Six

A REPLY TO “TEN UNANSWERED QUESTIONS”

Frank G. Forrest

Traditional ethical theory focused on ultimate value dichotomies like good and bad, right and wrong, virtue and vice. Robert Hartman's primary contribution to axiology centered on the first of these, on developing formalistic patterns for identifying good and bad, as well as intermediate values between the extremes like fair, average, and poor. He promised that a teleological value calculus would emerge which, when skillfully applied, would help us to understand and distinguish between ethical right and wrong, virtue and vice. This calculus was to be based upon set theory and transfinite mathematics; but Hartman's development of the application of this formal framework to practical problems in ethics was very rudimentary.¹

*One axiologist in particular, Dr. Frank G. Forrest, has spent a number of years developing an applicable Hartmanean moral calculus based on set theory and cardinal arithmetic. The mature results of his years of effort were published in 1994 in Frank G. Forrest, *Valuometrics[®]: The Science of Personal and Professional Ethics*.² Earlier versions of Forrest's book had been available for several years to members of the R. S. Hartman Institute.*

A version of Forrest's response to Rem B. Edwards' "Ten Unanswered Questions" was originally presented to the 1992 meeting of the R. S. Hartman Institute. In the significantly revised version that follows, Forrest maintains that formal axiology: (1) employs cardinal number arithmetic, in which mere additions do not express value enrichment, but value exponents do, (2) does not give us an obligation to reproduce or any other duties, but allows us to assess the outcome of various courses of action like overpopulating the earth, (3) does not distinguish between duty and going beyond the call of duty, but can be used to assess the results of various alternatives like minimal decency and extreme moral sacrifice, (4) can analyze and assess the outcome of situations involving euthanasia or mercy killing, (5) does not generate concrete rules, but may analyze them and guide their application by the value creation principle: "Always do the most good," (6) can be used to analyze and compare ethical rules with or without

the inclusion of various qualifications and exceptions, (7) can help distinguish between the adequacy or inadequacy of the moral rules it analyzes, (8) can account for human rights, (9) and can determine which moral sanctions are appropriate for various infractions. Also, (10) the moral status of marginal human beings and animals depends upon factual and philosophical considerations about their properties and capacities.

In the discussion to follow, I will assume these premises and understandings:

(1) Intrinsic value exists only when persons are involved. Singular concepts are those words and only those words that apply to persons, including their proper names.

(2) As persons, all normal people have the same degree of intrinsic goodness. What is different about people that permits us to classify some as good, some as bad, and some better than others, is their behavior, their mental and physical strength and dexterity, and how they fulfill their roles.

(3) The independent mathematical system we use to account for value phenomena is cardinal number arithmetic. One may find this system in any set theory text book. Cardinal number arithmetic is simple but strange. In this discipline we find mathematical relationships that contradict and are inconsistent with finite number arithmetic. This situation exists because cardinal numbers include the numbers for infinity. Thus, our calculations disclose situations: (a) where a part is equal to the whole, (b) where a quantity may have more than one value, for example X may = a or b , (c) where an arithmetical operation produces no change and (d) where arithmetical operations under certain conditions cannot be performed.

(4) Cardinal number arithmetic models and accounts for value phenomena imperfectly. Therefore, in order to eliminate some loose ends and gaps, we must resort to several *ad hoc* operations in the application of this arithmetic as a frame of reference for the science of value.

(5) Ordinary sound logic and formal axiology go hand-in-hand.

1. Measuring Personal Enrichment

Enrichment of our selves and others can be expressed mathematically. Unique individual selves have the characteristic cardinal number $\aleph_1$, known hereafter as the concept value index. Finite conceptual properties like knowledge have the value index n . If we assume that advancing a person's

knowledge is a finite enrichment of the self, this situation can be expressed mathematically using exponents, as follows:

$$R \text{ (Resultant)} = \aleph_1^n = \aleph_1.$$

However, in accord with (3) (c) above, repeated finite or even infinite enrichments of one's self *do not* move the value of the resultant beyond $\aleph_1$. Adding $\aleph_1$ to itself any number of times still is $\aleph_1$. In order to create a value of $\aleph_2$, a person must intensely identify-with or fully give him or her self to something or someone. Thus, if a person passionately loves knowledge and intensely identifies himself or herself with it, we get:

$$R = n^{\aleph_1} = \aleph_2.$$

This shows that mere additions to knowledge do not really enrich a person's life, but the passionate love of knowledge does. So does loving another person, which can be expressed by substituting $\aleph_1$ for n in the preceding formula.

