Article

Space, Time, & Consciousness (Part 11):
A Theory of Knowledge - The Transcendental and the Mundane

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ABSTRACT

Knowledge is analyzed to fit two main classifications: 1) the Transcendental idealized forms as described by Plato, and 2) the mundane experiences generated by the body/brain living in the material world. Knowledge of each of the two types is examined for how it is acquired (from the 2nd Domain) or learned by sense-perception experienced in the 3rd Domain. Knowledge learned through life in the 3rd Domain is unreliable because of imperfections in our sense-perception mechanisms, and because memory storage and retrieval are prone to intervening learning distortions and aging processes. By contrast, knowledge acquired directly from or while in the 2nd Domain is perfectly accurate and not subjected to any aging process because time does not run in the 2nd Domain.

Keywords: Knowledge, transcendental, mundane, domain, space, time, consciousness, creation.

What would a theory of knowledge incorporate for its dimensions or features to explain what it's about? To start with, what is "knowledge" itself, and how may it be described? What are the major *types* of knowledge, such as A) Plato's Idealized forms, or mathematics, logic, models of physical reality (classical and quantum), and B) the *mundane* idiosyncratic bric-a-brac formed by living day to day. What is the nature of the *individual holder* of the knowledge that we seek to characterize and explain (i.e., a human is not any pattern recognition and information data storing mechanism similar to a digital computer, despite various attempts to compare humans and computers) .

What are the essential characteristics of the "holder" of knowledge (e.g., brain, and mind)? How does the holder of knowledge acquire it, and may such acquisition be dependent on the kind of knowledge involved? Is the *rationalism* of Plato, Descartes, and Kant correct that the brain has preformed categories or percepts essential for recognizing and incorporating experience into knowledge (e.g., consider the evidence from the visual cliff, neonate preference for faces, pareidolia, and turkey hatchlings' aversion to hawks)? Does the mind access idealized knowledge when in contact with the 2nd Domain by an OBE or meditation?

Finally, might it be possible that certain kinds of knowledge, especially about the mundane, are inherently temporary or transitional, despite their appearance of certainty or permanence? Thus, mundanely acquired knowledge may only be temporary concerning truth value. Given that mundane knowledge is potentially uncertain and transitional—leaving a mystery of uncertainty

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regarding truth-- perhaps God has intentionally designed the 3rd Domain to preclude full knowledge of His eternal design.

It will be argued that the 2nd Domain is the source for idealized forms or "universals" such as justice, good, circle and sphere, table and chair, above and below, common sense time, etc.. Plato theorized that the mind was able to recollect knowledge of these universals that it had known as a soul before coming to the Earth, and The NDE research supports his perspective. Mundane knowledge is acquired thru sense-perception by a body and brain constructed to be selectively sensitive to receiving limited forms of sensory information which it works to form perception as argued by Descartes and Kant.

However, the perceptual information constructed in the brain does not itself exist as conscious perception, as the brain itself lacks the power of consciousness possessed by its attached soul. Conscious perception is achieved only in consciousness, not in the material brain, as had been explained in Article 2 to account for qualia in perception. Transcendental and mundane knowledge are contained in the individual holder's personal consciousness, and also in the universal field of consciousness that is the 2nd Domain. It will be argued that, consistent with the Tripartite Domain Theory, the particular knowledge that exists is a function of the theater of the beholding mind:

1. The mind of the ordinary human locked to the brain functioning in the 3rd Domain is highly constrained to acquiring mundane knowledge by the body's materiality.

2. The mind freed of the body/brain functions, as may occur during an OBE or deep meditation, may then access the 2nd Domain field of universal consciousness with its vast information made easily available.

3. The mind that is God knows all that may be known.

The disciplines of philosophy and psychology offer insight into the nature of mundane knowledge of the 3rd Domain, and how it is acquired and applied. The NDE reports provide for insight into how the mind works as a participant in the 2nd Domain. The mind of God will not be discussed other than acknowledging that such must exist, and in fact may be all that exists, with the 2nd and 3rd Domains entirely existing within the mind that is God.

