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FETZ'S MISUNDERSTANDINGS OF FORMAL AXIOLOGY

In his review of Frank G. Forrest's *Valuometrics^N: The Science of Professional and Personal Ethics*, Hanspeter Fetz offers three broad criticisms of Forrest's formal calculus of values and a number of lesser ones. I propose to show that his seemingly devastating review is based upon serious misunderstandings. Fetz begins by saying that "Forrest's main objective is to present a method that allows calculation in an objective way, without taking recourse to intuition or moral norms, considering solely the semantic properties of the concepts used in an act's description, the moral value of that act" (Fetz, p.40). The first part of this claim is true, the last part false. Fetz confuses the presentation of a formal system with its application. Forrest develops a formal system that allows for objective calculation, but he never denies that applying the system involves "taking recourse" to particular norms, concepts, and perhaps even intuitions, some of which are moral, some not. Formal axiology encompasses morality but is far broader.

(1) CONCEPTS

Fetz's first objection to Forrest's project is that "his notion of concept is dubious as to its correctness" (Fetz, p.40). This is the only mention of this objection in the entire review, and nowhere is it explained or justified. When he tries to return to this point, instead of arguing that Forrest's notion of "concept" is dubious, Fetz actually argues that Forrest's analysis of particular concepts like "goodness," "meaning set," "book," etc. is dubious. As for the meaning of "concept", Forrest follows Robert S. Hartman in defining "concept" as a mental content with an intension and an extension (Hartman, 1967, pp.31, 49). The intensional part of a concept consists of word-meanings, thoughts, connotations. This is what Forrest means by "meaning

set." Fetz professes not to know. The extensional aspect of "concept" consists of the referents of these word-meanings, their denotation. This is what Forrest means by "referent set." The "set of actual properties" is the properties actually possessed by particular members of a conceived class. Thus, the concept "chair" is defined intensionally as "a seat for one person with a back, usually four legs, and possibly having arms;" and its extensional meaning is all the particular chairs to which this intension refers, i.e., to the objects it denotes, including the actual properties of particular chairs that correspond to the predicates in the defining intension. Forrest explains this all very clearly, but Fetz seems not to understand and certainly says nothing to show that this concept of "concept" is "dubious as to its correctness." Fetz objects to particular concepts employed by Forrest like "goodness." Forrest defines "goodness," as Fetz notes, as "degree of concept meaning fulfillment" which means "that the set of actual properties of something corresponds with the set of names of properties given in the thing's concept" (Forrest, p.2). Fetz seems to be totally unaware of it; but, as Forrest makes very clear, this is Robert S. Hartman's definition of "goodness" or "value" (Forrest, pp.1–2, 23). Fetz finds this definition to be flawed in several ways. He declares that Forrest "does not provide any formally correct definition" (Fetz, p.40). This could mean either that "the definition is not formal" or that "the definition is not correct," possibly both.

a. The objection that the definition is not correct or "materially adequate," as Fetz puts it, implies that "the term's meanings should coincide in relevant use as much as possible. It cannot be doubted, not even by Forrest himself, that this is not true for his notion. Why call it 'goodness' then?" (Fetz, p.40). Forrest does say that his definition is "different from people's general

understanding of the word" (Forrest, p.2), as Fetz points out. However, Fetz does not ask how it is different, and he fails to recognize that it could be different in some way and yet very similar in others. The difference is that the Forrest/Hartman definition is formal, i.e., that it aspires to capture and express a pattern common to most if not all uses of "good." Despite Fetz's claim to the contrary, this pattern is indeed exemplified in "people's general use of the word," and it does "coincide [with] relevant use as much as possible." As already noted, Forrest acknowledges that he is building upon philosophical work already done by Robert S. Hartman and does not think that it is necessary totally to re-invent the wheel; but Fetz seems to be utterly ignorant of Hartman's position and neither mentions him nor his prolific publications anywhere in his review. Forrest's definition of "good" is Hartman's definition; and Hartman explains that he collected, reviewed, and contemplated thousands of actual uses of "good" before he realized that this pattern is what they all have in common (Hartman, 1994, pp.51-52).