The basic rules of inference for exponents in cardinal number arithmetic may be found in my book: *Valumetrics[®]: The Science of Personal and Professional Ethics*.³ Understanding the various illustrations that follow requires awareness of one of these rules. When we combine concepts and their attendant value indexes (n , k , or $\aleph_1$), the arithmetical operation that models these combinations is exponentiation. If the concepts are compatible and enhance fulfillment of one or both, the combination is a composition and the sign of the exponent is plus (+). If they are incompatible and obstruct fulfillment, the combination is a transposition and the sign of the exponent is minus (-).

2. The Duty to Reproduce, Contraception, and Mass Murder

Hartman's formal system *does not* place upon us an obligation to reproduce. Neither does it place any other obligation upon us. There are no moral commandments in formal axiology as such. On the other hand, this system is a means of analyzing the legitimacy of obligations and moral commandments. According to this system, having as many children as humanly possible *would not* infinitely enrich the world or the universe. This course of action, as the facts reveal, tends to degrade the planet and quality of life on it. Hartman's system indicates that we should limit the number of our children in accordance with the bounds of the earth's resources, space, and need for protection of the ecosystem. The fact that parts of the earth at present are sparsely populated does not negate this precaution.

On the basis of ordinary logic, we have obligations to actual persons, but not to unconceived persons. An unconceived person is a concept without a referent. Our responsibility to unborn persons, however, is a matter for which axiological analysis is appropriate.

The value calculus that I have developed departs from Robert S. Hartman in at least one respect. Hartman represented extrinsic values—things, processes, and actions in public spacetime—by the value index “ $\aleph_0$ ” because he regarded them as having a denumerably infinite complexity; yet, he admitted that our practical treatment of them is always finite. Therefore, in lieu of $\aleph_0$, I assign the value index “ k ” to things of extrinsic value. The number “ k ” represents finite but indefinitely large sets. With this in mind, we now can show by the following calculation that contraception is *not* morally equivalent to murder on Hartmanean grounds. When we arrange concepts according to valuometrics syntax, contraception is:

$k \qquad \qquad \qquad k$

R_x : sperm prevented-from-uniting-with-egg. (Transposition.)

Therefore: $R_1 = k^{-k} = 1/k$

Murder is a person killing a person with malice aforethought. The value index of this concept combination is $1/\aleph_2$. $1/k$ and $1/\aleph_2$ are not equivalent. Therefore, contraception and murder are not equivalent. Contraception, on the other hand, is a transposition ($1/k$), and in and of itself is wrong. However, there are various circumstances that will justify it, such as counteracting over-population, wholesome enjoyment of sex without incurring unwanted pregnancy, and so on. Consider the following:

R_3 : R_1 (contraception) to counteract overpopulation

We know that $R_1 = 1/k$. However, in order to find the value index of R_3 , we first must determine the value index of overpopulation (R_2). If we apply this illustration to one of the many locations in Africa today, the concept combination of R_2 , according to valuometrics syntax, is:

$k \qquad \qquad \qquad \aleph_1$

$R =$ ecosystem unable to support people-mass. (Transposition.)

Therefore: $R_2 = \aleph^{-k} = 1/\aleph_1$

Accordingly: R_3 : R_1 ($1/k$) counteracts R_2 ($1/\aleph_1$). (Transposition.)

Therefore: $R_3 = (1/\aleph_1)^{-1/k} = \aleph_1^{1/k} = \aleph_1$

In this equation κ_1 is greater than either of the input value indexes ($1/\kappa_1$ and $1/k$). Consequently, this is an instance of value creation. We interpret this as follows. When we use a transposition, such as contraception ($1/k$), as in this example, and the outcome is either the creation of value or holding value neutral, then the transposition is justified.

The justification of contraception to provide enjoyment of sex and at the same time insure that an unwanted pregnancy does not occur involves the following operations.