1. A) Transcendental Knowledge of the 2nd Domain

Nature and acquisition of transcendental knowledge

Platonic idealized forms, or Universal ideas. Plato regards the information gained by our senses, such as sight, to reveal objects that lack any idealized perfection. For example, a circle may be physically inscribed in sand or wood by moving a stylus tied by a string to a central point, but inspection of the physical circle drawn will display imperfections from an idealized curve. He made the argument that if knowledge were restricted to sense-perception, we would not directly know about idealized abstractions. Included in a list of such idealize abstraction would be concepts such as justice, the good, the beautiful where we may lack experience of perfect examples of such. Relationships such as above and below, to the right of are abstractions from real experience, but there are no standard examples applied to form such relational concepts. Yet we realize the concepts from knowledge acquired by the soul before birth. The 2nd Domain of the Tripartite Domain theory is the home of the soul before born to a body in the 3rd Domain.

Mathematics

Philosophy of mathematics offers two alternative interpretations for the nature of mathematical truths: 1) "Discovery" of what was inherent in the particular branch of mathematics in focus, such as number theory; or 2) creative invention that, while consistent with the branch conventions or axioms, yet had to be creatively invented. Given what the NDE reports say about suddenly knowing all of mathematics and empirical sciences, this evidence implies that mathematics is included in the universal consciousness that is the 2nd Domain. Thus, the clever mathematician may work creatively at invention, and earn pay and rewards, but the truth is that the invention is actually a discovery.

Physics (algorithmic modeling and prediction)

The grand success of modern physics has been its translation of ideas, whatever their source, into the disciplined expression of mathematical models such as Einstein constructed in Special and General Relativity. However, the great success of quantum mechanics found in the Schrodinger wave equations went beyond abstracting lab results at the time to a speculative formulation. Einstein with two colleagues (in the EPR paper) seized on an implied prediction from the wave equation that "entangled" paired particles would instantaneously communicate with each other when one particle would be observed/measured so that its range of possible states would materialize to a specific form of existence and thereby trigger the other into being its complement. The EPR paper logically pointed out that this prediction violated the Special Relativity speed ceiling set for communication as the speed of light, (very fast but not instantaneous), and provided no idea of an underlying physical process. As it turned out, the wave equation prediction for spooky action at a distance has been replicated across many

experiments. Except for the hypothesis proposed in Article 3, quantum entanglement remains a deep mystery.

Ethics and morality

Kant worked to explain a source for cultural recognition that good will toward each other is known and appreciated. He synthesized the variety of good intentions to reflect a "categorical Imperative" for good will (what Christianity knows as the Golden Rule). Kant reasoned that the categorical imperative cannot be attributed to experience, with rewards and penalties, but must have an a priori source, and so must have a metaphysical source (see wikiesource at: https://en.wikisource.org/wiki/Groundwork_of_the_Metaphysics_of_Morals   ).   Hypothesizing the source for morality to be the universal field of consciousness, that is the 2nd Domain, is consistent with Kant's analysis for the source of morality.

Direct Knowledge acquisition within the 2nd Domain as an effortless immediate knowing of everything

As discussed earlier in Articles 9 and 10, reporting about the OBE typically states that all possible knowledge was easily and instantly available: "*I just suddenly realized that I understood everything. It was a big 'aha' moment. I could understand physics, math, chemistry, and all the formulas that went with that understanding. I realized that I didn't have any questions*"

Participant observation across history

One of the most remarkable feature of the OBE is the reported experience of seeing past, present and future all together, or selectively as desired. It is hard to imagine how such a possibly large array of perception across time could be understood. Most of us have to concentrate on one task, such as doing mental arithmetic, with all else left to a dim background perception. This feature of consciousness functioning with great capacity is, however, a common report from the OBE. For example, people during an NDE/OBE episode while lying dormant in their hospital bed report simultaneously understanding nearby conversations, conversations outside their room, seeing activities outside the hospital--all at once with no difficulty for comprehension. Thus, the soul freed of its attachment to the brain appears to have a huge capacity as compared to ordinary life experience.

