Metaethics: A Neuro- Geometric Proposal

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ABSTRACT

Metaethics explores the relationship between types of ethics. The field of moral psychology has increasingly attempted to explain types of ethical thinking based on brain processes. This paper proposes a metaethical typology of seven distinct types of natural thinking processes rooted in how visual images are translated into abstract thinking. These seven ethical thinking types are Transcendent, Unitary, Hierarchical, Equitable, Vectoral, Analogic, and Topographical. Human beings then ladder concepts upon these processes using the construction of increasingly abstract metaphors. As proposed, these seven thinking processes appear to effectively form the foundation for current ethical theories such as Utilitarianism and Kantian Deontology, or other forms of moral reasoning. They may also be combined to explain the operations of more complex forms of moral reasoning such as religious ethics. Finally, they reveal that the possibility of natural thinking types has normative implications for ethics.

Keywords: Ethics, Metaethics, Moral Psychology, Neuropsychology, Moral Reasoning

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INTRODUCTION

Ethics are moral reasoning. They are conscious efforts to solve a specific category of problems and are distinct from moral intuitions, principles, emotions, values, traditions, or norms. As the practices of real humans in the context of complex social and environmental conditions, ethics quickly multiply and produce competing or contradictory solutions and thus in turn become problems. Are deontological ethics to be preferred to Utilitarian? Or should one emphasize character? The debates form the basis of many introductions to ethics.[1] Meta-ethics attempts to resolve these issues by conceptually organizing the many forms of moral reasoning to permit a better understanding of ethical processes and produce more effective outcomes.

In an effort to conceptually organize the complexity of ethical types, this paper adopts the

[1] As examples: L. Hinman, *Ethics* (Harcourt Brace, 1994); N. Rosenstand, *The Moral of the Story* (McGraw-Hill, 2013).

view that ethics are a moral use of a non-moral set of thinking processes,[2] and further, that the non-moral processes are natural[3]. The difference between moral and non-moral reasoning is found in how these thinking processes are used. Specifically, ethics are efforts to apodictically resolve specific types of relational problems; the construction of answers that fully resolve the problem.

Because ethics are hypothesized as a part of a natural thinking process, the proper starting place for this proposal is moral psychology. In the last twenty years, moral psychology has become an important tool for resolving the problems caused by ethics; the universality of the brain becomes the theoretical basis for unifying perspectives on the problems moral reasoning is expected to solve. For example, Jonathan Haidt has developed a complex model of moral reasoning based on presumed brain dynamics.[4] Haidt is not alone and there has been and continues to be significant work in the field.[5] However, the results are complex and the human brain's functioning is open to interpretation.[6]

What moral psychology gets right is that ethics is the work of brains. While moral reasoning may be a formal process undertaken by socially located individuals, it still functions as one aspect of natural capacity. Examining the brain may not, at least not yet, produce a clear picture of how moral reasoning takes place, but it does locate such thinking within the operational capacities of the human brain and the natural potentials lodged there as the result of evolution. Further attention to this cannot help but improve the prospects for the field of ethics. Understanding how the brain converts perceptions into analysis and integrates memory and emotion into that analysis should lead to improvements in understanding human morality.

This paper proposes a new application of moral psychology to the problem of meta-ethics. While moral reasoning in application tends to break into distinct logical structures, it is possible to see behind this divergence the work of integrated natural brain processes. A model built upon and significantly extending the theorizing of anthropologist Alan Page Fiske[7], as applied through a filter of a proposed set of visually oriented brain process, make it possible to create a coherent typology of thinking types that correlates with known ethical theories. On this basis it is possible to explain the differences between forms of ethics and identify normative implications of neuroscience for ethics.

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[2] A. Luco, The Definition of Morality, *Social Theory and Practice* 40 (2014), 361-387; B. Beal, The Nonmoral Conditions of Moral Cognition, *Philosophical Psychology* 34 (2021), 1097-1124.

[3] "Natural" is used here in the limited sense of something that arises from the fundamental neurological processes of the brain, and which are shared with other species. Nature can be thought of as the underlying structure which emerges from existence itself. In this it is much like the Chinese concept of Li. However, in practice nature can never be fully separated from nurture since developmental processes themselves are shaped by environmental conditions. Specific capacities for natural processes will vary from individual to individual on that basis. In this it is conceivable that sex, gender, and culture will affect the degree to which a person will be able to exhibit the characteristics proposed.

[4] J. Haidt, *The Righteous Mind* (Pantheon Books, 2012).

[5] For examples, see W. Sinnott-Armstrong, ed., *Moral Psychology, Volumes 1-3* (MIT Press, 2008); P. Churchland, Braintrust (Princeton University Press, 2011); M. Hauser, *Moral Minds* (Harper Collins, 2006); *The Moral Brain*, J. Decety & T. Wheatley eds. (MIT Press, 2015); *Moral Brains*, S.M. Liao, ed. (Oxford, 2016).

[6] One need only note the opposite conclusions about free will drawn by R. Sapolsky and K. Mitchell. Reviewing the same neuro-psychological evidence, one concludes that decision making is the outcome of predetermined processes and the other does not. R. Sapolsky, *Determined* (Penguin, 2023) and K. Mitchell, *Free Agents* (Princeton University Press, 2023).

[7] A.P. Fiske, *Structures of Social Life* (Macmillan, 1991); A.P. Fiske, Relational Models Theory 2.0, in *Relational Models Theory*, ed. N. Haslam, pp. 3-26 (Lawrence Erlbaum Associates, 2004).

The starting place for this proposal is the work of Alan Page Fiske.[8] Fiske suggests that human beings apply distinct models of relational analysis to manage specific social locations, depending on their perceived salience to or presence as part of normal patterns of human interaction. Fiske observed in his field research that specific functions of community life followed distinct, consistent, and coherent patterns of relational analysis as community members distributed social and food resources. This led to positing a model of underlying human dynamics which Fiske believes encompass all human relationships. Subsequent research by Fiske and others have found the four structures to be common enough that Fiske's belief in their universality appears well-founded.[9] Psychologist Steven Pinker believes they are so prevalent and natural that they structure the way we use language in ordinary life.[10]

There is already a small body of work applying Fiske's relational models to ethics. Rai and Fiske[11] outline the basic case for the applicability of relational models to morality in their exploration of the social framework of moral decision making. Underlying the four relational models, they posit moral motives: "Unity, Hierarchy, Equality, and Proportionality."[12] These moral motives then drive the application of the corresponding relational model to specific social problems.