-n k

R_1 : unwanted pregnancy (Transposition)

$$R_1 = k^{-n} = 1/k$$

k 1/k

R_2 : sex that unquestionably-will-not-result in R_1 (Transposition)

$$R_2 = (1/k)^{-k} = k^k = k$$

1/k k

R_3 : contraception insures R_2 (Composition)

$$R_3 = k^{1/k} = n \text{ or } k$$

In this instance, cardinal arithmetic is somewhat ambiguous. However, R_3 is not a transposition. Hence, in the final outcome, value has not been depreciated. Under these conditions, it is reasonable to assume that contraception is a justified transposition.

Let us return to Edwards' question about mass murder. The model for killing a person is $R = \kappa_1^k = 1/\kappa_1$, not $R = \kappa_1 - \kappa_1 = \kappa_1$. Therefore, his conclusion "—so it would appear that there is nothing wrong with murder as long as one person remains in existence"—is *not* a proper axiological deduction. Neither is it logical.

Any rational person would agree that killing a million people is horrible and repulsive. However, if everybody felt that killing one persons is just as horrible and repulsive, the problems of murder and war probably would go away. And that would not be too bad.

3. Duty and Supererogation

The first paragraph of the third question in "Ten Unanswered Questions" contains four questions. The answers to these are: no, no, no, and none.

A Hartmanian ethics (1) does not distinguish between moral *obligations and supererogations*, or (2) between *required and encouraged* beneficial acts. (3) It places no requirement on anyone to be a saint or hero or (4) to make inordinate sacrifices for others. No distinction between minimal decency and supreme moral excellence is made. The formulae in Hartman's axiology do not express the distinction between the required and the recommended degree of morality. These are things that people ultimately must decide upon for themselves in determining what kind of persons they want to be. These things pertain to psychology and personality. They are outside the scope of formal axiology. What formal axiology does is this. It provides the insight to make the distinction between right and wrong, which, as C. I. Lewis says, "extends to every topic of reflection and to all that human self-determination or attitude may affect."⁴

Obviously this ideal is personal if a person adopts it and identifies with it as a guide for his or her behavior. This model points us in the direction of attaining the greatest goodness, but doing this does not require extreme personal sacrifice. In most instances, attaining the greatest goodness, creating value, produces personal satisfaction, not sacrifice.

4. Euthanasia

Ethical problems involving euthanasia can be analyzed by Hartman's formal axiology. We use the basic formula of Hartmanian algebra for this purpose.

In my *Valumetrics*^{*}: *The Science of Personal and Professional Ethics* I discuss passive and active euthanasia in some depth and show both the formulas and the factual considerations that are relevant for justifying both kinds of "mercy killing." I refer readers to that discussion for details.⁵

Edwards claims to know philosophically but not axiologically whether euthanasia is justified, but this invokes the following counter question? What is the basis for a comparison of the rightness of the philosophical answer to the morality of euthanasia with the axiological answer?

5. Generating Moral Rules

The Hartman ethic *would not* generate a set of concrete moral rules. Instead it provides a mathematical logic applicable to many kinds of situations for obtaining moral guidance. Common sense maxims and commandments do not exist in this system. However, a moral principle that

has universal application, the value creation principle, is a logical appendage to the system.

Obtaining the clear view that is lacking, as indicated in the last line of this question, requires understanding that formal axiology *does not* originate moral rules. Instead it is a system of logic for determining the degree of goodness of a rule. The rule itself and the system for analyzing it both are things of systemic value. The referents of the concepts that make up a rule, however, may be things of intrinsic, extrinsic, or systemic value. The value creation principle is a precise statement of the maxim "Always do good." However, formal axiology does not generate this principle. The value creation principle is only a guide in the application of formal axiology.

The tools of analysis provided by formal axiology permit us to determine whether more good results from following simple moral rules than from not following them. For example, let us compare:

$$\begin{array}{ll} \begin{array}{cc} k & n \\ \text{keeping promises} & (C) \end{array} & \text{vs.} \quad \begin{array}{cc} -k & n \\ \text{breaking promises} & (T) \end{array} \\ R = k^n = k & R = k^{-n} = 1/k \end{array}$$

Here, keeping promises produces more value than breaking promises, for k is greater than $1/k$. Here and in what follows, (C) means that the concept combination is a composition, and (T) means that the combination is a transposition.

