

Normative Political Science - as Constituted by the Formal Axiology of Robert S. Hartman and David Easton's Concept of the Political System

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Abstract

What is a good political system? Using the Formal Axiology of the philosopher of science, Robert S. Hartman, and David Easton's concept of the political system, political scientists can now *empirically and quantitatively* assess the goodness of any political system in the world. Goodness can be measured according to the degree to which an actual political system fulfills the concept of a good political system, as that concept is defined by political scientists. Assessments can be made by assigning a numerical value to each of the elements in the definition of the good political system, and then quantifying how well actual processes fulfill the definition for them.

Political systems can be compared, and determinations made as to which is 'good,' 'better,' and 'best' – or 'worst.' Thus, political science would entail the study of both facts and values.

Areas that fall short can be identified, and the causes of their unsatisfactory status can be determined. Then recommendations for remediation can be offered. In this way, the profession will have a pure research division and an applied division.

With Formal Axiology, the Humeian positivistic Fact/Value division is bridged. Using Hartman's Value Calculus, the study of values is made as rational and precise as is the study of facts. Much of the subjectivity of political science value judgments is removed. The profession can now have a methodological paradigm that could unite the current empirical/normative division and give a new focus to research.

Political science can then be defined as the profession which examines and assess the goodness of political systems.

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Comments are welcome.

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Introduction

In the 22 centuries from Aristotle to Galileo, man's way of life, and knowledge of nature, changed very little compared to the explosion of invention and discovery in the mere four centuries since Galileo.

According to philosopher of science, R.S. Hartman, Galileo empowered humanity to make such progress when he "created the empirico-mathematical world picture;" that is, the worldview of natural science.¹ During the Scientific Revolution, the European sense of reality was transformed from a dream-like condition under the control of "God's Will," and which only He could fully understand, to sets of processes which could be understood and explained in precise mathematical formulas.

Natural philosophy, prior to Galileo, offered "explanations" of natural phenomena, but without much precision. For example, Aristotle defined "movement" as "the transition from potentiality to actuality." This was accepted and studied for centuries. But Galileo re-defined "motion," so that it became mathematically measurable. Rather than the vagaries of "realizing potential," Galileo offered the formula $V=s/t$. He showed that by measuring the space (s) traversed by an object, and the time (t) it took, a precise measurement of speed, or velocity (V), could be calculated. Now motion was much less a mystery. Hartman notes that "Galileo's formula led to a multitude of consequences; [eventually including] the systems of Newton and Einstein."² Galileo thus changed the way of thinking about nature from vague philosophical speculation to a method applying precise formal analysis and explanation. That shift in the way of thinking made possible all that followed.

In *The Structure of Value*, his main book, Hartman calls for a similar shift in the way of thinking about the value realm. His "Formal Axiology" makes this possible. While his examples tend to focus on "moral philosophy" and ethics, his Formal Axiology is fully applicable to the social sciences. His conception of "the value sciences" now possible includes a science of ethics, and new understandings of psychology, political science, sociology, economics, and more.

Social science, according to Hartman, is in a pre-scientific state.³ That is, the social sciences have yet to formulate a method worthy of the name "science." To justify this assertion, Hartman not only shows what is required to become a "science," but, as we will see, *provides* what is necessary for the social sciences to become just as "scientific" as the natural sciences. After discussing the three elements of Hartman's Formal Axiology, we will show how this can change social science, and particularly make political science a value science.

¹ *The Structure of Value*. University of Southern Illinois Press, 1967, page 71.

² *Ibid*, 34-37, 86.

³ *Ibid*, 47.

Part I: The Essentials of Formal Axiology

There are three basic parts of Formal Axiology: the Value Axiom, the three dimensions of value (which define the value realm), and the Value Calculus. Together these make possible the value sciences, which include the social sciences. While it may seem difficult to understand at first, due to its unfamiliarity, upon sufficient reflection, the reader will come to see that Hartman's system truly can make researching and analyzing values as precise and illuminating of value reality as any natural science is about its subject matter. Just as the chemical formula for "water" is H²O, so Formal Axiology has the capacity to make the structure of values and of valuing equally as precise. Because formal Axiology promises so much, it is worthy of careful consideration.

The Axiom of Value

The first part of Formal Axiology is the Value Axiom, or the definition of "good." Hartman defines "good" as conceptual fulfillment. That is, a thing is a good such thing if it fulfills the definition of its concept, or classification. For example, suppose we define a "chair" as an object with a back, a seat, and four legs. Then we look around the room and find just such an object. By matching the thing with our conception of it, we know at once that it is a chair. Beyond the initial identification of the object, we can also formulate a judgment as to how good of a chair the thing is. We can add to our specifications for the goodness of a chair by requiring that it has padding, or can rock, or can be folded and stored away. One chair can be compared to others. Then, using our conception of a good chair, we can make assessment about which chairs are "better," or "worse," or "average," and "best," etc.

We can assign a numbered scale to the predicates in our definition, and measure exactly how much better or worse one chair is compared to another. Suppose we say that on a scale from 1 to 10, a three foot high seat is worth 5 points. A tilted back is worth 6 points, while a straight back is only worth 2, etc. As an imaginary illustration, suppose that newly weds, Mary and John, go shopping at a furniture store, using the criteria we have discussed. They compare several sets of chairs, adding up the points for each set. Then Mary spots a set of chairs that not only measure up, but that she just loves, and must have.

The Dimensions of Value

As to the second element of Formal Axiology, this Mary and John scenario illustrates what Hartman calls the three dimensions of value. These are the extrinsic, systemic, and intrinsic. In the *extrinsic* dimension, object and conception are matched together. As we have seen, this process can result in measurable degrees of goodness.

In the *systemic* dimension of value, only identity is considered. An object is a "chair" or it isn't. Beds and tables weren't on John and Mary's shopping list today. The systemic entails the process of classification, or taxonomy. Identifying

a thing is the first step taken before the more elaborate measurement of degrees can be undertaken.

The *intrinsic* dimension of values is in the realm of feeling rather than in the more rational realm of measuring degrees or of making either/or judgments. Mary's love of the set of chairs she and John bought can't be quantified or even fully explained. The chairs just fit her aesthetic sensibility, and the vision of how she wanted to decorate her living room. They also remind her of her happy childhood, and her holiday visits to Aunt Jane's house.

The Value Calculus

The third element of Formal Axiology is the more formal part, the Value Calculus. Here is the computational aspect that makes precise value sciences possible. Hartman developed a system of notation using the letters S (systemic), E (extrinsic), and I (intrinsic) to represent the three dimensions of value as categories. The Value Calculus also uses the same letters as ways of notating how the object in the categories is being valued. To illustrate this computational system, let us follow John and Mary as they shop.