Subsequently, Fiske and Rai's *Virtuous Violence*[13] explores the nature of violence as a virtue. They argue that most violence results from an effort to regulate social relationships, often through attempting to restore a relational model which is perceived as having been violated. The authors do not turn their attention to how the relational models paradigm might then be turned to formal ethical systems except to note that they are encouraging naturalistic ethics rather than prescriptive ethics.[14]

There have been efforts to apply Fiske's model to moral problems. Goodnow applies relational models theory to the justice of housework;[15] Connelly and Folger explore the way relational models can guide the application of gender and racial equality as well as diversity in the workplace;[16] and Folger and Butz apply relational models to the abuse of power.[17] The relationship between patterns of relational analysis and human justice is significant and supportive of the general hypothesis developed here.

As proposed in what follows, there is a possible seven-dimensional model of naturally structured decision-making that is consistent and coherent. It is closely tied to how many types

8 A.P. Fiske, Structures of Social Life; A.P. Fiske, Relational Models Theory 2.0.

9 Nick Haslam ed., Relational Models Theory (Lawrence Erlbaum Associates, 2004).

10 Though only three of them, not Market Pricing. S. Pinker, The Stuff of Thought (Penguin, 2007).

11 T.S. Rai & A.P. Fiske, Moral Psychology is Relationship Regulation, Psychological Review 118 (2011): 57-75.

12 T.S. Rai & A.P. Fiske, Moral Psychology is Relationship Regulation, 58.

13 A.P. Fiske and T.S. Rai, Virtuous Violence (Cambridge, 2015).

14 A.P. Fiske and T.S. Rai, Virtuous Violence, 290-292.

15 J.J. Goodnow, The Domain of Work in Households, in Relational Models Theory, ed. Nick Haslam, pp. 167-196 (Lawrence Erlbaum Associates, 2004).

16 D.L. Connelley and R. Folger, Hidden Bias, in Relational Models Theory, ed. Nick Haslam, pp. 197-220 (Lawrence Erlbaum Associates, 2004).

17 R. Folger and R. Butz, Relational Models, "Deonance" and Moral Antipathy Toward the Powerfully Unjust, in Relational Models Theory, ed. Nick Haslam, pp. 221-246 (Lawrence Erlbaum Associates, 2004).

of ethics are currently defined and applied. It also creates the grounds for the integration of other ethical perspectives into one metaethical system. The key to this application is the laddering of ethics upon natural processes through metaphor.

1. Moral Psychology applied to Ethics through Metaphor

To develop a more extended analysis of ethics as the application of a natural process it is necessary to look more closely at how complex reasoning emerges from relational dynamics. Natural processes turn into human thinking through the repurposing of those processes. Sight, sound, taste, and touch turn into components of a rich social existence through the extension and interpretation of natural processes. The same is true for ethics. The natural capacities of the brain convert into moral reasoning by the application and interpretation of metaphors. As proposed, it is the geometric visualization of physical relationships that roots the metaphors which provide the framework for moral reasoning. The outcome is that ethics can be reconceived as a type of geometric analysis.

What stands out in Fiske's thinking and directly stimulates the proposal here, is the unique mathematical structure of each relational model. According to Fiske, human beings unconsciously organize relational dynamics at distinct levels of human social life by applying specific types of algebra to unique contexts; distinct algebras that lead to distinct types of relational thinking and qualitatively different transactions. Extending this analysis, John Bolender[18] demonstrates a fifth form of mathematically based relational analysis, one that represents an additional and vital component of human relational decision-making—Oceanic Merging.

Both Fiske and Bolender use algebraic mathematics to explain human thinking about relationships. However, it is possible to reconfigure the work of both Fiske and Bolender by using geometry. All algebraic relationships can be demonstrated geometrically and vice versa.[19] Using a geometric understanding of the relationships, it is possible to easily expand the framework Fiske and Bolender have developed and see how ethics function as a natural set of operations.

The shift from algebra to geometry not only extends the underlying ethical processes; it changes the way they are conceptualized. While algebra is a complex rational system of symbols, the brain is designed to directly process geometric relationships. The visual cortex of the brain processes visual stimuli and produces an understanding for the purpose of moving through or manipulating objects in space. These processes in turn become in humans the basis of complex reasoning and analysis of the world.[20] That the brain intrinsically and unconsciously uses geometry to assess and manage reality is thus a given. All that remains is to apply such processes to social-relational analysis and from there to ethics.

This transition from the geometry of life to ethical processes is almost certainly achieved

[18] J. Bolender, *The Self-Organizing Social Mind* (MIT Press, 2010).

[19] M. Atiyah, Mathematics in the 20th Century, *Bulletin of the London Mathematical Society* 34 (2002), 1-15. He notes that an approximate way to think of the difference is

[20] B. Tversky, Multiple Models, *Historical Social Research Supplement* 31 (2018): 59-65; Tversky, Visualizing Thought, *Topics in Cognitive Science* 3 (2011): 499-535.

using metaphor.[21] At its simplest, metaphor is the description of one object or condition by means of the combination of concepts related to other objects or conditions. This is an essential human function for managing reality. Meaning is typically conveyed through language and, according to Michel Meyer, metaphor is one of the four basic structures of language.[22] Metaphor is also how meaning is constructed from experience, including by those working in the sciences.[23] It might work like this: a circular image is analogous in actual life to a complete whole, such as an orange, and on that basis a brain constructs connotations of completeness and containment and ties them to all circular images. From there it is possible to draw upon these connotations to talk about things metaphorically and meaningfully such as "the circle of life" or a "closed group." It is a case of a geometric reality encountered by the brain in its raw framework (an orange) being converted into a tool for assisting, in the context of additional experiences, in describing or manipulating complex physical or social realities. The image provides a scaffolding or structure for more complex concepts built around and on top of it.