$$\begin{array}{ll} \begin{array}{cc} k & n \\ \text{telling the truth} & (C) \end{array} & \text{vs.} \quad \begin{array}{ccc} k & -n & n \\ \text{asserting that a falsehood is true} & (T \ \& \ C) \end{array} \\ R = k^n = k & R = (n^{-n})^k = (1/n)^k = 1/k \end{array}$$

$$\begin{array}{ll} \begin{array}{cc} k & \aleph_1 \\ \text{protecting persons} & (C) \end{array} & \text{vs.} \quad \begin{array}{cc} -k & \aleph_1 \\ \text{killing persons}^6 & (T) \end{array} \\ R = \aleph_1^k = \aleph_1 & R = \aleph_1^{-k} = 1/\aleph_1 \end{array}$$

$$\begin{array}{ll} \begin{array}{cc} k & k \\ \text{protecting property} & (C) \end{array} & \text{vs.} \quad \begin{array}{cccc} k & k & n & n \\ \text{taking property without the right}^7 & (C \ \& \ T) \end{array} \\ R = k^k = k & R = (k^k)^{-(n^n)} = 1/k \end{array}$$

Our calculations show that given each of the above choices, following the rules results in greater value than breaking them; and to that extent, the rules are justified. Yet, the situations to which we must apply moral rules are often so complex that qualifications of and exceptions to these simple rules must be considered, as I will show in discussing the next two questions.

6. Complex Moral Rules with Qualifications and Exceptions

Scientific axiology, as indicated previously, *does not* generate a simple or complex set of rules of ethics, but it can be used to analyze moral rules. However, we have a set of arithmetic rules, to wit; (1) rules for general finite and transfinite number exponentiation,⁸ (2) rules for determining which concept is the base and which is the exponent in a basic equation,⁹ (3) rules for transposing transpositions, that is, for redressing wrongs, injustice, badness,¹⁰ (4) rules for general finite and transfinite roots,¹¹ and (5) rules for the justification of transpositions that transpose transpositions, that is, that bring good out of evil or prevent even greater evil.¹²

These rules are operational rules for applying Hartman's system for determining right and wrong, and for identifying possible exceptions and qualifications. This system reveals under what circumstances, if any, the destruction of infinite value is warranted. The basis for this possibility rests on the fact that a hierarchy exists within infinity. The mathematical expressions that show this possibility are given in the literature on this subject, including my book.

If we understand that destruction of infinite value means "the killing of a person" or a "person dying," we can express this mathematically as $1/\aleph_1$. This act is justified if (1) it contributes to the fulfillment of a situation expressed by $\aleph_2$ or (2) if it inhibits fulfillment of a situation expressed by $1/\aleph_2$. Sydney Carton's sacrifice of his life to save the Darney family, narrated in Charles Dickens' novel *A Tale of Two Cities*, is an example of the first. Destruction of the Iraqi army (killing Iraqi soldiers) to prevent them from continuing to murder the people in Kuwait is an example of the second.

Example (1):

R_x : Sidney dies to save Lucie's love and happiness with Charles, where

$\aleph_1$

$\aleph_1$

R_1 : Lucie's love with Charles (C)

$$R_1 = \kappa_1^{\kappa_1} = \kappa_2,$$

$$\kappa_1^{-k}$$

R_2 : Sidney dies (T)

$$R_2 = \kappa_1^{-k} = 1/\kappa_1, \text{ and where}$$

$$R_3: R_2 (1/\kappa_1) \text{ to save } R_1 (\kappa_2) \text{ (C)}$$

$$R_3 = \kappa_2^{1/\kappa_1} \leq \kappa_2 \text{ but } > 1/n^{13}$$

The words "to save" indicate that the relationship between R_1 and R_2 is compositional. If Sydney's purpose was no more than to save Lucie's and Charles' lives, then his sacrifice, while heroic, would not be justified. However, Sydney had a higher motive which, as the arithmetic reveals, justifies his action. The resolution of the equation for R_3 comes under the Rules for General Finite and Transfinite Roots. These rules provide guidance for determining where wrongs and badness are justified.