Display of future scenes

A frequent feature of the OBE is the conduct of a life review. The review leads to understanding the value of experience for self and all others, and includes participation to see and emotionally feel the ripple effects from even seemingly minor instances of negativity or kindness. During the life review, the participant is generally experiencing a high, overwhelming level of love as a background condition. The typical life is full of "mistakes," and thus recognition that life

ordinarily has hard times and pain, so the individual is often tempted to ask to stay. Of course we do not know what they were told when that wish to die was granted, but from those returning they often were shown their role in the future, such as raising children, and agree to return. Years later, there are frequent reports that the future visions came true, so to some extent the future is set or may be shaped according to the prior vision. However, we may infer that the future is not already completely set, because we are also aware of miraculous interventions that change the course of lives and countries. On the other hand, it could be argued that miracles were themselves predestined. There are also frequent reports from individuals about arguing with God to let them stay in Heaven, with God eventually winning the argument. If there were legitimate arguments, then it is unreasonable to conclude that the future has been fully set.

Transcendental Knowledge acquisition from the 3rd Domain

Plato's theory of reminiscence

A newborn infant using eyesight must learn to see, The lens inverts the image on the retina so top and bottom are reversed; an infant would initially see a parent with feet in the air instead of grounded. We know from the experience of those who were born blind that when their visual system is repaired good perception does not immediately follow. The perceptual system needs to be trained. One possible support for learning how to perceive would be the reminiscence function as theorized by Plato. His theory was that the soul was born with knowledge implanted from Heavenly existence prior to birth. Some of the NDE reports tell of seeing the Earth and parents before birth. Plato's concept of knowledge as reminiscence may actually be descriptive of how raw sensory data are processed to find stored percepts, thus guiding the perceptual system to its goal of accuracy. A recollection of the ideal forms and truths may aid our ability to understand the material world.

Intuition

Intuition as was discussed in Article 9 was reported to play a major role in day to day decision making, as well as for major decisions. We are familiar with the notion of a "gut feeling" guiding our decision making, and so it's natural to think that such intuitive guidance emanates from the body and brain. However, as has been argued here, it is the mind, consciousness, that does the decision making, and that capability is not produced by the body and brain. Given that consciousness is the source for intuition, intuition may be enhanced by meditation. This is a worthy topic for empirical research.

Possible influence of past lives shaping general outlook

Edgar Cayce, the "Sleeping Prophet" reluctantly came to a conclusion from his medical readings that anxieties, fears, phobias, conflicts with relatives were in a significant number of his hundreds of consultations the product of incidents in past lives that remained to be resolved

(Cayce's reluctance to accept reincarnation came from his scriptural scholarship, but he eventually decided that scripture did not preclude having multiple lives). Talking through these past problems did appear to be helpful. As discussed in Article 2, substantial research by Ian Stevenson with adults and children, and Carol Bowman with children, has furnished evidence that past lives are recalled by some (I personally have no prior life memory). Bowman estimates that on the order of 40%^ of children under the age of 6 can recall elements of having come here from Heaven, or even details of past lives if carefully asked.

1.B) The Mundane Knowledge of the 3rd Domain

Nature and acquisition of mundane knowledge

Normal daily experience consists of numerous interactions with the environment (sitting in a chair, carelessly stubbing a toe), and interactions with the family and household animals, etc. As an adult, we know what to expect from the environment, unlike toddlers, but even as adults we can never be sure about interactions with the living For example, after some 50 years of marriage, I finally realized that when I'm supposed to take a drubbing for any conceivable fault, of which I have none, it's best to react with feigned hurt, despite my innocence, so progress can resume. The intrinsic unpredictability of life consists of reacting to innumerable stimuli, and performing countless mundane activities, with most contributing tiny additions to knowledge. When Plato philosophizes about idealized forms, his focus is in direct contrast with the multitudinous interactions of life and the associated mundane knowledge produced.