While the underlying process is a natural thinking process, the framework and thus the standards for the answers provided, are unique to the class of problems identified as moral. For example, the sense of movement through space (observed motion between objects), can be metaphorically applied to describe any goal-oriented process (sense of progress, achievement, loss, etc.). It is then a metaphoric laddering from this observational analysis to the development of the answers developed by teleological ethics and Utilitarianism—these forms of ethics are rooted in the development and achievement of specific goals (things to move toward).

Once ethics is re-conceptualized as a metaphoric working of natural brain processes, it is conceivable there are more than the seven decision frameworks hypothesized here. There may be more visual information processing structures[24] or there could be other brain processes involved. For example, Haidt proposes a brain switch for moving between collective and individual evaluation[25]. There may be still more such natural triggers for decision-making. Working outward from biology, it could be the case that ethics is an infinitely complex world of metaphorically extended overlapping and interacting natural decision-systems. Or it may turn out that the simple model of seven distinct relational geometries proposed here is adequate to explain the underlying structure of the vast majority, if not all, of human decision-making.

As a natural process this relational evaluation is typically unreflective or unconscious. It is applied intuitively based on social and psychological markers of salience. It is also filled with unique personal and cultural content. Thus, as human beings make decisions, they do not normally undertake moral reasoning but engage their life circumstances through the unconscious application of relational models that guide both immediate practice and theoretical ethical systems.

Ethical applications are also the consequence of individual development. Ethics enter the brain as individuals experience the coded behaviors of others or are taught to understand circumstances. There are two outcomes to the fact of ethical development. First, learned

[21] Omid Khatin-Zadeh, Danyal Farsani, Jiehui Hu, Zahra Eskandari, Yanjiao Zhu, Hassan Banaruee, A Review of Studies Supporting Metaphorical Embodiment, *Behavioral Sciences* 13 (2023): 585-598.

[22] M. Meyer, *What is Rhetoric* (Oxford, 2017).

[23] J. M. Soskice, *Metaphor and Religious Language* (Oxford, 1987).

[24] M. Atiyah, Mathematics in the 20th Century.

[25] J. Haidt, *The Righteous Mind.*

psychological reactions to conditions such as anxiety or satisfaction will be an important part of ethical process. Second, because the analytic system has been learned and thus precedes the specific perception, ethics gains the capacity to selectively drive perceptions; what is perceived becomes the consequence of the ethical approaches that have been learned. Thus, the felt moral character of the individual lifeworld may emerge from the application of learned ethical approaches.

Because ethics emerge from natural psychological processes in the brain, they are not only the basis of solutions, but they are also problems. As developed and unconscious thinking systems in the brain, they can trigger complex analysis without necessarily considering all the relevant facts or contextual factors. They can organize information according to stereotypes, biases, and surface similarities no less than they are capable of guiding profound, rigorous, or abstract analysis. Or the metaphors used for laddering may be in error. Nor do ethical processes necessarily lead to positive or cooperative outcomes. Negative or hostile outcomes may feel (or be) no less compliant with the underlying thinking processes.[26]

2. Seven ethical processes

While the starting point for this proposal is the work of Fiske[27], as developed it makes some significant shifts, eliminating one and renaming three of Fiske's relational models, and adding four more, one from Bolender and three based on additional observation. The result is seven types of relationally analytic thinking processes: Transcendent, Unitary, Hierarchical, Equitable, Vectoral, Analogic, and Topographic, each a more complex experience than the preceding. Each one is rooted in a process of geometric relationship perception and evaluation posited as normal to the brain. Each one subsequently roots or contributes to an abstract system of morality when clear moral reasoning is required. (Table 1.)

TABLE 1: METAPHORIC THINKING STRUCTURES AND ALTERNATE FRAMEWORKS

I. Thinking Structure	*II. Geometric visualization*	*III. Algebraic form*	*IV. Relational model*	*V. Biological framework*
Transcendent	Plane	Degenerate scale mathematics (unity)	Oceanic merging (Bolender[28])	Perception of no self through the sense of all things
Unitary	Circle	Categorical/ Nominal	Communal sharing (Fiske[29])	Sense of self as insider/outsider and the boundary conditions
Hierarchical	Linear vertical array	Ordinal	Authority ranking (Fiske)	Perception of vertical organization, especially as applied to social relationships
Equitable	Equivalencies	Interval	Equality matching (Fiske)	Perception of distributive equivalencies
Vectoral	Linear transformation			Perception of change along a

[26] A.P. Fiske and T.S. Rai, *Virtuous Violence*.

[27] A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0

[28] J. Bolender, *The Self-Organizing Social Mind*.

[29] A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0

				linear axis
Analogic	Matching			Comparison of objects for points of similarity
Topographic	Topographic array			Identification of points in a 3D array

2.1. Transcendent

The simplest natural form of relational perception is the non-existence of self in the context of everything. This is the experience of the utter transcendence of the universe and the absence of self. It is any experience where the self disappears as a meaningful unit. John Bolender[30] calls this state Oceanic Merging and identifies it as the natural outcome of the brain using degenerative scale algebra to assess the relationship between the self and all other relational prospects. It is relatively easy to see in religious and other forms of what might be called mystical analyses of existence. The implications of this experience for morality are significant.

The positive experience of transcendence might be described as the complete absence of personal orientation that provides a sense of true orientation. Or one can imagine this experience as providing a catastrophic level of anxiety as all conceptual anchors and boundaries are dissolved. As a neutral experience, it might be felt as blanking out or waking sleep.[31] Regardless, as an underlying conceptual geometry that drives more complex social and relational analysis, it takes the one who experiences it into a structure of meaning that has no room for the experience of self. Instead, it brings to the fore a sense of the context of personal existence. Given the frequency of reports of such experiences, it must be seen as a normal human capacity. It is consistent with what many people report during sex[32].

The experience of the transcendent unity of the cosmos, whether as a positive or a negative, would logically extend to form a framework for the construction of a sense of ultimate reality. Since this experience does not provide a capacity for discrimination, to the degree it is sensed as real, it would place a relational burden on the experiencer to find a conceptual unity within reality. The interpretive context would tend to support macro-level relational understanding—this is what the universe *is*. In as much as one might have been exposed to a religious or other cosmological understanding earlier in life, this could lead to a sense of the underlying truth of that interpretation of reality. Alternatively, as a naive experience, it might merely be seen as a kind of vacation from reality or a momentary lapse into deep anxiety. Depending on the strength of the experience and its interpretive context, it could have a conceptual strength that demands the subordination of more mundane relational experience.