b. The objection that the definition is not formal obtusely misses the point that the definition provided by Forrest is the formal definition. A formal definition is not something in addition to Forrest's definition which Forrest fails to give. Rather, Forrest's definition is the intended formal definition. It is formal in the sense that it captures and expresses the abstract form, as just indicated, of most if not all actual uses of the term "good." According to formal axiology, all uses of "good" share a common form, the very meaning of "good," which is: the extensional properties of entities judged to be good are measured by and measure up to an intensional set of predicates, called by Forrest the "meaning sets." Intensional predicates (the connotative side of concepts) provide standards of measurement, and things are good if they fulfill the relevant standard.

(2) CONCEPT FULFILLMENT

Fetz argues that Forrest's definition of "good" is not formally correct because "his account of 'concept meaning fulfillment' is, in all of its likely interpretations, entirely untenable" (Fetz, p.40). Why so? This brings us to Fetz's second major objection. Fetz contends that Forrest's "assignment of values to concepts seems rather arbitrary, and in important cases it can be shown to rest on outright falsities."

To begin with the issue of "arbitrariness," exactly what Fetz regards as arbitrary is never specified, but an educated guess says that it is Forrest's association of set theory and cardinal number arithmetic with the idea that goodness is concept fulfillment. Again following Robert S. Hartman, Forrest recognizes three basic kinds of concepts and shows how their logic can be expressed by set theory. First, formal concepts are definitions and conceptual constructs; and the objects to which they apply have systemic goodness if the relevant formal concepts are fulfilled; next, analytic concepts are abstracted from sensory experience, and the objects to which they apply have extrinsic goodness if their concepts are fulfilled. Finally, we have concepts of individual persons, and persons are intrinsically good if they fulfill their concepts.

First, in actual usage, formal conceptual constructs and definitions have finite intensions, i.e., they are composed of finite sets of known predicates. Look up any definition in a dictionary and you will find this to be true. Forrest calls these "Type I" concepts.

In considering Forrest's example of the geometrical definition of "a square," Fetz quotes Forrest to say: "A square, for instance, has four properties: (1) geometric figure, (2) four sides, (3) all sides of equal length, and (4) four right angles. A square cannot exist unless all these and only these properties are present" (Forrest, p.7). Forrest's point is that these properties define the notion. Fetz argues that "only these properties" is false, that a square has more than

four properties, perhaps an infinite number of them, such as "being abstract," "not being identical with the number one, not being identical with the number two...and so forth" and "perhaps some properties unknown to any of us [...]" (Fetz, p.40). In response, aside from the oddity of treating what a thing is not as among its properties, let us concede that "being abstract" is indeed a property of squares, and that Forrest's "only these properties" is too strong. Nevertheless, none of the properties Fetz mentions are defining properties of squares, and squares (and other systemic constructs) can be and usually are evaluated using only a finite set of known defining predicates. Squares either fulfill their definitions and are good squares, or they do not and are not squares at all. All conceptual constructs either fulfill their definitions, or they do not; and there is nothing in between. Systemic valuation is all or nothing valuation.

Forrest's "Type II" concepts are analytic concepts of objects, processes, activities, and social roles, etc., encountered in our common world of spacetime and given to us in normal sensory perception. Let us call their referents "empirical entities." Our concepts of empirical entities are abstracted from experience, and their goodness extrinsic goodness because they are useful in an almost endless variety of ways. Fetz cannot comprehend why Forrest claims that the meaning sets of empirical entities are composed of a finite but indefinitely large number of properties, many of which are often unknown. Forrest says that the meaning-predicates of Type I concepts "fixed finite meaning sets," but "Type II" concepts are "elastic finite meaning sets" (Forrest, pp.7, 9). Fetz is perturbed because this is "an epistemic classification unknown to standard mathematics of finite sets" (Fetz, p.40). This is true, but so what? Is creative thinking never permitted in Fetz's universe? Instead of condemning Forrest, Fetz should have offered praise for his originality!