When Mary was shopping she first scanned the store's inventory to identify which objects are chairs or not. Since chairs are things, they are in the extrinsic value category. Her classifying of things as chairs or non-chairs is a systemic valuation of them. In the Value Calculus, this would be notated as E^S . This is read as "E power S," or the systemic valuation of an extrinsic value.⁴ Mary's love of the chairs she and John bought can be notated as E^I ; or, E power I. That is, the intrinsic valuation of an extrinsic value. Most of the chairs she saw, she felt indifferent to; hence, there was no valuation beyond the quick systemic valuations she made to identify the objects as chairs or not. Some of the chairs were so ugly, in her estimation, that she just hated them. This valuation would be notated as E_I ; or, E sub I – the intrinsic disvaluation of an extrinsic value.

Value Calculus Realism

Hartman's Value Calculus takes a realistic, or fact-based, view of the world. People have and act upon values. Value scientists will seek to understand what those values are, and to analyze their structure. That empirical orientation is why the Value Calculus can serve as the formal side of the yet to be developed value sciences. To illustrate this realism, suppose that after church on Sunday Mary comments to her friend, Jane, that there are three things she loves most in the world. These are God, her new husband John, and her old dog Fido (no kids yet). How would a value scientist notate these value situations, or instances of valuing?

Since the science of value has an empirical orientation, God is seen as a conception in Mary's mind; hence, notated as S. Since she loves God, the

⁴ Read left to right when reading the letters, and right to left when using the words.

valuation is intrinsic, or I. The Value Calculus formula for this is S^I – read as S power I; or, as the intrinsic valuation of a systemic value.

As to Mary’s valuation of John, the Value Calculus has a special rule: persons, and only persons, are always notated as I in the initial position of the Value Calculus formula. So her love of John is notated as I^I – I power I; or, the intrinsic valuation of an intrinsic value. Since Fido is a non-human organism, or a thing in the world, his initial value category is E, an extrinsic value. Hence, E^I – read as E power I; or, as the intrinsic valuation of an extrinsic value. Comparing value structures and trying to account for the similarities and differences will one day be a regular part of practicing value science.

Instances of valuing can be far more complex than this illustration of Mary’s feelings. So, the Value Calculus uses “nesting” to notate further permutations of value. For example, notice that the formula for Mary’s love of Fido has the same value structure as her love of her new chairs: E^I . But suppose Mary protests that she loves Fido even more than her chairs because he has life, and the chairs are inanimate objects. So Mary’s love of Fido as a living organism requires a different value structure than her love of the chairs. Since “life” is a conception, which adds value to Fido, a different formula can be used: $[E^S]^I$; or, the intrinsic valuation of the systemic valuation of an extrinsic value. I.e., Fido is an organism $[E]$, enhanced by life $[E^S]$, all of which Mary loves; hence, $[E^S]^I$.

Take another example: Mary has surgery to remove the mole on her nose, and is delighted with the results. From the value scientist’s point of view, the value structure of this situation is, $[I^E]^I$. The doctor operating on Mary to improve her looks is marked as I power E, because Mary is an intrinsic value being acted upon, and action is an extrinsic value. Mary’s delight with the results is an intrinsic valuation of the doctor’s extrinsic valuation of her. So, this more complex formula is read as I power E power I; or, the intrinsic valuation of the extrinsic valuation of an intrinsic value.

In the Value Calculus, superscripts represent what Hartman calls “compositions” (positives) while subscripts are for “transpositions” (negatives) of value. For example, Mary hated that mole on her nose. The mole is an extrinsic value, and her hate for it an intrinsic disvaluation. The formula: E_I ; read as E sub I, or an intrinsic disvaluation of an extrinsic value. This is the same value structure as her disdain of the ugly chairs in the furniture store.

Hartman writes, in *The Structure of Value*, that “There are nine compositions and nine transpositions of the three value categories.”⁵ That is, each of the S, E, I categories of value can be valued with a positive or a negative systemic, extrinsic, or intrinsic valuation. By notating an S, E, I valuation subscript or superscript in connection with a value category, a “secondary value combination” is created.

⁵ Ibid, page 274.

There are, then, 18 (and only 18) possible secondary value combinations, as follows:

Compositions: $S^S, S^E, S^I; E^S, E^E, E^I; I^S, I^E, I^I$

Transpositions: $S_S, S_E, S_I; E_S, E_E, E_I; I_S, I_E, I_I$

As the examples of Mary and John show, nesting, or bracketing, begins with tertiary combinations. There are “108 [possible] tertiary value combinations.” Using a double nest, there are “648 quaternary combinations, and so on.”⁶ Theoretically, there is no end to the complexity of Value Calculus combinations for illuminating value situations. In the future, computers will be able to work out extremely complex value structures.

The Threat to Religion-based Morality

In a nutshell, then, this is Hartman’s Formal Axiology. It is the foundation, or computational framework, for the development of value sciences, but it is not value science in itself. Particular value sciences will have to be founded by pioneering thinkers. Hartman wrote that a new science of “ethics” will be developed unlike any of the existing ethical theories that philosophers and religious partisans have been arguing over for centuries. Value science, he hoped, would “secularize ethics,” and displace religion, superstition, and the current variety of ethical philosophies with an empirically based scientific method of thinking about ethical values.

Hartman was fully aware of the threat Formal Axiology is to religion as a moral authority in the world today. He wrote that just as Galileo’s use of a formal system brought “revolutionary changes ... in [pre-scientific] natural philosophy ... the transition to moral science [will bring] radical changes in moral philosophy.”⁷

Hartman envisioned a scientific ethics that would eventually displace religion as an authoritative, but not authoritarian, source of moral advice. He was aware, as we all are, of the shameful wars that dogmatic and fanatical religions sometimes engage in against one another. Each side believes itself in possession of The One Truth, and therefore Morally Superior to apostates, infidels, and the heretics in the opposed religions. In the value structure of such deadly conflicts, ideas and doctrines are regarded as more important than the real human beings who are murdered in the name of such “Truths.” Indeed, such murder is considered “moral” by the Believers. But the Value Calculus can expose this hypocrisy.

Killing a person in the name of a religion is formulated as $[I_E]^S$; or, the systemic valuation of the extrinsic disvaluation of an intrinsic value. The religious warriors think (S) it is “a good idea,” or morally honorable, to kill folks with different views. But the formal structure shows that no matter how good one pronounces such killing to be, the disvaluation of a person is contained in the self-delusion

⁶ Ibid, page 279.

