the adoption of the kind of postformal thinking in ethics which marks moral maturity. I call this attitude “post-relativist” or “post-skeptical” because although a postformal moral thinker recognizes the limited nature of moral theories (the fact that none perfectly matches our considered moral intuitions, the fact that arguments can be raised for alternatives, etc.) he accepts these limitations and commits himself to a moral position (and ultimately to a course of action) for which the best arguments can be found. Notice that here as in the sciences, some notion of “best” arguments is prerequisite to making a decision about where to stand. And here as in the sciences, what it is that guides moral actors in their choices about what counts as a good argument or what counts as a virtue in his theory is neither wholly arbitrary, nor wholly given. Rather, we construct and determine theoretical virtues in the context of our shared social world. Once again, a self-conscious choice about standards of argument and acceptability of theory is required. Although there is no a priori “best” method either in science or in ethics, postformal thinkers are able to self-consciously choose to commit “the best” conceptual framework available, recognizing that there are incompatible alternative views. In contrast with skeptical or relativist positions, postformal autonomy includes a justification condition in the choice of values within the context of shared standards of evaluation.<sup>9</sup>

Thus, a moral epistemology that recognizes the partial or incomplete or problematic nature of ethical theories is prerequisite to true moral maturity (knowing what it is that we are doing when we take a moral position and act). The student who becomes a “true believer” in some one moral theory or other through a process of ignoring its weak points and the strengths of alternatives, or who is simply not introduced to incompatible alternative views is robbed of three things:

- (1) The ability to recognize or accommodate some moral facts that may be inaccessible from within the domain of his preferred ethical theory,
- (2) A metaethical understanding of the place of his preferred theory in an ongoing dialogue and debate about the right and the good, and
- (3) An understanding of the widely shared but contingent standards of theoretical excellence that allow us to evaluate and argue for incompatible systems of thought.

Moral maturity requires being aware of the failings of ethical theories and the fact that a perfect moral theory is neither within our grasp, nor, perhaps, to be expected. In ethics, as in science, we theorize in an

attempt to bring coherence and unity to our social/moral experience. But if we learn the lessons of contemporary philosophy of science and psychology, we will conclude that moral wisdom consists not only in an ability to apply *one* moral-theoretical framework but also in the ability to deploy a host of incompatible theories. Not to be a “true believer,” but to be post-skeptical (to self-consciously recognize that one is imposing *one* conceptual framework out of many onto the world, knowing full well that there are other systems one might have imposed). It follows, I believe, that moral maturity contains an acceptance of what I can only call “regret” (for lack of a more fitting term). By this word, I do not mean to imply that one wishes one had acted or seen the world differently. Rather, a morally wise person recognizes the value of the road not taken, the losses inherent in our gains; she accepts that there are alternative ways to evaluate actions, and that an alternative view might actually have some advantages or be superior in some ways to the theoretical framework she has chosen to deploy.<sup>10</sup>

#### APPLYING THE LESSONS TO ETHICS ACROSS THE CURRICULUM

In teaching ethics, a foundationalist project analogous to foundationalism in science would attempt to indoctrinate the student into the acceptance of *one* ethical-theoretical-model with which to make judgments about the right and the good. But post-formalist psychologists teach us that moral wisdom consists not in an ability to apply *one* true and correct moral theory, but rather in the ability to deploy *a multitude* of excellent theoretical models and to determine which one is most appropriately applied in a given situation.

Here, it seems, the ethics teacher can learn something from the science teacher. For how do scientists acquire the ‘method’ by which they determine which theory to adopt? There is no rule book that a biologist can pull out to determine which of two theories is superior. Rather, students “pick up” a theoretical virtue set, not through explicit instruction, but through the transmission of implicit models of theoretical excellence in actual examples of theory choice and scientific practice. Theoretical excellence is abstracted from practical examples of theory-choice that are described so that the student can construct an implicit prototype of theoretical excellence.