Piagetian theory of cognitive structures acquired by children for mastering environmental interaction

The Swiss child psychologist, Jean Piaget (1896-1980) constructed a four stage model of how children progressively learn to function before becoming adults.

(https://en.wikipedia.org/wiki/Piaget%27s_theory_of_cognitive_development)

Piaget's four stages of child development

Stage	Age	Developmental Goal
Sensorimotor	Birth to 18–24 months old	Object permanence
Preoperational	2 to 7 years old	Symbolic thought
Concrete operational	7 to 11 years old	Operational thought
Formal operational	**Adolescence** to **adulthood**	Abstract concepts

These stages have been found by numerous studies to be approximately accurate; not perfect as human psychology is complex, and different cultures have effects. There is much mundane knowledge for children to learn and function well in the internet society. Piaget's research led educators to recognize a beneficial focus on the child's frame of reference (a Child-Centered educational strategy, similar to the prescriptions of John Dewey's prescription of Learning by Doing, *Intelligence in the Modern World*. New York: Random House, 1939, pp 607-13)

Vagueness of thought and of expression (not ambiguity)

In acquiring language well enough to learn knowledge from others, and to pass on knowledge as parents and educators, we also realize that our knowledge may be inexact, and at times ambiguous ("ambiguity" meaning alternative senses are available for interpretation). Meanings may be slippery, and subject to shifts in denotative and connotative meanings as a function of a particular topic, the context of communication, and the target audience. For example what meaning comes to mind by mention of Napoleon. Well, that would depend on the context for mentioning him, and what the recipient already knew about him. For example, when *Napoleon Bonaparte* is mentioned, do you recollect the twenty year old Italian artillery officer serving in the French army, or his image as emperor from 1804 to 1814, or perhaps his exile to Elba, or even the tortured soul learning of Josephine's death? Most likely you vaguely recollect some indistinct collage of whatever bits of knowledge come to mind, and there is no definitive, specific knowledge retrieved.

Definition of Vagueness in meaning, and in thought

Early in my career as a graduate student at the University of Connecticut, I ventured to construct an operational definition for *vagueness in language usage*. My action was motivated by my status as a newly appointed pre-doctoral fellow in research methodologies. My major doctoral committee professor had acquired a handsome grant from the Educational Testing Service (the College Board Testing company) to investigate the feasibility of having the digital computer programmed to assign valid and reliable scores for short essays to replace essay grading by slow, expensive, and unreliable humans. I was one of a group of ten new fellows joining this new program. Our major advisor had just laid down the law—we were to publish while yet research puppies, or perish.

The semester courses included an evening class about learning theories. Heck I knew all about them, and so tried to drop the course, but could not. The professor was an elderly gentleman, a kindly sort easily liked. As he fumbled through his first evening lecture, as if unprepared, he also made obvious factual errors.

I drove home fuming at having to waste my time. But he was obviously a good professor despite his fumbles, so why was I so annoyed? As I mentally reviewed his performance, I remembered hearing words and phrases that signaled his own awareness that he was fumbling. Well, what

exactly were those clues? "As everyone knows," "Clearly," "Obviously," and after pregnant pauses—"As a matter of Fact," " Actually," There were also lot's of "as you know," and just plain, "you know" repeated frequently. So, there were identifiable clues to his lack of preparation and faulty knowledge-- and even the dumb computer could be easily programmed to catch them. What if student essays also exhibited such clues? Given clues to lack of preparation to perform, might there also be clues for being knowledgeable? "For example,""Specifically," "Illustrated by." So, that night, I applied my own devious mind to recall the weasel words, and also positive clues for communicating topical knowledge. Our doctoral program major professor had available for research a set of well graded short student essays (similar to what the College Board tests would require). Teams of the "best" English teachers in Connecticut had scored each of hundreds of essays, and stable average ratings were available for research. I could test my hypothesis that graders would be sensitive to vagueness and attempted specificity. Here is the abstract for the published paper from this research:

> *Three characteristics of writing quality were selected for study from among the many discussed in English texts on the assumption that single words or discrete phrases reliably cue the presence of such characteristics in essays. A set of 256 graded essays was searched by computer for cues, and the measures thus obtained were correlated with the essay grades. All predicted correlations were significant at p < .01.*
> (Hiller, J. H., Marcotte, D., & Martin, T. (1969). Opinionation, vagueness, and specificity-distinctions: Essay traits measured by computer. *American Educational Research Journal, 6*(2), 271-286.)

A program of research was underway at Stanford to discover what differentiated effective and ineffective teachers as they gave topical lectures to their own classroom students. The data from this research had been examined for two years, but the program leader, Prof Nate Gage, was not satisfied that they had learned all they could from their data. So, I was called over to spend the Summer on loan to this research program to figure out how to milk the data using computer-based analysis.

Well-developed objectively scored tests were administered to classroom students to measure what they learned and retained from their teacher's lectures on two topics. A single audio taped lecture was played to all classes to get a baseline measure for individual class competence. All teacher lectures had been videotaped.

The teachers had not been shown the test items, so their coverage of test information was variable; to correct for this source of measurement error, teams of graduate students rated how well each teacher lecture happened to cover the test items. A teacher's performance should not be faulted for accidently not having covered sample test items. I applied a statistical procedure (covariance) to remove the effects of class competency and test item coverage from each teacher's classroom lecture test scores. Bingo! The measure of Vagueness worked very well to

predict student test performance, and a rough measure of verbal Fluency also worked. Here is the Abstract:

The Vagueness construct was applied to data collected by the Stanford Explanation Project (see Gage, N.L, Belgard, M. Dell, D., Hiller, J., Rosenshine, B., and Unrah, W, "Explorations in the Teachers Effectiveness in Explaining." Tech. Report 4 of the Stanford Center for R&D in Teaching, School of Education, Stanford University, 1968). Teachers delivered self-prepared lectures to their regular classrooms of students based on two magazine articles, one about Thailand and the other about Yugoslavia. Their students were administered standardized, objectively scored multiple choice knowledge tests after the lectures, and these scores served as the criterion for teacher performance. The class test scores were refined by covarying out class performance on a test for a third lesson (on Israel) that was delivered by a single lecture recorded by a professional speaker, thus removing variance having to do with differences in ability and motivation for the individual classrooms. The teachers had not been shown the student tests before they gave their classroom lectures, so lecture coverage of test contents was variable. A team of graduate students scored the teacher presentations for degree of test coverage, and the coverage scores were also covaried out to achieve a more accurate score of how well classes performed based on what their teachers did cover.

In the available sample of 32 lectures about Yugoslavia, the correlation between proportion of Vagueness items in the lectures (vagueness items counted divided by total number of words for the given lecture) and the test scores was -,59 (p < .005), and in the available subsample for the Thailand lecture, the correlation was -. 48, N= 23, p < .05 .

(Hiller, J. H., Fisher, G. A., & Kaess, W. (1969). A Computer Investigation of Verbal Characteristics of Effective Classroom Lecturing. *American Educational Research Journal, 6(4), 661-675.*)

Next, an experiment was conducted to test the hypothesis that manipulating the clarity of information made available to speakers would affect their level of vagueness utterances The vagueness construct was defined as follows:

The plight of being caught without a needed word while speaking or writing is a common experience. A sudden lapse in memory or momentary confusion may underlie the difficulty. Or the problem may arise when a speaker, in the midst of expression, discovers he doesn't command the knowledge required to complete his gambit. This paper presents an analysis of the verbal behavior of the speaker or writer confronted with the immediate necessity to express himself while he struggles against one or more such handicaps.