⁷ Ibid, page 14.

that the act was a purely positive act. Thus are religious warriors confronted with the Real Truth, the Truth of Formal Axiology. Using the Value Calculus, ideas are never more important than people. Hartman wrote that Formal Axiology “thus helps expose the real evils – the disvalues posing as values – of our civilization ... which are chronic diseases of the so-called Christian world and which arise from its inverted hierarchy of values.”⁸

No Moralizing in Value Science

As Hartman intended it, when “good” is defined as conceptual fulfillment, then goodness can be measured on a scale from good, to fair, to not good, or bad. A “bad” chair, for example, is one that collapses when you sit on it. Hartman’s use of the words “good” and “bad” are descriptive of measurements based on defined concepts, or expectations. In Formal Axiology, these words are as completely free of any moralizing connotations as are the degrees measured by a thermometer. Temperature extremes may cause people some discomfort, but few people would call them “evil,” or “morally bad.”

As an example of the non-moralistic perspective in value science, a murder can be “good.” That is, if a “good murder” is defined as “the unlawful killing of another person without leaving any evidence behind,” then one murder can be *better than* another. A “bad” murder would be one at which the murderer left behind his business card and a video tape of him committing the crime. The value structure of murder is I_E ; the extrinsic disvaluation of an intrinsic value. In the Value Calculus, killing a person is *always* the extrinsic disvaluation of an intrinsic value. This is not a moral position, but an axiologic formula. So, in the value sciences, a “good murder” does not make murder good.

In contemporary jurisprudence, a homicide can be justifiable. The value structure of a “justifiable homicide” would be $[I_E]^S$ – the systemic valuation of an extrinsic disvaluation of an intrinsic value. While the same value structure as killing in the name of a religion, a justifiable homicide is free of self-deception because it recognizes the disvaluation of the victim, but excuses the wrongdoer from punishment.

The value structure of the moral disapproval of killing a person is $[I_E]_S$; the systemic disvaluation of the extrinsic disvaluation of an intrinsic value. This is the same value structure of a conviction for murder under the law. This scientific detachment from moralizing is another way that value science is to be distinguished from moral philosophy. Indeed, each of the value sciences would have its own field in which the “good” would be analyzed.

Hartman predicted that among the coming value sciences would be a new form of political science which could become an authoritative, but not authoritarian, source of public policy wisdom. Indeed, he outlined 18 different specializations of the value sciences that Formal Axiology makes possible. Among these are a

⁸ Ibid, page 276.

new form of aesthetics, economics, psychology, sociology, epistemology, jurisprudence, and literary criticism – all yet to be developed.⁹

The Organization of the Sciences

Formal Axiology is intended to provide the formal system for the value sciences like mathematics provides the formal system for the natural sciences, such as astronomy, biology, chemistry, and physics. Hartman envisioned an organization of the sciences, which includes both the natural sciences and the value sciences. The following discussion of this vision will enable us to deepen our understanding of Formal Axiology and its implications for social science.

In a very basic sense, science begins with the human commitment to use Reason to understand and explain the world as it is. From this basic commitment follows the requirement to submit all thinking to the rules of Logic; for, if Reason is to be used then its only proper use is to reason logically. Thus, Logic governs the reasoning processes for all sciences. The following Organization Chart for Science shows a hierarchy of governance. That is, the rules of Logic govern the rational processes in both Mathematics and Formal Axiology. Each of those governs the methods used in the two columns of their respective lesser included fields.

- A:Logic.....
- B: MathematicsFormal Axiology
- C: Natural Science Value Science
- D: Biology, Physics, etc Ethics, Psychology, etc.
- E: Actual Phenomena, or Subject Matter, of the sciences

This chart shows that what mathematics is to natural science, Formal Axiology is to value science. For Hartman, Natural Science (line C, left column above), following Galileo and others, is *an interpretative framework* with a formal system based on mathematics and applied to the phenomena of nature. This empirico-mathematical approach is used to understand and explain the natural world through its fields of specialization, such as Biology and Physics (line D). This framework owes much of its success to its “isomorphism” with the subject matter cut out by each field.¹⁰ The formal structure of mathematics seems to follow the actual processes of nature.

Hartman offers his “axiomatic interpretative framework” for Value Science. This framework is comparable to the empirico-mathematical approach in its analytical power and precision. It is to be distinguished from that approach, however, because, it is isomorphic with the value realm. That realm is, broadly, within the universe of meanings in the minds of people, rather than in the natural world around people. Hartman observes that the phenomenal field of values consists generally of people with their likes and dislikes, notions of good and bad, just and

⁹ Cf. Id., page 311.

¹⁰ Ibid, page 107.

unjust, “loving and hating, being thrilled and bored, happy and unhappy.”¹¹ Because the value sciences attend to a different subject matter than the natural sciences, the empirico-mathematical point of view is inapt for the value sciences. (Of course, math has uses in the social sciences, such as in statistics. But for understanding the essential structure of the value realm Formal Axiology will illuminate, while mathematics cannot comprehend that realm.)

The methods of natural science are well developed, and their fields have been well defined by their respective founders, such as Lavoisier in chemistry, and Galileo, Newton, and Einstein in physics. But parallel pioneering work is yet to be done in the value sciences. Hartman often says he has only laid the formal ground work for the value sciences (just lines B in the right column above), others will have to carry on. We will discuss how to undertake such innovation later in this essay.

In the social sciences today the borders between fields are indistinct. There is much overlap as, for example, sociology spills over into political science, and each uses psychology, which is also used in economics. But as new founders emerge to show how their fields of expertise connect with Formal Axiology, each social science will have borders as distinct as those between biology and physics are today. Each new social science will develop its own frame of reference with its own subject matter, cut from the value realm, and connecting to Formal Axiology as biology and physics connect in their own way to mathematics. These pioneers will enable the explosions of invention and discovery in the value realm like we have seen in the natural sciences. Just as the biology/medicine/public health complex has contributed enormously to improving the human condition, so new understandings in personal and social ethics, in psychology, political science, and other fields in the value realm will enrich the human experience. Indeed, Hartman presents Formal Axiology as the foundation upon which a “Second Scientific Revolution” will be launched.

The Primary Axiological Fallacies

At least four axiological fallacies follow from the Value Axiom; viz, that “good” is that which fulfills the definition of its concept, or classification. Referring to our Organizational Chart will help to clarify these fallacies. They consist of logically confusing different methods and levels of generality. As noted above, for Hartman, Logic (Line A) governs both Mathematics and Formal Axiology (Line B), which govern their lesser included parts (Lines C and D).