Example (2)

R_x : killing Iraqi soldiers to prevent them-from-murdering-Kuwaiti-people, where

$$\kappa_1^{-k}$$

R_1 : killing Iraqi-soldiers (T)

$$R_1 = \kappa_1^{-k} = 1/\kappa_1, \text{ and where}$$

$$1/\kappa_1$$

$$1/\kappa_2$$

$R_2: R_1$ to prevent Iraqi-soldiers from murdering Kuwaiti people (T)

$$R_2 = (1/\kappa_2)^{-1/\kappa_1} = \kappa_2^{1/\kappa_1} \leq \text{but } > 1/n$$

The words "to prevent" indicate that the relationship between Iraqi soldiers murdering Kuwaiti people ($1/\kappa_2$) and R_1 is transpositional. This is an example of the Rules for the Justification of Transpositions that Transpose Transpositions. These rules provide guidance for determining the justification of wrongs and badness that redress wrongs and badness. The use of penalties for infractions of the rules in sports and in the criminal justice system also are real world examples of the application of these rules.

7. Assessing the Adequacy of Moral Rules

Although the Hartmanian system does not generate a set of moral rules, as I have repeatedly stated, it nevertheless can be used to determine whether a given moral rule, simple or complex, is adequate or inadequate. Consider some of the examples of complex rules given by Edwards in his sixth question:

Example (1)

Keep promises, except when you have promised to do wrong or evil

The concept combination “keep promises” in and of itself without qualification is compositional and therefore ethically correct. However, in this case the promise is transpositional, a promise to do wrong. Keeping a promise of this nature materializes the wrong. Breaking it eliminates the wrong. The valuemetrics analysis of this situation is:

R_x : violate a promise to commit murder, where

R_1 : promise to commit murder (C)

$R_1 = (1/\kappa_2)^n = 1/\kappa_2$, and where

R_2 : violate R_1 (T)

$R_2 = (1/\kappa_2)^{-k} = \kappa_2^k = \kappa_2$

Under the Rules for Transposing Transpositions, the concept combination “violate a promise to commit murder” creates value. Therefore, disvaluing a promise is ethically correct if the promise incorporates anything transpositional, a wrong or badness. However, if the promise incorporates something compositional, then to disvalue it (violate it) would depreciate value. This would be unethical.

Example (2)

Keep a promise, except when breaking it is necessary to save human life.

In this example, we assume that the promise is to do something good and beneficial. Breaking the promise would depreciate value and hence would constitute a Transposition. The purpose of the following analysis, therefore, is to answer the following question: If implementing this Transposition does in fact save human life, would it be justified?

R_x : break a promise in order to save human life, where

$$-k \quad n$$

R_1 : break a promise (T)

$$R_1 = n^{-k} = 1/k, \text{ and where}$$

$$1/k \quad \kappa_1$$

R_2 : R_1 to save human life (C)

$$R_2 = \kappa_1^{1/k} = \kappa_1$$

This situation is value neutral; it neither creates nor destroys value. Nevertheless, because it maintains value we may conclude that breaking a promise to save human life is justified. Keeping a promise while knowing that doing so would result in human death would certainly destroy value.

Example (3)

Tell the truth, except when lying is necessary to save a human life.

This is another example of justifying a transposition. Lying, which is asserting that a falsehood is true, is a transposition having a value index of $1/k$. If telling a lie would in fact result in saving an innocent person's life, is it justified? The concept combination for this situation is:

$$1/k \quad \kappa_1$$

R_x : lying to save a human-life (C)

$$R = \kappa_1^{1/k} = \kappa_1$$

This situation is also value neutral; therefore, lying to save an innocent person's life is justified.

Example (4)

Do not kill, except when necessary for self-defense.

If we assume that the prohibition against killing applies to killing a person, and that self-defence applies to defending myself (or oneself) against being murdered, then the concept combination in this case is:

R_x : killing a person to prevent that person from murdering me, where

$$-k \quad \kappa_1$$

R_1 killing a person (T)

$$R_1 = \kappa_1^{-k} = 1/\kappa_1, \text{ and where}$$

$$R_2 = R_1^{1/\kappa_1} \text{ to prevent murder } (T)$$

$$R_2 = (1/\kappa_2)^{1/\kappa_1} = \kappa_2^{1/\kappa_1} \leq \kappa_2 \text{ but } > 1/n$$

This is another example of the justification of a wrong to avert a greater wrong. Whereas killing a person to prevent that person from murdering is justified, if obstructing the murder can be accomplished compositionally, this would be a better solution, as the next example shows.