In these terms, the moral reasoning process built on this relational model would probably be a religious perspective. The experience itself may not be directly religious in that the experience of the annihilation of self in the flow of the universe does not directly imply the existence of a God or gods. However, the interpretive framework might quickly lead in that direction, especially if

[30] J. Bolender, The Self-Organizing Social Mind.

[31] As anecdotally relayed to me by an advanced martial arts practitioner.

[32] While it may be coincidental, Andrew Greeley reports a significant correlation between sexual ecstasy and religious participation, especially prayer. Such a connection suggests that the experience of unitive ecstasy as a bodily state encourages religious sensibilities. A.M. Greeley, Faithful Attraction (TOR, 1991).

the experience is on the positive end of the experiential spectrum. As Bolender[33] notes, transcendence seems to be what many mystics experience and thus, given that religions tend to support mystical experiences as both real and truthful, might become a grounding for religious ethics. It might also equate to the Buddhist concept of no-self. Regardless, all ethical approaches metaphorically laddered upon this experience would demand that human existence be valued in terms greater than that of the individual, clan, or culture; instead, human identity would be framed in terms of existence itself as a transcendent whole. However, as an embodied perspective the fundamental framework would be rooted in the selfless-self, a kind of personal pan-humanism that though not easily interpretable in the context of family or clan might be highly effective in framing more conceptually sophisticated social contexts. Alternatively, this might feed other intuitions regarding the foundational nature of existence. If the transcendent is experienced as empty of life or personality it might support a belief in atheism. A more direct ethical outcome might be a commitment to the foundational values of harmony or love, as expressions of the need to find in daily life the same kind of unified interaction that is experienced in the transcendent state.

2.2. Unitive

A Unitive relational process is a step up in complexity and corresponds closely to the first of Fiske's relational models, Communal Sharing[34]. This is the experience of belonging. When observing the world through the relational perspective of unity, one assesses existence for its *inside* and *outside* with a strong orientation to being on the inside. This relational model corresponds to the algebraic realm of categorical/nominal identity, according to Fiske. This is the relational algebra of the set: does an object belong inside or outside the set? As a relational experience it identifies whether one belongs to the set. This is obviously either a universal or near universal human relational analysis: children know to which family they belong. Belonging is a vital part of human relational well-being[35], and creating relational identity is consequently one of the central human tasks. As such it becomes a powerful drive for morality and therefore for ethical resolution (an apodictic answer).

A set is best represented geometrically by a circle. A circle represents a relational state with only a single condition, the boundary. Relationally, one is either inside or outside, possesses the identity or does not, or is within or outside a regulating framework. The best example of such a condition is the family. As an evaluative framework it provides core assessments about where one is as a fundamental unit of existence, as well as allowing important assessments of how groupings in the environment function. The experience can be one of inclusion or exclusion.

While the fundamental experience of the unitive state is either belonging or being excluded, the interpretive possibilities are extensive. Human beings have the metaphoric capacity to extend this basic relational model to complex social and environmental conditions and use it to manage very complex dynamics in a simple manner. In fact, it may be the simplicity that makes it so attractive and useful. Being on the inside means, according to Fiske, one participates in the realm of generous exchange[36]. Members of a community give and take freely from a common source without concern for equitability or rank. There is a concomitant strong sense of shared

[33] J. Bolender, The Self-Organizing Social Mind.

[34] A.P. Fiske, Structures of Social Life; A.P. Fiske, Relational Models Theory 2.0.

[35] S. Porges and S. Porges, Our Polyvagal World (W.W. Norton, 2023).

[36] A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0.

identity and conformity to collective norms. It is typically understood as a natural kind of group with roots in land or other collective markers of identity. Decision making is consensual, and selflessness is the norm. Purity thinking is often applied to the group and relationships are marked by rituals and meal sharing. Kinship is a strong orienting mindset. Fiske uses the analogy of a table in a restaurant where the meals are shared at each table[37]. The table is the set and by knowing to which table (set) one belongs, one can know what dishes one may freely eat. However, the negative interpretive possibilities of unitive relational dynamics are also extensive, starting with exclusion and extending as far as genocidal oppression. One might also be forcibly confined to specific functions of belonging. Honor killings might be another outcome.

In terms of ethics, the unitive relational thinking process is the moral context of community and identity.[38] The unitive process is the boundary condition which provides a name for the self, existence at its most personal. The unitive process might be oriented to a religion, a nation, a sport, or a family (always the family). Key ethical concepts which emerge in Fiske's analysis are altruism and identity[39], key components of some ways of thinking about virtue ethics as well as ethics of care and ethics of nurture. This is also the core component of ethics of inclusion. However, as Fiske points out, categorical relationships are also the framework for genocide; there may be circumstances under which those outside the set are perceived as needing extinguishing. This is an important observation as it helps explain why acts of self-sacrifice and the destruction of others, such as in military combat, are so closely linked. Ethics of race are also based on this type of thinking. Thus, the unitive geometric framework of set theory can be seen as underlying significant forms of communal-identity and virtue ethics, both positively and negatively.

2.3. Hierarchical

Hierarchical ranking is a slightly more complex form of relational analysis and corresponds very closely to Fiske's relational model of Authority Ranking.[40] This form of thinking is based on the perception of vertical organization of objects in relation to each other.[41] As an orienting structure for thinking, it easily extends to a wide range of social relationships. It applies to everything from simple value judgments to complex power dynamics. The flexibility of this relational approach is extreme and is, in some respects, the one most open to application through ethics in complex social environments; it has the capacity to create a simple meaning structure while at the same integrating an infinite variety of concepts and actions.

Organizing information through a ranking structure is a basic form of relational analysis. As a tool it permits the establishment of priorities, ranks, precedence, authority, and power. Positively, it gives a sense of life as ordered and stable. However, negatively it can produce a sense of being locked into a structure where one does not have the power to make appropriate decisions. Fiske suggests that this relational assessment is about legitimate access to power and

[37] A.P. Fiske, Structures of Social Life, 209.