The Metaphysical Fallacy occurs on Line B. An example of this is when “the mathematical frame of reference of the natural sciences is confused with the axiological frame of reference of the moral sciences [including the Value Calculus of Formal Axiology].”¹²

¹¹ Ibid, page 77.

¹² Ibid, page 123. For a discussion of writers on Formal Axiology who blindly commit this fallacy, see my note 18, below.

The Naturalistic Fallacy, the second in Hartman's list, occurs on Line D. (He takes the term from G.E. Moore, but gives it his own meaning.) Generally, for Hartman, it is the confusion of specific frames of reference within one of the two general divisions of science, Natural and Value. For example, the natural sciences consist of specific frames of reference, such as biology, physics, astronomy, etc. as in the left column on Line D. Before natural science matured, there was frequent confusion of such frames of reference as astronomy with astrology, and theology and alchemy with a variety of what became the natural sciences.

Maturity awaits the value sciences. "In our day we still lack general knowledge of the frames of reference of the specific axiological sciences."¹³ Thus, there is much confusion, such as between "ethics and psychology." Developing the axiological sciences will require clarifying the borderlines of its various fields. This is work yet to be done.

Third, **the Moral Fallacy** confuses general with specific frames of reference, "for example the mathematical with the physical, or the axiological with the moral." While now infrequent in the natural sciences, it is "extremely frequent" in moral thinking. It occurs "when value in general or axiological value is confused with a specific value, such as goodness in general [Line B] with moral goodness [Line D, e.g., Ethics]."¹⁴ As discussed above, axiologically, a murder can be a "good murder;" that is, one which leaves no evidence implicating the murderer. But this does not mean that murder is morally good.

The Fallacy of Method is forth. It "is the confusion between the frame of reference – either general or specific – and the subject matter of a science."¹⁵ In other words, any confusion of Lines B, C, or D with the actual subject matter of the natural or value sciences, Line E, commits the Fallacy of Method.

To say that "science is empirical," in the sense of being only about the physical world, confuses one characteristic of the subject matter of natural science with science in general. Actually, "science" is a big tent that includes both the empirical and the valuational. Indeed, "science in general is a method and has nothing to do with any specific content; if there is a formal frame of reference applicable to a set of objects, then there is a science."¹⁶ The many variations of this Fallacy share the failure to see that there is a logical difference between method and matter, or "form and content."¹⁷

¹³ Ibid, page 124.

¹⁴ Ibid, page 125.

¹⁵ Ibid, page 126.

¹⁶ Ibid, page 127.

¹⁷ Ibid, page 128.

Components of the Value Calculus

As we have seen, there are three primary components of the Value Calculus. These are: i) the initial position, in which the object of valuation is notated, ii) the valuation of that object, and iii) nesting, or bracketing, as a way to show complex valuations.

We noted earlier that because value science is empirically oriented, or realistic, God is classified as a conception in the minds of people. As such, God is a systemic value (which can be valued intrinsically by believers). Things, activities, and processes are extrinsic values. We also said that placing an individual person, and only an individual person, in the initial position as an I, or intrinsic value, is a rule of operation for the Value Calculus. But this rule might be misunderstood as taking a sort of moral position, which would appear to be inconsistent with the scientific aspirations of Formal Axiology.

Therefore, we must address the question as to why the I-value in the initial position of the Value Calculus is reserved only for persons. In other words, why did Hartman treat people in the Value Calculus as categorically unique in value compared to any other living creature, or any thing, or any idea? It appears that Hartman has built the seemingly moral principles of *honor* or *respect* for the individual person into the Value Calculus. But how can this be justified?

Hartman wrestled quite a bit with the problem of justifying a special spot for persons. He agreed with Kant, who wrote that *respect for other people* means that they should be treated “as ends in themselves, and not as means to an end.” Kant’s doctrine has been widely accepted intuitively by people for over two centuries, although often violated.

Hartman also offered his own speculative argument, or “proof,” of the infinite value of persons, as opposed to the limited value of extrinsic and systemic values. In short, besides agreeing with Kant, he also agreed with Aristotle’s understanding of “man” as “the rational animal,” and made human reason, or thinking power, one of the bases for the special category of persons as intrinsic values. Of course, this special category for persons in the Value Calculus creates another point of contention with those religions with the dogma of “Original Sin.” In that view, being born “sinners” disqualifies persons from any special valuation.¹⁸

Although Hartman did not discuss this, there may be reasons in human evolution why Kant’s valuation of persons as ends rather than means resonates so widely

¹⁸ See Formal Axiology: Another Victim in Religion's War on Science, http://www.academia.edu/4545325/Formal_Axiology_Another_Victim_in_Religion's_War_on_Science ; Rem Edwards Reply, http://www.academia.edu/4755482/RESPONSE_TO_WILLIAM_KELLEHER_BY_REM_B_EDWARDS

among people. In my book, *Progressive Logic*,¹⁹ I discuss the theory that because the human brain evolved in groups, mate selection may have favored group members with more sociable or contributive orientations, such as those who were more respectful of others, helpful, useful, cooperative, or altruistic, and disfavored the more malevolent, selfish, less cooperative types. This selectivity could have bred a moral sense in humans. Thus, our brain could have genes tugging at our thoughts, pulling them ever so slightly in the direction of granting positive regard to others, unless experience teaches us to act otherwise. For example, repeated bad experiences with strangers could result in the cultural practice of distrusting outsiders.

In modern society, except for some lawyers and insurance agents, most folks would likely agree that, aside from business and legal affairs, intuitively “you can’t put a price on a human life,” at least not as a universal measure. Since the value of a person’s life cannot reasonably be quantified, and no limit can be put on it, Hartman sometimes used the term “nondenumerable infinity” for a person’s value. In this sense, the term “intrinsic value” refers to the special category of persons, whose value is immeasurable. Thus, he is not saying that all persons “ought” to be valued intrinsically, but only that for the Value Calculus this is the most fitting category for persons, who are of immeasurable worth.

While Hartman does not say this, it seems that another weighty, and practical, reason for giving persons a special category in the Value Calculus is that doing so enables the calculus to work. In other words, it is an intellectual commitment in the same sense that the commitment to “zero” is necessary for mathematics to work. Nobody has ever seen, touched, or measured “zero,” or nothing, but the concept is a necessary *a priori* condition for a useful mathematics.