Does Fetz think that we have an exhaustive knowledge of all properties belonging to the referents of concepts like "book," "car," "gestation," "professor," "father," etc.? Robert S. Hartman believed that such things are so complex that they must have a denumerable infinity of properties, but he admitted that in practice we always deal with only a finite number when determining whether the referents of these concepts are good, fine, average, poor, or no good—depending on degree of concept or standard fulfillment (Hartman, 1967, pp.113, 194, 195, 216, 221). A more realistic Forrest thinks that extrinsic entities have a finite but indefinitely large number of properties. Fetz says nothing to show that this is wrong.

Fetz considers Forrest's example of "book." Forrest indicates that the intension or meaning-set of our concept of "book" might include predicates like "document, pages, written or printed material, binding,...covers." Fetz cannot identify the relevant set of predicates that entities measured by them must have if they are to be regarded as good. He makes several interesting but irrelevant guesses. Fetz surmises that the relevant measuring set is (1) all possible defining properties, (2) some possible defining properties, or (3) all possible properties...whatsoever (Fetz, p.40). He maintains that "none of these will do" and concludes that "what Forrest has in mind in speaking about properties are not properties simpliciter but defining properties. However even this won't work" (Fetz, p.40). Actually, Forrest has none of the above in mind. A thing like a book or a house must have the defining properties of its class; but it must also have additional "good-making properties," as many philosophers call them, if it is to be a good member of its class. Empirical entities are good to the extent that they fulfill the relevant set of good-making properties, i.e., those in their "meaning set." As Forrest indicates, having a porch is not a part of the conventional definition of "house;" but a house with a porch is better than one without a porch – depending of course

on whether "porch" is one of the properties belonging to the relevant meaning set of good-making properties.

The relevant set of good-making properties for extrinsic entities is neither all or some of their defining properties nor all their possible properties. There is another alternative not fathomed by Fetz. The relevant "meaning set" is any set of "good-making properties" that happens to be in use in any given valuational context! Robert S. Hartman claimed that his axiom of value – good as concept fulfillment – is objectively valid for all rational beings, but its application is subjective (Hartman, 1967, p.110). Different people may use different sets of good-making properties to evaluate things, but relevant sets are often established by convention, by reflection, by experts, or by innovators and reformers. Nevertheless, goodness always consists of one to one correspondence between the properties of actual things and the good-making predicates in their relevant meaning set.

Forrest uses the Hartmanian notions of composition and transposition. Meanings interact positively to give compositions and negatively to give transpositions, as Fetz correctly acknowledges (Fetz, p.41). Fetz notes that Forrest claims that "brand new" enhances the meaning and value of "car," and "damage" diminishes its meaning and value. Fetz never clarifies what he finds objectionable about this. If he thinks that Forrest is wrong, he should confer with a few people who have new cars, and with a few more who have damaged cars! They will set him straight.

The final type of concept that might or might not be fulfilled in an evaluative context is that of the individual person. Forrest's "Type III" concepts are of persons in their determinateness and uniqueness. Forrest agrees with Hartman and many other philosophers that individual persons are intrinsic goods, ends in themselves, which could be (and I think is) true even if Hart-

man/Forrest fail establish its truth. Forrest/Hartman contend that unique human beings have a richness of properties equal to non-denumerable infinity. Their main argument for this is that the meaning set of "individual person" is infinite because people can think a non-denumerable infinity of thoughts (Forrest, p.11).

Here I must agree with Fetz's contentions that we think only two thoughts when we conceive of the sets of all odd and all even numbers, and that "The actual explicit thoughts of a person at a given time as well as during his entire life span are certainly only finite in number. What are we supposed then to understand by the 'infinite set of thoughts of a person'?" Fetz is certainly not the first to raise this objection against the Hartman/Forrest "proof" of the "infinite value of man." I have been raising it for decades! (Edwards, 1973, 1991). Importantly, however, it does not follow, as Fetz would have it, that Forrest's calculus of value is worthless because it assigns the symbol for denumerable infinity, i.e., 1, to individual persons. As I have explained elsewhere:

Taken metaphorically, the uses of transfinite mathematics in axiology can be most important as a way of expressing formally our considered qualitative judgments that a thing is more valuable than our idea of it (e.g. the blueprint of a house versus the house itself) and that conscious individuals are immensely and incommensurably more valuable than non-conscious things. Assigning higher transfinite cardinalities to conscious individuals than to empirical and conceptual objects may not be based so much on the number of actual properties possessed, however important that may be, as on the kind of entities that they are and the types of universal qualities that they exemplify. Once applied, however, transfinite set theory can be a powerful instrument for expressing the qualitative insights that conscious valuing beings are better than non-conscious entities, and that their respective val-

ues are incommensurable. As Frank Forrest shows [...] set theory is an immensely powerful tool for calculating worth and resolving problems. (Edwards, 1991, p.86.)