[38] Which ties it very closely to virtue theory. See A. MacIntyre, After Virtue 3rd ed. (Notre Dame, 2007). MacIntyre sees unitive existence as central to the performance of the virtues (204-225). See also S. Hauerwas, A Community of Character (Notre Dame, 1981).

[39] A.P. Fiske, Structures of Social Life; A.P. Fiske, Relational Models Theory 2.0.

[40] A.P. Fiske, Structures of Social Life; A.P. Fiske, Relational Models Theory 2.0.

[41] Susanne Quadflieg, Joset Etzel, Valeria Gazzola, Christian Keysers, Thomas Schubert, Gordon Waiter, and C. Neil Macrae. "Puddles, Parties, and Professors: Linking word categorization to neural patters of visuospatial coding," Journal of Cognitive Neuroscience 23 (2011), 2636-2649.

its application through political processes.[42] In Authority Ranking, superiors direct and subordinates obey, prestige is allocated, and core components of individual identity are assigned. Also, conflict can emerge in relation to the way ranking is assigned or expanded to others. It is an important part of how many social processes work.

The interpretive possibilities for this relational analysis are extensive and cultures use a wide range of approaches to applying this way of organizing relationships. Within many cultures a hierarchical understanding is central to the way core social relationships are organized, leading to formalized authority structures of parent-child, or leader-follower responsibilities and accountability. Western cultures tend to see the application of hierarchical understandings as much more limited, or even see it as inappropriate. Regardless, the potential types of social relationships which can be organized in these terms are unlimited. The Hierarchical thinking process contributes to the legitimization of concepts such as race or gender. They are reified through their association with status or power dynamics. Problems due to this form of thinking emerge because there is nothing in this way of visualizing relationships that says one thing is appropriately included and another is not. Cultural conventions and traditional norms are as likely to provide the content of hierarchical rankings as are more rational thinking.

The Hierarchical process of thinking is suggestive of a range of ethics. It is obviously the basis of ethics of duty; it appears to describe the normative management of human beings in all frameworks of authority. In any organization this would include such activities as good human resources policies, job descriptions or job responsibilities. It describes the basis of military operational ethics. Much of religious ethics appear to be part of ranked structures where God or gods exist at the top of the hierarchy and disseminate ranked instructions or responsibilities downwards in discreet stages. However, from a philosophical ethics point of view, the hierarchical thinking process is uncomfortably arbitrary. Its content tends to accumulate over time because of trial and error or the application of power. As such it fails to be a logically reasoned structure. That does not mean it can be dismissed as a formal system. Eliminating it from ethics due to its arbitrary nature ignores the high level of effort and care that goes into developing respectful and effective authority structures (corporate, governmental, medical, or military). While they may appear haphazard from a theoretical point of view, their actual development and application is anything but. Hierarchical ethics are not only inherent in human life they are essential for the effective operation of complex organizations.

An additional and important feature of hierarchical thinking processes is the way they are open-ended in their integration of potentially non-natural social problems. There may be important problems which are not easily analyzed in terms of the other six thinking methods. For example, examining how professional codes of conduct work or how business process design takes place, there are important aspects of goodness which practitioners learn through experience. These principles, techniques, and virtues do not necessarily fit any of the other thinking processes—they emerge from the realities of complex systems, not the mathematics of visual perception. Given the infinite flexibility of hierarchical ranking, positioning these thinking processes inside a hierarchical framework may be a straightforward way to make them real to our brains. In a highly complex world, hierarchical collection and implementation of these new and important action modes may be essential.

2.4. Equitable

[42] A.P. Fiske, Structures of Social Life; A.P. Fiske, Relational Models Theory 2.0.

The Equitable thinking process is about distributive balance. It is effectively the same as Equality Matching, the third relational model in Fiske's system.[43] This is the distributive system that leads to much of our sense of fairness. It involves the sense of reciprocally equivalent exchange, turn taking, and common distribution. As an ethics foundation it turns out to be important to a number of widely recognized ethical approaches.

As a geometric process in the brain, Equitability involves perceiving equivalence in how resources are distributed. A good image is the balance scale. One might also think of the way goods are handed out in a circle where the radius from the point of delivery is equal. Fiske's[44] version of this relational perception and thinking process focuses on turn-taking and the even-handed distribution of resources. Critical to this relational dynamic is that what is given is equivalent, even if the recipients are not equal in role, need, or status. Lotteries and one person one vote systems fit this model as well. Strict equivalence is key.

Equitability appears to have a strong natural emotional hold on perceptions. The perception of inequality typically drives a rapid call for fairness in almost any social context. The appearance of equitability seems to produce strong feelings of satisfaction, and conversely, the failure to see equitability where it is normatively called for seems to produce strong feelings of discomfort or dismay. However, given that social cues are essential for understanding what is fair or unfair, understanding the social interpretive framework for any specific equitability transaction is going to be essential in making sense of it. Because social cues can be inconsistent or vary by culture there can be large variances in what is considered to be fair. At the same time, the natural emotional strength of reactions suggests that this inconsistency or variation will cause significant distress and therefore the failure to find an effective interpretive framework can have strong negative outcomes in either a false sense of justice or conversely a false sense of injustice. Thus, intuitions regarding equitability could turn out to be destructive. It might be that equitability does not function effectively relationally without a larger hierarchical meta-framework.

In terms of formal ethics, there is much ethical thought based on the concepts of distributive balance. They include Kantian Deontology's categorical imperative,[45] Rawls perspective on the original position,[46] human rights legislation,[47] and liberal democratic principles. In each of these, the ethical foundation is the principle of a balanced distribution of rights or resources to participants in the social group without regard for the nature or attributes of the participant. However, while this form of thinking seems to root much of positive liberal moral reasoning, this thinking process seems to have serious negative implications; the restoration of balance from acts of eye-for-an-eye revenge through to politically applied violence are also closely associated with this type of thinking.[48] Not only positive resources but negative outcomes can be perceived as balanced. Thus, we can think of both revenge murders and the principles of penal justice as forms of equitability moral reasoning.

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[43] A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0.

[44] A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0.

[45] I. Kant, Practical Philosophy, translated by Mary Gregor (Cambridge University Press, 1996).