People might reasonably disagree that persons universally deserve a special and exclusive spot in the Value Calculus, but without it there can be no Value Calculus for Formal Axiology. Intrinsic value in this sense is like a marker reserved for persons, who are not a means, or an extrinsic value, but only an end in themselves. This marker for the Value Calculus does not mean that folks cannot, or should not, regard others with disrespect, contempt, dislike, or even hatred. But those are valuations *about* the I-value category. Such valuations do not define the category itself, which is built into the Value Calculus. Kant’s doctrine, then, can simply be taken as a rule of operation for the Value Calculus.

Facts and Values

Someone who is skeptical about the scientific aspirations of Formal Axiology might evoke the contrast between “facts” and “values.” Since the philosopher David Hume, the opinion has been widely shared that these two concepts are different in kind. Facts are considered amenable to rational understanding, but values are forever relegated to the realm of emotion, social conditioning, irrational dogmatism, or the state of one’s digestion. But with hindsight it

¹⁹ *Progressive Logic*. The Empathic Science Institute, CA 2005.

becomes clear that Hume was committing the Fallacy of Method. That is, he failed to see that the phenomena of *valuations* in daily life are the subject matter, to be distinguished from the scientific point of view used to understand and explain those valuations. As Hartman writes, “The value dimensions follow each other in experience in any order. But they can be recognized only when their theoretical order is known.”²⁰ In other words, with Formal Axiology on a par with Natural Science, values and facts are equally amenable to rational understanding.

Hartman goes on to show a *logical similarity* between facts and values that would surprise Hume and those who think like him about the fact/value distinction. Addressing himself to philosophers of science, Hartman goes into great detail, using symbolic logic, to demonstrate the similarity. But the primary distinction he makes is not too difficult to grasp. Simply consider the difference between these two formal statements: “x is a C,” and “x is a good C.”²¹ “C” is a classification, or category. To say “x is a C” is to make the judgment that “x” fits in, or belongs within, category “C.” To say that “x is a good C” takes a step further by judging that “x” fits category “C” well.

The first conclusion is a systemic valuation. The second conclusion is an extrinsic valuation. Thus, insofar as facts are known by taxonomy, or classification, they are first known by a systemic valuation: either “x” is such a thing, or it is not. Conversely, before the *goodness* of a thing can be known, its classification must be established as a matter of fact. Extrinsic “valuation is based on classification.”²² Thus, factual determinations are necessarily prior to extrinsic valuations. One must know the kind of thing at hand before one can assess the degree to which it is a good such thing. “We have here the razor sharp, razor-thin distinction between fact and value.”²³

Both formal statements relate “x” and “C” by the logic of entailment; that is, that “x” is entailed by “C.” But the factual statement merely *assumes* that “x” is good enough to be classified as a “C,” while the valuational statement more directly examines the value elements. These are: i) the requirements for belonging to that classification (its predicates), ii) the actual properties of “x,” and iii) how well “x’s” properties satisfy “C’s” membership requirements. By this logical operation, “value has been added to its factuality.” Now we can see that “the factual set of descriptive properties is normative for the value field.”²⁴ Hartman then discusses what value terms like “good,” “fair,” “bad,” etc. can mean. Count the essential requirements for membership in a category. Then

²⁰ Ibid, page 265.

²¹ Ibid, page 157.

²² Ibid, page 170.

²³ Ibid, page 157

²⁴ Ibid, page 304. Because measuring goodness involves matching the *actual properties* of a thing to the predicates in the definition of its concept, Formal Axiology is necessarily empirically oriented.

count the number of elements a thing has which satisfy those requirements. Quantity gives rise to quality.

Superlatives and comparatives can also be quantifiable axiological terms. For example, x is the best C; y is the worst C; and, p is a better C than q, etc. This method enables words that express value relations to have precise meanings. For example, “better than,” or “worse than” can be distinguished quantitatively. One can say, for example on a scale from 1 to 10, exactly why, as a C, x is better than y.

The term “ought,” then, can be given a morally detached, scientific meaning. If an extrinsic valuation shows that the thing under consideration lacks properties p and q, then as a matter of measurement, it “ought” to have those properties to be fully a good such thing.

Part II: Moving from Fact to Value in Political Science

Unifying Political Scientists

Understanding the mutual relations between fact and value, and the measuring capacity of fact for value, is crucial to the development of any particular field of value science. The social sciences, as new value sciences, will be dependent upon established fact in order to carry out their task of value measurement. To illustrate this point, we will now consider how a particular social science, political science, can be integrated into the formal system of Formal Axiology. Since the following discussion is meant only to be illustrative, some informational statements will be left unsubstantiated for the sake of brevity.

As a profession, political science is far from being a unified epistemic community. There are some huge methodological divisions. Some argue that statistics gathering is the central business of political science as a science, because statistical operations are repeatable and therefore verifiable. But others argue that statistics alone do not explain behavior, which is the central aim of any social science. To explain political behavior, the political scientist must know what meanings caused political actors to behave the way they did. Some say that to explain behavior the political scientist must use “softer” methods of information gathering, such as using the self-reports in biographies, or interviews of actors.

Probably the least unity and the most friction occur among political scientists when they are asked to define the “good” or “just” society. One issue is that the self-identified “scientists” say the very question is irrelevant to their work, but others call that hypocrisy and say these so-called “value neutral” political scientists tacitly assume, like Hegel, that “what is is good.” That is, by their very refusal to be critical, they imply that all is well with the status quo.

Whether political scientists as a profession should become involved in public policy debates is another issue. There are “normative political philosophers” who

say that taking part in politics should be the profession's primary purpose. But the more prevalent view is that of the "behavioral political scientists" who argue that "science" requires political detachment. These are just some of the intense controversies in the field.²⁵

Perhaps by presenting political science as one of the value sciences, and showing how it can be made to connect with Formal Axiology, much of the discord in the profession can be converted into unity.

Becoming a Value Science

Turning a social science into a value science, according to Hartman, begins with formulating the "axiom" that defines the field. Suppose, then, for the sake of example, we define the field of political science as "the study of the political system." David Easton's theory of the political system as the defining concept of political science is already widely, but far from unanimously, accepted. Easton's conception of the political system has five primary components. These are: system inputs, a conversion process, system outputs, the political system environment, and supports for the system. He writes that the function of the political system is "the authoritative allocation of values."²⁶

Applying this Axiom

Focusing on the political system in their everyday work, political scientists as value scientists will follow a two step procedure. First they will ask of a purported political system, "is this x a C?" In other words, does the set of social processes (x) under study *in fact* have the requisite elements of a functioning political system (C)? If the answer is affirmative, they will then ask, "is this x a good C?"