(3) MATHEMATICS

Fetz argues that "the mathematics underlying [Forrest's] calculations is flawed in several respects" (Fetz, p.40). According to Fetz, Forrest's mathematics commits "four basic errors" that "repeatedly pop out of several subsequent pages" (Fetz, p.41).

a. Forrest assumes that if two finite sets A and B are united, i.e., added, they have the same cardinality, but Fetz contends that "it does not follow that they have the same cardinality." He argues that if set A has three members and set B has three members, then they have the same cardinality – 3; but their union (addition) has the cardinality 6, not 3 (Fetz, p.41). The cardinality of a set is the number of members or elements that it contains (Forrest, p.5, Lin and Lin, p.134). There is certainly a sense in which Fetz is right if "finite" is disallowed as a type of cardinality, and cardinality is construed to apply only to particular numbers in ordinary arithmetic, i.e., to arithmetical constants. However, Forrest never does this and never says anything to suggest it. He never moves from "a finite number" to "a particular finite number." Forrest takes "finite" itself to be a number, a form of cardinality, on a par with "denumerably infinite" and "non-denumerably infinite." He says very explicitly that "The number n is the cardinality of any fixed finite set" (Forrest, p.5).

b. In mathematics, "n" means "any finite number" (e.g., in Klasner and Newmann, p.47); but the meaning of this is ambiguous. Most authorities treat "n" as a variable for which particular numbers, integers, or constants in finite arithmetic may be substitute; and, so understood, Fetz is right. However, Fetz is oblivious to the possibility that "finite" or "n" may also be

construed, as Forrest does, as a particular number, integer, or constant in set theory and transfinite arithmetic – like "denumerably infinite" or " $\aleph_0$ " and "non-denumerably infinite" or " $\aleph_1$ ". Other authorities on set theory explicitly treat finitude as such as a form of cardinality (Potter, pp.93–94). Thus, when Forrest says that if two finite numbers are united (added) the result is a finite number, this means only that a finite number added to a finite number is a finite number. This is all that Forrest needs for his calculus of value. When properly understood, Forrest's point about the cardinality of finitude is as close to self-evident as philosophical claims ever get. Fetz certainly says nothing whatsoever to show that "Finite plus finite equals finite" is false! Fetz's claim that "such numbers exhibiting the properties attributed to them by Forrest are foreign to contemporary mathematics" (Fetz, p.41) is completely unjustified (2) Fetz explains that Forrest's "second mistake consist in believing that for any finite sets A and B and any cardinalities n, m if card A = n and card B = m then card {A, B} = n + m" (Fetz, p.41). Well, this is not what Forrest says! Fetz has just quoted him to say: "Let A and B be any two fixed finite sets. Then card A = n and card B = n. Therefore card {A, B} = n + n (definition of union). But, {A, B} also is a fixed finite set. Thus card {A, B} = n." (Forrest, p.42). So what is the difference? Where Fetz uses "n = m" as variables, Forrest uses "n = n" as constants. Again, Fetz did not read Forrest very carefully. Fetz interprets Forrest to mean that if one particular finite number, e.g. 3, is added to another particular finite number, e.g. 3, the sum is 3. Now Forrest knows just as well as anyone else that $3 + 3 = 6$. All that Forrest claims, however, is that the addition of finitude to finitude results in finitude. Finitude (n) + finitude (n) = finitude (n). How could that possibly be wrong? Many authorities on set theory affirm and prove the theorem that "If A and B are finite, then A+B is finite" (Suppes, p.100; Zehna and Johnson, p.110). That is exactly what Forrest affirms, nothing more.