46 J. Rawls, A Theory of Justice (Harvard University Press, 1971).

47 For example, the United Nations Universal Declaration of Human Rights. https://www.un.org/en/about-us/universal-declaration-of-human-rights

48 A.P. Fiske and T.S. Rai, Virtuous Violence.

2.5. Vectoral[49]

The Vectoral thinking process organizes thinking in terms of dynamic linear conditions. The basic structure is the observation of things getting larger or smaller, thus appearing closer or farther away, or growing or shrinking. It is best described as a vector, or metaphorically as any directional social construct where the object or relationship of interest is positioned at a point along an arrow. It is a basic perceptual process that is easily applied to complex social relationships and not surprisingly the basis of formal ethical perspectives such as Utilitarianism.

Vectoral thinking can be thought of as the natural observational process of incremental change in any variable as well as the practical process of goal achievement. It is hard to imagine any social or relational process in a complex society as not employing this geometric dynamic in a meaningful way. From simple objectives related to basic life, to complex objectives related to corporate profits, or the well-being of citizens, a core process is assessing distance from the target and then the rate at which it is being accomplished/approached. This is also a useful form of analysis for gaining a sense of proportional distance from a target or the progressive removal of something desirable. If humans have an inherent loss avoidance bias,[50] then any perceived shrinkage or distancing might contribute to a sense of moral loss or badness.

The interpretive possibilities and applications for this form of perception are infinite. All social relationships have aspects of gain or loss built into them. Even when the gain or loss is not intrinsic to the transaction, it is easy to see components of this perception and even to have it overwhelm a more appropriate form of perception. For example, all money-based transactions contain a component of vectoral analysis, but while the gain or loss of money is not usually by itself the direct outcome desired, the sense of gain or loss might be dominant. This might be a form of relational model nesting where one form of relational reasoning functions inside a framework constructed on the basis of a different relational reasoning approach.[51] Because money is an important part of many forms of relationship, it becomes easy to locate a vector relationship in what should be unitive or hierarchical or equitable.

The Vectoral thinking process is the underlying structure of all types of teleological ethics, especially Utilitarianism. All these formal ethics are based on the methodologically rigorous examination of goals and how to achieve them. However, this structure can also be applied to other power or achievement-oriented ethics. Transnationalism, tit-for-tat, and similar structures of relationship are rooted in goal orientation in as much as they are a formal structure of thinking. Libertarianism (the need for a strong sense of personal responsibility and the avoidance of social systems) might depend on this type of analysis since it has a strong achievement-loss orientation. Certainly, this type of thinking is key to being a political Progressive.

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[49] At this point my proposal departs from Fiske's four-part system. Market Pricing, his fourth relational model (A.P. Fiske, *Structures of Social Life*; A.P. Fiske, Relational Models Theory 2.0.) does not appear to be either a natural or a consistent framework of relational analysis. Because Market Pricing is a ratio structure, it implies very complex observational characteristics and symbolic manipulation. Market Pricing is best thought of as a combination of three more natural relational structures—equitability (exchange fairness), plus the vectoral (transactional goal achievement) and the Analogic (finding the correct match—see section 2.6 below).

[50] D. Kahneman, *Thinking Fast and Slow*.

[51] Forms of thinking can be nested inside other forms of thinking to create a dynamic combination of thinking types to achieve successful outcomes. Alan Page Fiske, Metarelational Models, *European Journal of Social Psychology 42*(2012): 2-18.

It is important to note that the vectoral thinking process does not judge the targets, merely the progress. Measurable movement in any dimension is likely to trigger a natural sense of satisfaction and potentially of moral goodness. This process might indicate why human beings are less likely to solve problems when they are small than when they are large—there is less satisfaction in solving minor problems because they have only a minor experience of progress.

2.6. Analogic

A more complex though still natural form of geometric relational analysis is that of matching: one thing shares observable characteristics with another. This ranges from the very simple match between visible shapes to the highly complex metaphoric matching between concepts, structures, or even relational dynamics. It is an essential aspect of big-picture thinking where large scale abstract entities are evaluated for value and planning takes place. While this form of relational analysis has not led to the formation of complex ethical systems, it does turn out to be an often-recognized aspect of ethics and an essential part of ethics as a whole.

Analogic thinking depends upon the ability of the brain to examine objects for similarities and use those similarities as the structure of relational engagement. These perceptions are not about the specific nature of the similarities, merely the possibility of similarities. The points of similarity might be obvious or quite subtle. In as much as shapes can metaphorically represent complex social and reality formulations, Analogic matching can metaphorically provide a method by which extremely complex social phenomena are organized and managed.

As with earlier forms of relational analysis, the interpretive possibilities for Analogic matching are rich. Matching processes are central to complex social interactions and systems. Contemporary Western culture exists as a system of matches: students and subjects of study, automobiles and their style or purpose, policies and correct actions, products and needs, and so on. The list of matching social relationships is nearly infinite. Determining efficacious matches is central to educational systems, production processes, or governmental systems. Thus, getting matches right is an essential aspect of complex human culture.

Analogic matching can be applied to two very different types of ethics—relativism and ethical codes. Relativism is the process of matching standards of right and wrong to contexts. At every point in determining right and wrong, there is the challenge of matching the process to the context by finding the points of apparent or real overlap. Similarly, codes of ethics provide guidance through their ability to match correct behaviour to specific professional circumstances. Specific components of a code of ethics may be Unitary, Equitable, Vectoral, and all are tied to social hierarchies and power relations. However, ethical codes are adjusted as necessary to ensure a continuing match between the social circumstances and the components of the code. It is a question of nested thinking methods within a relativist structure. Similarly, Analogic matching can be applied to all circumstances where contextual factors are significant in determining outcomes. They can also be understood as the underlying drive behind *good* industrial design or regulatory compliance. It may be a significant aspect of ethics of care where a match between the needs and form of care is significant.

While the matching process is both powerful and flexible, it carries within it several weaknesses. A correct overlap may be a point of debate because a match is always partial or merely a surface perception or based on vague memory. Another weakness is that as a brain

process driven by intuitions, a match might be wrong but accepted merely because it fits previous thinking or experience. The consequences of such an error may be significant.