This concept of a political system is *normative* for both facts and values. It is normative of facts because the elements of the concept must be found in actual social behavior before that behavior can be deemed a "political system." Only then can the elements of the concept be used as the norm for assessing the goodness of the political system.

Egypt

The first step, identifying social activity as an actual political system, is not always an easy task. For example, as of January 2011, Egypt had a clearly identifiable political system headed by its duly elected president Hosni Mubarak. Then 18 days of demonstrations against him resulted in his February ouster by the military. The military promised that a new constitution would be written, which would provide for the election of a new government.

²⁵ One interesting analysis of the state of the discipline can be found in, Schram, Sanford F., Bent Flyvbjerg, and Todd Landman, 2013, "Political Political Science: A Phronetic Approach," *New Political Science*, vol. 35, no. 3, pp. 359-372, DOI:10.1080/07393148.2013.813687, URL: <http://bit.ly/15A0kEL>.

²⁶ See *The Political System*. University of Chicago Press 1953, 1971.

What sort of political system existed under these new circumstances? A military dictatorship? A people's democracy? This would be a factual matter that could take a long time for political scientists to agree upon.

An election was eventually held, and in June, 2012, Mohamed Morsi was elected to serve as the fifth president of Egypt. Seemingly now a "democracy" again, this new president turned out to be committed to making Egypt a Muslim state, rather than the secular state it had been under Mubarak. Back to the streets for the people! Here comes the military, again. In July 2013 Morsi was ousted just as Mubarak had been. New elections were promised by the military, but as yet no date has been set.

Now what kind of political system does Egypt have? Clearly, as circumstances change, the factual identity of the political system will also change. US Secretary of State, John Kerry, was not much help for political scientists. After the second military ouster of an elected president in two years, Mr. Kerry praised them for "restoring democracy"!²⁷ No wonder Egypt has got political scientists scratching their heads!

Somalia

Political systems can not only undergo deep and rapid changes, but they can disappear altogether leaving a "failed state" in the vacuum. After over 20 years of dictatorship, in 1991, the Somali Civil War broke out. Chaos, terror, and armed conflict prevailed until 2012, when the Federal Government of Somalia was formed. During all of this the people lived off the land, fished, and bartered (some became pirates). The factual question of whether or not Somalia continues to be a failed state, without any political system able to enforce its laws, is a matter of debate. In August 2013, Doctors Without Borders regrettably announced that after 22 years, it was pulling out of the country. A spokesperson explained that "In choosing to kill, attack, and abduct humanitarian aid workers, these armed groups, and the civilian authorities who tolerate their actions, have sealed the fate of countless lives in Somalia."²⁸

Assessing Goodness

So, identifying the factual existence of a political system is the first step in the work of political science as a new value science. Once the fact has been established that the function of authoritatively allocating values is actually being carried out through a political system, its goodness can be assessed.

²⁷ http://www.nytimes.com/2013/08/02/world/middleeast/egypt-warns-morsi-supporters-to-end-protests.html?_r=0

²⁸ <http://www.latimes.com/news/world/worldnow/la-fg-wn-doctors-without-borders-somalia-20130814,0,5641657.story>

Following Formal Axiology, all value sciences will assess value, or goodness, in each of the three dimensions of value – systemic, extrinsic, and intrinsic. The systemic valuation consists in deciding whether or not the set of social behaviors under study qualifies as a political system. This valuation has already been made by the factual determination that there is a functioning political system there. People interacting on the ground, as if seen from a satellite high in space, is meaningless without interpretation. Of course, interpretation is not possible without an interpretive framework. The definition of the political system is the interpretive framework for political science. The establishment of the fact that a set of interactions rises to the level of being a “political system” is an act of systemic valuation. That scientific determination has the value structure of E^S ; that is, the systemic valuation of an extrinsic value (the interpretive framework, S, applied to the activity on the ground, E).

Once the fact of a political system’s existence is determined, the system, as a process on the ground, is an extrinsic value. The next step in the assessment of the political system’s goodness is the performance measure: also E^S ; or, the systemic valuation of an extrinsic value. For any system, the extrinsic measurement of its goodness starts with the definition of its function. Following Easton, as we have said, the function of the political system is “the authoritative allocation of values.” Measuring the extrinsic goodness of a political system, then, involves asking how well it fulfills its function of authoritatively allocating values.

The factual studies have already shown that the political system engages in some form of “allocation,” or distribution; that the goods and services thus allocated are “values,” that is, considered worthy, or desirable, by the society; and, that such allocations are done in an “authoritative” way. Each of these defined elements, once factually established, can be used as standards for appraising how well the facts on the ground are fulfilling the standard. Hence, a good political system is one that fulfills its functions well in all three dimensions of value – S, E, and I.

For example, the goodness of the *allocation function* can be assessed by its efficiency and effectiveness. Widely practiced “performance studies” and auditing techniques already show that quantitative measures can be established for rating a process on a scale from ineffective and wasteful to efficient and effective. In this sense, quality can be measured quantitatively.

The goodness of the *values allocated*, i.e., the outputs of the political system, can be measured by determining the demands and expectations of the groups and individuals for which the values are allocated. In other words, are the values they are receiving as good as what they had demanded or expected? An item-by-item “customer satisfaction” rating can be factored into the final measure of the political system’s goodness. As an example, we will consider “Obama Care,” or The Affordable Care Act, in a moment.

Finally, using the definition of the political system's function as its measure, a good political system is one that allocates values *authoritatively*. The political science community will have to debate and try to settle upon the meaning of the term "authoritative" as a professional standard for the measure of the general extrinsic goodness of a political system. Since a political system must use power to carry out its function, how, for example, is the concept "authoritative" to be distinguished from "authoritarian"? To what extent, if any, does "authoritative" overlap with "legitimate"? Concepts must be clarified before they can be used as standards for the measurement of goodness.²⁹

Comparing the goodness of political systems will be a regular practice in political science as a value science. This activity will raise new problems. For example, suppose values are allocated with legitimate authority in one political system, and with authoritarian means by another? If equally efficient, can both political systems be rated as of equal goodness? If only the extrinsic valuation is considered, then the problem of appraising the comparative goodness of these two different political systems could not be resolved. But political science as a value science does not stop its analysis with the extrinsic, or efficiency, dimension of value. To complete its measurement of the goodness of a political system, political science must examine the intrinsic value dimension of the system.

To measure the goodness of a political system intrinsically, the experience of *the persons* involved within, and acted upon by, the government will be appraised. Here, again, the facts will be the measure of the value. In short, if two political systems appear as of equal value extrinsically, but the political happiness in the more authoritarian system is far below that in the other system, then the political system with the greater political happiness can be rated as "better than" the other. But rating entire political systems will depend upon specific measures taken within the systems.