Example (5)

R_x : curb a person to prevent that person from murdering me, where
 k κ_1

R_1 : curb a person

$$R_1 = \kappa_1^k = \kappa_1, \text{ and where}$$

R_2 : $R_1(\kappa_1)$ to prevent murder (T)

$$R_2 = (\kappa_2)^{-\kappa_1} = \kappa_2$$

The assumption that “ κ_2 ” in this example is better than “ $\leq \kappa_2$ but $> 1/n$ ” in the preceding example is based on the lack of ambiguity in $R = \kappa_2$ as compared to $R \leq \kappa_2$ but $> 1/n$.

Example (6)

Do not kill, except in the defense of loved-ones.

If the stipulation concerning the purpose of the defense is also to prevent murder, then killing a person is justified. However, if the purpose of the defense is for some other reason, say defense against slander, and if we define slander as defamation of reputation ($1/k$), then killing is unjustified, as the following analysis reveals.

$$R: \text{ killing-a-person to defend against slander } (T)$$

$$R = (1/k)^{-1/\kappa_1} = k^{1/\kappa_1} = d$$

This means that R is indeterminate, that it cannot be solved mathematically. Hence, we have no grounds in the axiological context to justify killing a person under these circumstances.

As the immediately preceding examples illustrate, formal axiology can analyze moral rules that incorporate exceptions and can determine which exceptions are justified and which are not.

8. Human Rights, Conflicting Rights

Can formal axiology generate a theory of human rights? In the literature on this subject, human rights are defined as justified claims for things that meet the basic needs of people in sustaining and improving their lives. When we research the subject further, we find that rights apply to a broad range of human needs and wants, and they may be classified variously as natural rights, God-given rights, civil rights, and so on. We discover that rights are a function of values; hence, a theory of rights is an extension or component of applied value theory. This suggests that human rights theory is inherent in formal axiology, as opposed to being generated by it.

The names of all things conceived as rights are concepts. They are subject to the same procedures of axiological analysis as other concepts. Consequently, questions of hierarchy and conflicts among rights can be resolved by the same formulas as other axiological problems. The following examples illustrate how the formulas of axiology apply to rights. The word "right" belongs to the type of concept that has the value index n .

$\overset{n}{R_x}$: right to life (human life) (C)

$$R = \kappa_1^n = \kappa_1$$

$\overset{n}{R_x}$: right to freedom

$$R = n^n = n$$

$\overset{k}{R_x}$: respecting the right-to-life

$$R = \kappa_1^k = \kappa_1$$

$\overset{-k}{R_x}$: Denying the right-to-life

$$R = \kappa_1^{-k} = 1/\kappa_1$$

A conflict of rights such as the right to life versus the right to property can be resolved by the axiological framework. The value index for human life is n_1 , and the value index for property is k . n_1 is greater than k ; therefore, human life is a greater good than property. Thus, the right to human life has precedence over the right to protect property. This applies to the real world in the following example.

If A denies B's right to property by stealing it, is B justified in denying A's right to life by killing him? The solution to this problem, incidentally, uses the same axiological method for determining just punishment under the retributive theory of criminal justice.

$$1/n_1$$

$$1/k$$

R_x : killing the offender (A) absolves the crime of theft (denying B's right to property) (T)

$$R = (1/k)^{-1/n_1} = k^{n_1} = d$$

Under the rules for Finite and Transfinite Number Roots, d means indeterminate. Therefore, we have failed to justify killing A.

The preceding examples show how axiological principles and procedures for the solution of other value problems also apply to the solution of problems about rights.

9. Moral Sanctions

A theory of sanctions to support obedience to moral and legal rules and respect for moral and legal rights is also inherent in formal axiology, as opposed to being generated by it. The methodology for analyzing sanctions is the same as that for analyzing rights and other values, for both rights and sanctions are expressions of value. To illustrate, consider the following concept combinations.

Example (1)

$$1/k$$

$$1/k$$

R_x : threat-of-imprisonment (denying freedom) to discourage lawlessness (T)

$$R = (1/k)^{-1/k} = k^{1/k} = n \text{ or } k$$

Thus, under these conditions, threat of imprisonment is justified.

Example (2)

R_x : social disapproval to discourage stinginess

Whether or not social disapproval for stinginess is justified depends on the nature and degree of the stinginess. If stinginess is interpreted as very close guarding of possessions, then, as this analysis indicates, social disapproval is not justified because value is depreciated.