The goal of unstable reflective equilibrium with regard to a *proliferation* of alternative conceptual frameworks turns out to be the pedagogical ideal for both the ethicist and for the scientist. Indeed,

teaching ethics from an absolutist (foundationalist, formalist) standpoint in the Biology or Anthropology Department would be quite useless in that it would contradict the manner in which students have been trained to evaluate *all* theories. Thus, the same goal ought to guide both the ethics teacher and the science teacher: to create students who are able to see the conflicts between theory and observation (intuition), who, because they *have the pragmatic ability to deploy and evaluate more than one* alternative conceptual framework through which to view experience, have the ability to think “outside the box” into which every theory (scientific or moral) tries to cram experience. This lesson can be instructive for ethics teachers across the curriculum. Given the post-formalist thesis that moral wisdom is a kind of ability to view situations through a variety of theoretical-lenses (models), how can students of ethics acquire a method by which they can determine how to judge the morality of an action? They can learn a slew of theories and “pick up” an ability to evaluate these models in the same way that students of biology “pick up” the so-called scientific method. The point, then, of teaching ethical theories when we teach ethics across the curriculum is not to lead students to adopt *one* ethical theory (at present, we have no clearly dominant theory), but rather to give the student the ability to deploy a host of theories and to see (and evaluate) pragmatically “across” theories. Instruction should, therefore, necessarily involve a constant re-examination of the relative coherence and conciliation of ethical theories with the student’s moral intuitions. Such a process simultaneously implicitly transmits the same sort of theoretical-evaluative tools (theoretical virtues) that are at work in scientific education.

## NOTES

<sup>1</sup>Originally presented at the 2000 conference of the Society for Ethics Across the Curriculum in Salt Lake City, Utah. My thanks to the conference participants for their many helpful comments and criticisms.

<sup>2</sup>Kuhn, Thomas, *The Structure of Scientific Revolutions, Second Edition* (Chicago, University of Chicago Press, 1970), pp. 55. All further citations of this author refer to this work.

<sup>3</sup>Kuhn [1970], pp. 112-113.

<sup>4</sup>Kuhn [1970], p. 111. Kuhn says: “Examining the record of past research from the vantage of contemporary historiography, the historian of science may be tempted to exclaim that when paradigms change, the world itself changes with them. Led by a new paradigm, scientists adopt new instruments and look in new places. Even more important, during revolutions scientists see new and different things when looking with familiar instruments in places they have looked before. It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light and are joined by unfamiliar ones as well. Of course, nothing of quite that sort does occur: there is no geographical transplantation; outside the laboratory everyday affairs usually continue as before. Nevertheless, paradigm changes do cause scientists to see the world of their research-engagement differently. In so far as their only recourse to the world is through what they see and do, we may want to say that after a revolution scientists are responding to a different world.”

<sup>5</sup>Feyerabend, Paul, “How to be a Good Empiricist” (1963), reprinted in H. Morick, (ed.), *Challenges to Empiricism* (Belmont, CA, 1972).

<sup>6</sup>Kohlberg, Lawrence, *The Philosophy of Moral Development: Essays on Moral Development Volume I* (San Francisco, Harper and Rowe, 1981).

<sup>7</sup>Commons, Sinnott, Richards, and Armon (eds.), *Adult Development Volume 1: Comparisons and Applications of Developmental Models* (New York, Praeger Publishers, 1989), Sinnott and Cavanaugh (eds.) *Bridging Paradigms: Positive Development in Adulthood and Cognitive Aging* (New York, Praeger Publishers, 1991)

<sup>8</sup>Sinnott, Jan D., *The Development of Logic in Adulthood: Postformal Thought and its Applications* (New York, Plenum Press, 1998)

<sup>9</sup>Armon, Cheryl, “Individuality and Autonomy in Adult Ethical Reasoning” in Commons, Sinnott, Richards, and Armon (eds.), *Adult Development Volume 1: Comparisons and Applications of Developmental Models* (New York, Praeger Publishers, 1989)

<sup>10</sup>When I use the word “chosen” here, I do not mean to imply that we always experience moral observation as a choice to impose some system onto moral experience. Phenomenologically, it often seems that the moral qualities of a situation force themselves upon us. (How could I fail to see the institution of slavery in terms of the violation of rights rather than in terms of the optimization of utility?). But if we have learned the lessons of the philosophy of science, we will recognize that there is always the imposition of a value-set in any observation of the world, perceptual or moral.