Measuring the goodness of a political system by the definition of its function will be a challenging task for the political science profession. Explaining why a given function is or is not "authoritative," after defining the term, will be a matter for professional opinion to agree upon or differ over in the political science journals. So will explaining assessments of the efficiency and effectiveness of the allocation process. As to reports on how people are experiencing the acts of the political system, professionals will surely find reasons to dispute both methods and conclusions.

²⁹ For a discussion of Easton's "Authoritative Value Allocation" from the point of view of concept analysis, see Gabriel, Jürg Martin, 2013, "Political Science Concept Formation (Part II) – David Easton's 'Authoritative Value Allocation.'" URL: <http://ssrn.com/abstract=2280252> Gabriel comments that "Easton does not address the issue of legitimacy," page 8.

Obama Care

Consider, for example, “Obama Care,” or The Affordable Care Act. As a law, it is an authoritative allocation of the value of health care through the regulation of selling health insurance. Its goodness can be assessed in the three dimensions of value, starting with the systemic dimension. In the US, the measure of the goodness of a law begins with a determination of its constitutionality. The central function of the Supreme Court is to make this systemic valuation by ruling whether or not a law is constitutional. The Court has already ruled that the part of the Act requiring Americans to have health insurance, or pay a fine, is constitutional. Other parts of the law may be challenged and ruled upon in the future. Writing in books, or professional journals, political scientists can accept the rulings of the Supreme Court as to the systemic goodness of a law, they can disagree with and criticize its rulings, or they can render their own learned opinions.

The value structure of a constitutional law is S^S ; or, a systemic value (the law) valued systemically (judged by a higher law, the Constitution, etc.). The value structure of an unconstitutional law is S_S ; or, a systemic value disvalued systemically.

The extrinsic valuation of the Act will measure the efficiency and effectiveness of its operation. After an unsteady start, online market places, or “exchanges,” are now selling health insurance. The extrinsic measure of the Act’s goodness cannot be taken until it has had some time to go into full operation. Then customer satisfaction ratings can be taken. This would be the intrinsic value dimension of the law. Early reports suggest that satisfaction is high with the provisions keeping children up to age 26 on the health insurance of their parents, and with the prohibition on exclusions from health insurance for prior conditions. So far, then, the Act appears to be a good law.

Measuring the goodness of a political system can be a very complex undertaking. How many laws, policies, and practices, and what kinds of them, will have to be appraised as good before the goodness of an entire system can be determined is one among many problems that the political science profession will have to discuss and debate in professional journals.

Measuring Goodness by the Five Elements

Another approach to measuring the goodness of a political system is to focus on each of the five elements that constitute such a system. As said, these are: system inputs (or demands), a conversion process, system outputs, the political system environment (the people within its purview), and supports for the system. Political scientists can debate over how best to define the functions of each element. As measures of goodness, these definitions can be left as they are, shortened, or lengthened, depending on how exacting political scientists want to be in their assessments of the goodness of a given function of a political system. Of course,

the function under study will be examined in each of the three dimensions of value.

To rank as a good political system, each of the five elements of the political system should be good; that is, working as expected. In this sense, a good political system is one in which all of its elements are good. Thus, the measure of goodness depends entirely upon the facts on the ground. If each of the five elements of a political system is actually functioning as they should according to a quantitative measure, then it is a good political system.

Once a set of behaviors is identified systemically as an “input” function, or an “output” function, etc., there are *two* sets of standards for the political scientist to use to assess the function’s extrinsic goodness. One is the self-set standards of the political system, such as its legislation; the other is the *meta*-standards set by the political science profession as its own standards for valuation, which it formulates mostly in journals. As to the first, the question is, “does the demand process satisfy the self-set standards of the political system?” Answering this question requires that political scientists find, as a matter of fact, what those standards are, and then measure the process by those standards. These self-set standards are a part of the system’s “political culture,” and can include laws, customs, beliefs, etc. (One example is the unwritten British Constitution.)

The profession can also define its own standards for assessing the goodness of a particular element of the political system, which would be applicable across systems. For example, a good conversion process might be defined as one which produces outputs which satisfy demands. A good input process might be defined as one which allows demands into the conversion function without bias or distortion.

Through the input function of the political system people can make demands on the system for favorable legislation, or other services, by writing letters, email, phone calls, or personal visits. Lobbyists are, in some cases, professional demand makers. But demands can also be made in other manners. Street demonstrations are one example. Campaign contributions can also be considered as a part of the demand function. Candidates discuss demands to be made on the political system in their campaign speeches. Contributors signal their agreement with at least some of those demands when they favor one candidate over another. The larger contributors are often given *privileged access* to the candidate after he or she is elected. This access enables the contributor to specify his desires of the newly elected official, who can help to have the contributor’s demands satisfied by system outputs. Which of these processes, if any, create bias or distortion in the input element will be a matter for discussion when assessing goodness in professional journals.

Campaign Contributions and the Good Demand Function

The political system of the USA is currently examining its self-set standards for the campaign contribution aspect of the demand making function. The US has had at least some form of campaign finance regulation since the 1907 Tillman Act, which regulated corporate campaign contributions. Such regulations have been considered necessary to prevent corruption, or the appearance of corruption, in the election process.

An example of the appearance of corruption occurred in the 1970s, when President Nixon's campaign officials were found to have suitcases full of cash, contributed by individuals and corporations with interests that Nixon was known to favor. This came close to looking like a corrupt quid-pro-quo bribery scheme, and reduced the goodness of the input function. Congress then passed a series of laws regulating both contributions to candidate campaign organizations and expenditures by them.

Once such laws are made, they may be examined by the Supreme Court. The Court's function is, as we have said, entirely systemic; that is, it makes rulings as to whether or not a particular law is constitutional. As to the laws passed in response to the Nixon scandals, the Court ruled, among other things, that while Congress may regulate campaign *contributions*, it may not curtail the campaign *expenditures* of candidates. Regulating contributions is permissible insofar as they are necessary to avoid the appearance of corruption in elections, but limiting a candidate's campaign spending is an unjustifiable violation of the 1st Amendment right to freedom of speech, says the Court.

In recent times, the Court has found the laws limiting certain types of "independent expenditures," or non-candidate spending, are unconstitutional. In the *Citizens United* case, for example, the Court struck down regulations on corporate and union independent spending in election campaigns. Now these organizations can spend as much as they please on such things as advertising to influence public opinion in the demand making process. Currently, the Court is deciding whether the limit on *individual* campaign contributions, of about \$123,000 overall, violates the right of free speech, or is permissible to prevent the appearance of corruption.