2.7. Topographic

Topographic analysis is the perception of large-scale patterns within multiple objects. It is a topographical view that discerns general arrays and relationships (forests rather than trees). It may provide the basis for the interpretation of complex fields of analysis. Rooted in the natural process of spatial location, Topographic thinking looks for distinct structural references that identify location and subsequently uses them as perceptual anchors. To produce these relational perceptions, arrays and broken arrays are particularly effective. Metaphorically applied, Topographic relational thinking can create a large-scale overview of complex collections of objects or subject matter. While it may not at first appear to be useful for moral reasoning, it turns out that it is an important aspect of certain types of ethics such as environmental ethics.

While the ethics built on this form of perceptual analysis may be very abstract and distant from normal reality, it is obviously a natural process. This is how we move through space effectively, recognize structures, and map our actions. Metaphorically this can be used as the basis of complex perceptions of right and wrong based on the array organization of objects.

The interpretive possibilities for this structure for organizing perceptions are broad but at the same time shallow. Such an ability to recognize geo-spatial patterns, converted into a metaphor for relationships and social dynamics, leads to the ability to metaphorically organize complex arrays of information as a function of design. Humans do constantly judge themselves, others, and their surroundings based on perceived patterns in the relationships among multiple points. Perceptions of beauty are an important part of this analysis. However, the ability to make refined judgments using this perceptual process is difficult and is often due to training, even years of training. It is not easy to move from the perception of Topographic relationships to reasoned judgments. Yet, this form of analysis is built into the human brain and constantly applied. Consequently, given the difficulty of making applications through reasoned analysis, the interpretations can quickly become the basis for social conflict rather than problem solving.

The interpretive application of Topographic arrays shows up in many contexts. It guides the way human beings think about art, architecture, design, sculpture, and painting. Within normal human activities, one need merely think of issues of style or décor and their presence at every level of social and cultural operation to obtain a sense of how powerfully arrays and patterns help us to organize our relationships and make decisions. For example, the presence of uniforms seems to inherently transform how human beings act and relate. Visual style is also used to demonstrate aspects of power, class, or education. Think of the efforts put into the style of specific office spaces and what design indicates about the status and power of the inhabitant. We have strong senses of order and goodness that emerge merely in the presence of Topographically cued relational dynamics.

Wherever standards of appearance are met, there is an attribution of goodness, and this can lead to moral reasoning. In part, the current human desire to preserve nature is based on the sense of beauty.[52] Plus, there is the essential importance of the design function in the operational

[52] E. Brady, Aesthetics in Practice, *Environmental Values* 15 (2006): 277-291; A. Carlson, Contemporary

organization of life, including roadways and buildings. This might explain the appeal of logic to human thinking since logic organizes information in clear structures, even though the assumptions, evidence, and conclusions may be in error. The scientific method reflects this thinking and in intensity approaches becoming a moral mode. Topographic components of relationships are present everywhere humans make complex relational decisions, even if not easily accessible to formal ethical analysis. Also, the Topographic thinking process is not always positive. The perception of beauty may make judgments about problems more difficult. Without formal tools to integrate the Topographic process to other forms of ethical analysis it becomes difficult to assess these impacts, let alone use them to improve the human capacity for sound judgments. Careful awareness of how the organization of information in arrays affects our thinking is essential for effective relational analysis.

3. Co-locating known ethical approaches

Once (at least) seven natural relational structures are recognized as structuring perception and decision processes, the question becomes whether this model is an adequate fit for known ethical systems. At every step, this proposal has attempted to find the connections from the presumed natural organizing principles to known types of ethical reasoning. Summarizing this and expanding it through the addition of other ethical types produces the following table (Table 2). The table demonstrates an approximate fit between the presumed thinking processes and specific kinds of ethics.

TABLE 2: THINKING STRUCTURES AND ETHICAL APPLICATIONS

VI. Thinking Structure	*VII. Traditional Ethics Perspectives*
Transcendent	Buddhist ethics. Holism. Ontological ethics? The origin of other religious ethics? Key to core personal values?
Unitary	Ontological ethics. Some aspects of virtue and feminist ethics. Some religious ethics. Altruism. Ethics of care. Ethics of nurture.
Hierarchical	Ethics of duty. Some aspects of virtue ethics. Framework for professional ethics, military ethics, and some religious ethics. Codes of ethics.
Equitable	Categorical imperative. Rawls. Human rights. Democratic political ethics. Penal ethics. Some ethics of justice.
Vectoral	Teleological ethics. Utilitarian ethics. Markets and market regulation. Aspects of transactionalism. Progressivism. Ethical egoism. Libertarianism?
Analogic	Situational ethics. Content of professional ethics. Theological ethics. Aspects of codes of ethics. Aspects of ethics of care.
Topographic	Environmental ethics. Scientific method. Aesthetics.

At this point these associations must be presumed to be approximate. Observation also suggests that larger systems of ethics may combine or cross boundaries. It is more likely that in actual application of an ethical system, one thinking process provides a controlling framework within which other kinds of thinking processes are nested. Regardless, the table seems to provide a reasonable overview of the range of ethical systems currently available.

Examining how ethical systems may combine thinking processes, it may mean that formal

Environmental Aesthetics and the Requirements of Environmentalism, *Environmental Values* 19 (2010): 289-314.

moral reasoning in complex systems begin with an Analogic framework. Analogic thinking provides a framework for linking ethical concepts to environments. The ethical concepts, reflective of the other thinking processes—Unitive, Hierarchical, etc.--then come together to fill out a full response to a problem.

There are other possibilities for combining thinking types. Religious ethics include aspects of what might appear to be most or all the relational thinking processes. Typically, religious ethics concern themselves with boundaries (Unitive), fairness of treatment (Equitable), and achieving specific kinds of targets (Vectoral). Religions tend to construct aesthetically pleasing objects or buildings (Topographic). Therefore, in interpreting religious ethics, it may be helpful to ask which is the central organizing framework. Logically the central framework would appear to be Hierarchical since God or the gods are typically more powerful than humans and behave in a manner indifferent to or commanding of human behaviour. If this is the case, then religious ethics would start with a Hierarchical process of divine decrees and associated human responsibilities. The other thinking processes would then be located within this framework, either justifying or expanding the primary hierarchical framework as complex circumstances require. In this way, by exploring how religious ethics are composed of different types of thinking, one might get a better sense of how the religion functions.