$\frac{1}{k}$ k
 R_x : social-disapproval to discourage very-close-guarding-of-possession (T)

$$R = k^{-1/k} = 1/k^{1/k} = 1/n \text{ or } 1/k$$

However, if stinginess is a marked lack of generosity equivalent to avaricious miserliness, then the stinginess is transpositional. This changes the situation, as follows.

Example (3)

$\frac{1}{k}$ $\frac{1}{k}$
 R_x : social disapproval to discourage lack-of-generosity (T)

$$R = k^{-1/k} = k^{1/k} = n \text{ or } k$$

Here value is gained, not lost; and this type of social disapproval is justified. This example demonstrates why sound ethical analysis requires clarity of concepts and knowledge of relevant facts.

Example (4)

κ_1 $1/k$
 R_x : pangs-of-conscience causing repudiation of dishonesty (T)

$$R = (1/k)^{-\kappa_1} = k^{\kappa_1} = \kappa_2$$

Conscience causing repudiation of dishonesty is a case of value creation, and thus it is justified.

One rule of syntax in formal axiology concerns the use of the concept "person," or "any of its derivatives," or a person's "proper name." The rule allows use of such a concept only when the meaning of a situation cannot be given without it. This keeps the number of alephs in concept combinations to a minimum. The concept combination in Example (4) does not contain the concept "person" or a person's name, yet the value index

$\aleph_1$ is assigned to the concept "conscience." This is done because conscience is a major element in the complex humanness and self-identity of people.

10. Marginal Human Beings and Animals

See attached Forms of Life: Moral Status Chart for my classification of marginal cases and non-human animals. I also am puzzled as to why a baby is number one on the HVP.

There are certain animals whose intelligence seems to approach the human capacity to think and combine thoughts. I refer to certain apes, porpoises, and whales. They are a more complex form of life than, for example, insects and plants, but I do not think that we have sufficient evidence to assign to them any value index other than k . If this evidence is ever produced, then we would assign to them the value index $\aleph_1$.

Since I assign the value index k to extrinsic things, processes, and activities and do not follow Robert S. Hartman in assigning them the value index $\aleph_0$, the question arises why I do not assign $\aleph_0$ to non-human animals as having a kind of value that is intermediate between persons and things. I suggest that we assign k even to the higher forms of animal life in order to maintain a distinction between them and people under all conditions. If we assign $\aleph_0$ to these animals, this distinction disappears under certain circumstances. For instance, the care and protection that a mother whale provides for her offspring would then be expressed as $R = \aleph_0^{\aleph_0} = \aleph_1$. In this situation, interaction between animals has the same value index as a person, with no person being involved. This discloses one of the drawbacks of cardinal number arithmetic. Perhaps Mark A. Moore's quantum wave model equation developed in the article to follow will permit us to assign different values to non-human forms of life without encountering this problem.

FORMS OF LIFE

Moral Standing Chart

- I Irreversible coma
- II Pre-conscious-brain functioning fetus
- III Conscious-brain functioning fetus
- IV Retarded persons
- V Baby
- VI Animals, plants, and so on.

Class	Functions Naturally	Primitive Will	Form of Life	Vidx	Moral Standing	Entitled to Human Rights
I	no	no	artificial	1/A ₁	none	no
II	yes	no	vegetative	k	< person	no
III	yes	yes	human	A ₁	person	yes
IV	yes	yes	human	1/A ₁	person	yes
V	yes	yes	human	A ₁	person	yes
VI	yes	yes	non-human	k	< person	no (we eat them)

ENDNOTES

1. Robert S. Hartman, *The Structure of Value: Foundations of Scientific Axiology*, (Carbondale, Ill.: Southern Illinois University Press, 1967), pp. 243-248, 265-293.
2. Frank G. Forrest, *Valuometrics^{*}: The Science of Personal and Professional Ethics*, (Amsterdam - Atlanta: Editions Rodopi, 1994).
3. *Ibid.*, pp. 45, 50, 79.
4. C. I. Lewis, *The Ground and Nature of the Right*, (New York: Columbia University Press, 1955), pp. 3-4.
5. Forrest, pp. 157-164.
6. See *ibid.*, p. 65.
7. *Ibid.*, p. 64.
8. *Ibid.*
9. *Ibid.*, p. 51.
10. *Ibid.*, pp. 87-96.
11. *Ibid.*, p. 91.
12. *Ibid.*, pp. 97-100.
13. *Ibid.*, p. 94.