c. Fetz thinks that he contradicts Forrest when he affirms "that a set is finite, does not entail that its cardinality is n . This equation tells us, in fact, that a number n that is added to itself is the number itself, which is true for $n = 0$ but false for all other finite cardinal numbers." However, Fetz makes the same elemental mistake over and over again. "That a set is finite," does entail that its cardinality is n when " n " means only "that a set is finite." Tautologies cannot be false.

d. Finally, Fetz asserts that "the fact that the sum of any two numbers is a finite number is not expressed by ' $n + n = n$ '. This equation tells us, in fact, that a number n that is added to itself is the number itself, which is true for $n = 0$ but false for all other finite cardinal numbers" (Fetz, p.41). However, if one means by " n " what Forrest clearly means, it is always true that " $n + n = n$." Properly construed, this formula says nothing more than "a finite set added to a finite set equals a finite set." This is not false! Fetz also complains that "The equation $n^n = n$ on p.44 [...] is true for $n = 1$ but false for all other cardinal numbers of a finite set." Again, by this, Forrest means simply that a finite set raised to the power of a finite set is a finite set. How could this be wrong? Fetz certainly does not show that it is. If Fetz did not get Forrest's point, he did not read his book very carefully.

Having thoroughly misunderstood Forrest, through no fault of Forrest's, Fetz dismisses the rest of Forrest's book where his calculus of values is applied to a variety of ethical problems as "vitiated by errors some of which have already been discussed" (Fetz, p.42) Since Forrest does not commit any of the mathematical and most of the philosophical errors attributed to him, it certainly does not follow that his position has been "vitiated." Fetz protests that Forrest tries to derive normative statements "without recourse to other normative statements" (Fetz, p.42), but this only shows how little effort Fetz exerted to understand Forrest. Forrest never tries to derive

an "ought" from an "is." Fetz entirely misses Forrest's point that in a calculus of value positive valuations can be represented by pluses or positive exponents, and negative valuations can be represented by minuses or negative exponents. See Forrest, pp.57–58.

(4) MISCELLANY

Fetz offers additional criticisms. He affirms that Forrest's calculations "are so tightly fixed on the words that occur in the descriptions of a particular case, [that] it is very likely that [...] they would still fail to be correct on account of their linguistic relativity. At least I cannot see anything in Forrest's account that would rule this out" (Fetz, p.42). It is often true, as Fetz suggests, that "the same situation may be described in more than one way using different words," but he fails to acknowledge that many of these descriptions will be false, and that our moral judgments always depend on how we describe things. Fetz does not explain why this difficulty does not abolish all moral thinking! Philosophers are usually commended for requiring careful thinking. Does Fetz foolishly regard this as a vice? Actually, something elemental and obvious in Forrest's book would "rule out" misdescriptions, even if Fetz, the careless reader, did not find it. Forrest explains that in classifying things we should "Avoid manipulating concept combinations to arrive at a preconceived outcome. Let logic control the results" (Forrest, p.123). In other words, say that "A murdered B" only if A murdered B! Things are not always this clear, but often they are.

Forrest adopts a teleological normative principle, the "Value Creation Principle," which tells us, in short, to do things that most increase value, maintain value, or at least do not diminish value (Forrest, p.59). Fetz calls this principle "dubious," but it is no more dubious than teleological ethics itself. Forrest affirms the same basic moral principle to which all teleological ethical theories are committed. However, where

other teleologists rely on intuitive weighings to distinguish bad, from better, from best, Forrest shows us how to move beyond intuitions to calculations, and this is a tremendous improvement!

Fetz concludes by saying that "Buying this book is a waste of money, reading it a waste of time" and that "With books like this [its publisher, Rodopi, which publishes high quality publications] is very likely to lose the reputation it has acquired" (Fetz, p.42). I have shown, however, that Fetz's conclusion is based upon an exceedingly superficial reading of this fine book. The Editors of *Kriterion* owe a serious apology to both Forrest and Rodopi for accepting a book review for publication written by someone like Fetz who so clearly and egregiously failed to understand the author.

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