In an analogous manner, one might analyze Utilitarian Ethics or the proposal of John Rawls[53] and explore how those frameworks require a specific dominant thinking approach, and then organize other thinking approaches within them. Examining how such a nesting takes place might show that, to the degree that any ethical approach is satisfactory, it is due to its effectiveness as a meta-framework for organizing other thinking approaches.

Regardless, central to this model is that any close read of specific systems of ethics will reveal the seven thinking processes. They will either exist on their own or a few will be found cooperatively nested, in either case functioning in such a way that they produce a package of what is regarded as sound moral reasoning.

4. Limitations: Ethics in/of complex realities

There are a number of limitations to this model. As already noted, there may be additional natural thinking patterns. Knowledge of perceptual systems and their ability to support complex reasoning is not complete and continuing neuroscientific research may demonstrate other forms of thinking. These might, in turn, be involved in or lead to alternative types of ethics.

Yet another possible limitation is that natural systems of thinking, even when cooperatively nested, are not adequate in relation to the complexity of the problem. Examining contemporary issues such as global warming or artificial intelligence indicates the extremely complex nature of the issues. It is conceivable that they are not capable of being understood or managed in ethical terms using existing natural forms of thinking. It may be that an integration of algorithms and computer systems with human thinking will be central to new ethical systems that more effectively manage the complexity of the problems humanity faces and will face in the future.

The current model is a proposal, and while it seems to be well situated to explain current

[53] J. Rawls, A Theory of Justice.

work in the field of ethics, it may turn out to be too narrow for what are currently or will become ethics. This model may be merely the first step into a better understanding of how human beings make decisions and the next steps will expand upon it.

5. Normative Implications

While the model is descriptive of how ethics take place, this does not place it outside realm of normative ethics. Reflection on the relation between natural and normative is essential for good analysis.[54] It is not enough to describe ethics; the goal must be the better solution of technical, environmental, socio-cultural, and relational problems. While moral psychology tends to stop short of such claims, that is short-sighted. It is not hard to draw connections between descriptive and normative concerns. If human thinking follows natural patterns to draw complex reasoned conclusions, then as a starting point the natural patterns themselves will need to be integrated into processes of reasoning. The natural patterns themselves become a part of how good conclusions will be drawn, thus offering critical perspectives and outlining necessary components of effective solutions. On this basis the current model provides at least four normative implications.

First, if there are (at least) seven unique forms of reasoning, then there may be multiple solutions for every problem; the alternate approaches to thinking about the problem create the possibility of multiple avenues for solving it. For any specific problem, there may be Utilitarian, Virtue, Deontological, and Relativist solutions as the discreet underlying thinking processes are applied. Consequently, any responsible ethics system must evaluate any problem using the seven thinking processes to discover their specific contributions to solving the problem. Failure to do so means that key components of human problem-solving capacity are being ignored with a resulting possible loss of moral capacity.

Second, while the structures of thinking are natural, through development and practice they accrete large sets of experiential knowledge, practical skills, and conceptual connotations. Cultures may also teach specific relational thinking norms and traditions. Dissecting these built-up collections becomes an essential part of any good reasoning process. Given that they are built into the individuals doing the assessment, the consequence is that effective moral reasoning will be collective and engage with the largest number of analytic parties possible. Only such approaches reveal the range of perspectives possible or already contained in the moral environment. To obtain a critical position, normative moral reasoning will be the work of groups. [55]

Third, there may be inherent issues of virtue. For example, skepticism regarding simple answers to social and relational problems should be normal; if there are (at least) seven analytic frameworks, then the probability exists that there are multiple solutions with differing and potentially hard to perceive outcomes. That is not simple and skepticism regarding simple answers is therefore a normative virtue. The existence of multiple approaches should foster other virtues such as humility regarding solution proposals and curiosity regarding outcomes. Given that multiple parties are necessary for good analysis, a sense of community, team spirit, and

54 A. Kalis, Improving Moral Judgements, Journal of Theoretical and Philosophical Psychology 30 (2010), 94-108.

55 Thus, meeting a core condition of communicative morality. J. Habermas, Moral Consciousness and Communicative Action (MIT Press, 1990).

collective goodwill will be a necessary part of a morally responsible process.

Fourth, as a natural model this approach helps to unify human thinking with the biological environment and its processes. Human beings may be distinct from other animals in their sophistication but according to this model, not in the underlying techniques for assessing the world. On that basis it may be possible to identify the ethical and moral natures of animals. In this way our human connections with the world might be enhanced, leading to greater harmony and a stronger appreciation for the inherent conditions of the planet.

Natural processes always have normative implications. This is especially true when they shape the very possibility of moral thinking. Some kinds of oughts are built into the fabric of existence. In the case of seven forms of moral reasoning the forms both open potentials and set limits on how human beings can work to resolve problems. The normative consequences may be significant.

CONCLUSION

Ethics is increasingly recognized as the work of bodies. What we have not considered are the implications. It may turn out that bodies, not minds, are the roots of moral reasoning. The processes by which the brain interprets reality might be the basis of the structures by which humans organize the very complex and meaning filled realities they create and live in every day. How we construct morality, and therefore what we perceive as moral, may be an emergent phenomenon that occurs through applying discreet forms of relational analysis. The consequence is the relativization of current ethical systems and the opening of the possibility of new and more complex systems of moral analysis.

Certainly, the seven forms of relational analysis do appear to do a reasonable job of accounting for the many approaches humans have made to moral reasoning. The Transcendent, Unitive, Hierarchical, Equitable, Vectoral, Analogical, and Topographic forms of reasoning clearly relate to Utilitarian, Deontological, Religious, and Environmental ethics, and potentially to more. The initial fit appears to be good.

However, it remains to be determined if this seven-dimensional model works in real world cases. It should be the case that seven dimensions of analysis reveal significant aspects of how human beings create and solve moral problems. It might reveal that the clashes between thinking processes is one of the reasons finding moral solutions is difficult. It is possible problems in ethics become more tractable when approached based on seven relational models of thinking.

However, it is important to point out that this is only a proposal. Other neuro-moral psychological approaches may turn out to have more research validity. In addition, the seven structures may turn out to be only the beginning. Human beings are spatially active and as more spatial possibilities are proposed, they may indicate the metaphoric basis for more forms of ethical structuring. At this point this proposal must be treated as an intriguing hypothetical.

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