Of course, lifting all spending limits would give the superrich even more advantage than they now have over the masses in the demand making process. Does this add to, or detract from, the goodness of the input element? Being focused on the systemic, the Court does not consider that question, but only whether limits on campaign spending constitutes a justifiable or unjustifiable burden on the 1st Amendment rights of people.

As changes in laws such as these occur in the self-set standards for the demand process, or any of the other processes, in a political system, political scientists will be required to reassess the goodness of the function under the new standards.

The political science profession, as said, may also establish its own definition of a function, and use that to assess the function's goodness. Such a standard is always susceptible to revision. In debating this, there are several variables to consider.

For example, to keep order in a society, some sort of regulation of the demand making process is necessary. If street demonstrations, and urban riots, for instance, became the norm for making demands the chaos could cripple the entire political system. On the other hand, a political system that denied citizens any avenue of participation would be a dictatorship, and be authoritarian but not necessarily authoritative. Surely a good demand process must allow *some* demands to be made; otherwise, systemically, or by definition, there is no demand process, and a political system cannot be "good" without one.

Value Biases

As a value science, political science is far from "value neutral," or "value free." The method of analysis itself contains several value biases. For example, as we have just mentioned, to be "good" a political system must allow at least some minimal amount of public participation in the demand making process. Thus, the standard of the "political system" favors systems with some degree of freedom for the people within its purview. Biases exist in other concepts as well. For example, if "authoritative" is defined as implying "legitimacy," then some degree of public approval is required for a political system to be good.

A finding of goodness also requires that a political system be sufficiently open for political scientists to carry out their work. If they cannot move about freely to make observations, then they cannot know the political culture, or assess the extrinsic value of the system. If they cannot interview people without the people fearing punishment for what they say, then the intrinsic measure cannot be taken. Thus, a totalitarian society can never qualify as having a good political system, but will always have a "bad" political system. Political scientists will have to debate and decide how little freedom and openness a society can have, and still qualify as at least a minimally good political system.

Suppose, for example, that the demand function in a political system has a clearly plutocratic law stating that campaign contributions *must be* at least \$100,000 or more. In such a political system, only the very rich would be able to participate in that part of the demand process.

If written and enacted in accord with its own constitutional standards, this plutocratic demand function could be systemically "good." It could be good extrinsically, as long as some people could participate in it. And, as to the intrinsic dimension, the people may be brain washed by the public education system into thinking their plutocracy is the finest political system in history, or they could be so intimidated by the secret police that they say this when interviewed by political scientists. Technically, this would be rated a good political system.

But, as a science, the political science profession is not only committed to the use of *technical* Reason, it is committed to the use of *independent* Reason. Such is the meaning of “scientific detachment.” In other words, political scientists will make their own determinations as to whether the effects of a political system on the people under its rule are *actually* compositional (positive) or transpositional (negative). If the effects of a political system on its people are largely transpositional, then it cannot be rated as a good political system. Conversely, a compositional system is one in which the system *serves* the people more than oppressing or exploiting them.

As we have seen, the Value Calculus has a built-in bias in favor of the person. Compositional and transpositional valuations in a political system are assessed in accordance with their effects on persons. To compel a person to do something has the value structure of I_E ; the extrinsic disvaluation of an intrinsic value. But to compel a teenager to stay in high school has the structure of $[I_E]^E$; that is, the (positive) extrinsic valuation of the extrinsic disvaluation of an intrinsic value. Compulsory education laws force a young person to do what is best for his own interests (even if he disagrees). Thus, some compulsion can be beneficial to the individual, and the transposition of values justifiable.

No political system can exist without using some power, or force, to maintain order in society. Laws must be enforced. That means that law-breakers may be arrested, and perhaps fined or incarcerated, or otherwise punished. Young people may be drafted into the military or other types of government service. Taxes will be imposed, and collected by force if necessary. Clearly, no government can ever be fully compositional.

As a power compelling persons to act, the basic government/individual value relation is *always* I_E ; the extrinsic disvaluation of an intrinsic value. But, as we have shown, compositional policies have the structure $[I_E]^E$. Transpositional policies, in relation to the individual, have the structure $[I_E]_E$. The plutocratic campaign finance law favoring the rich person in the demand process is transpositional for the poor, or even middle class, person because it compels the non-rich guy to do what is against his better interests – i.e., stay out of the political process.

As another of its biases, then, political science necessarily favors compositional political systems in assessing goodness. I.e., in value terms, compositional is *better than* transpositional. A political system cannot be a good political system unless its effects on its people are more compositional than transpositional. In assessing the goodness of a political system, then, the balance of its compositional versus its transpositional nature will have to be considered. What degree and

types of transpositional actions a political system can take and still rank as “good” will be an issue for political scientists to workout among themselves.³⁰

A political science grounded in Formal Axiology does not carve in stone the elements of a political system that will make it “good” for all time. Instead, this political science is *a method* for appraising the value of political systems, which are always fluid and changing systems. This method’s principles, however, are not applied mindlessly or mechanically. Human judgment is required, but it is exercised within the logical framework of a political science connected to Formal Axiology and the Value Calculus.³¹

Conclusion

In the natural sciences the biology/medicine/public health complex has resulted in numerous improvements in the health of the general public. Some of these improvements have been brought about by the enactment of new laws. The regulation of the meat packing industry, for example, has saved many people from sicknesses that were once often caused by the products of unregulated corporations. Sometimes the mere publication of research findings has empowered the public to change its unhealthy behavior in favor of more healthful living. Smoking has gone down, in large part, because of scientific knowledge getting into public awareness, and exercise has gone up.

Once political science has become a value science, its research findings may result in changes in the law, but its findings may also initiate voluntary changes of behavior in the public. Suppose, for example, that specific value transpositions in the political system (like that plutocratic campaign finance law) are identified by political scientists as among the causes of political alienation and feelings of helpless among affected groups. As the knowledge of these causes disseminates into public awareness, political behavior might change. Formerly inactive, alienated groups might voluntarily self-organize with energy heretofore unseen. The promise that political happiness can be found in a self-governing democracy could then become a self-fulfilling prophesy. Clearly, as a value science, political science can, like natural science, find many ways by which new scientific knowledge can help humanity.

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³⁰ The compositional/transpositional scale is supplemental, and not an independent third way of assessing the goodness of a political system, because the existence of a political system must be established before its goodness can be measured.

³¹ On role of personal judgment in value science analysis see Respect and Empathy as Method in the Social Science Writings of Michael Polanyi, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1150941