By now, the Vagueness Dictionary had been fully developed, along with subcategories. This Dictionary has been made available for research by Provalis Research. A description of the completed Dictionary follows:

Provalis Vagueness Communication Dictionary by Jack Hiller

Ten separate categories of vagueness have been defined to permit an optional finer analysis of the nature of the vagueness exhibited (see table below).

SCALES	DESCRIPTION	EXAMPLES	# ITEMS
Ambiguous Designation	Something potentially specifiable is referred but not definitely identified.	somewhere, stuff, a certain, and so on	50
Negated Intensifiers	Negations can be evasions.	not always, not quite, isn't necessarily	57
Approximation	Use reflects real or referential vagueness or imprecise knowledge.	nearly, sort of, fairly, almost, pretty much	35
Bluffing and Recovery	Used when a writer is not communicating effectively and tries to shift responsibility for making sense of content to the reader.	actually, anyway, as a matter of fact, of course	53
Admission of Error	Repeated admissions indicate lack of confidence or lack of competence.	I made a mistake, maybe, I don't know	20
Indefinite Amount	An amount is potentially knowable but is not specified.	a bit, a bunch, a couple, a little, some	29
Multiplicity	Pseudo-specification or glossing over of complexity.	aspects, types, lots, factors, kinds	35
Probability and Possibility	Indicates lack of clarity or lack of definite knowledge.	at times, could be, generally, perhaps	33
Reservations	Expressions of doubt or reluctance to commit to a definite point of view.	apparently, appears, relatively, seems.	35
Anaphora	Excessive and repetitious use of pronouns rather than direct references makes content more difficult to follow.	former, she, he, it, latter, other, them	

Research results were summarized as follows:

An experiment was conducted by having one group of student teachers give prompted small lectures after hearing a clear audio tape recording of a lecture about current affairs in Thailand or Yugoslavia as the basis for their mini-lectures; this was the experimental baseline Control group. A second group was played the same recordings, only after they were garbled by

randomly interspersing lecture material on another topic. The prediction was that the teacher mini-lectures based on the garbled audio recordings would lead to confusion about their contents, and that would yield a level of vague speech higher than for the Control group. The group experiencing the garbled audio tapes exhibited a statistically significant increase in the proportion Vagueness terms in their speech (p less than .005).
(Hiller, J.H. (1971). Verbal response indicators of conceptual vagueness. *American Educational Research Journal. 8*(1), 151-161).

The Vagueness dictionary has been used to study business speech:
(https://www.researchgate.net/publication/314127738_Language_and_Competition_Communication_Vagueness_Interpretation_Difficulty_and_Market_Entry), and political speech.

<div align="center">Hogenraad Political Speech Research</div>

Vagueness in political speech as an indicator of flexibility. Robert Hogenraad developed the hypothesis that political leaders during an early stage of negotiation would employ language specifically signaled by Vagueness to communicate flexibility, but as positions solidified would reduce the use of Vagueness to communicate the firming of their positions. In a number of studies he has found solid support for this hypothesis. For example, there is a study of speech associated with the conflict between Russia and Georgia circa 2008 (Hogenraad, R. L., & Garagozov, R. R. (2010). Words of swords in the Caucasus: About a leading indicator of conflicts. *Peace and Conflict: Journal of Peace Psychology, 16*(1), 11-28.)

> This study analyzes statements by President Saakashvili of Georgia, by President Medvedev of the Russian Federation, and by Georgia's allies over this period. The study analyzes these statements using a computer-aided procedure of quantitative content analysis equipped with semantic filters tailored to forecast the risk of conflict based on the gap between power words (increasing) and affiliation words (decreasing) in texts, as McClelland (1975) showed. The larger the gap, the greater the risk. Because possible conflicts increase uncertainty, how much vagueness there was in the statements was also quantified. The statements by President Medvedev display a growing power motivation about Georgia and a style characterized by increasing precision. Despite the need to defend the territorial integrity of his country, President Saakashvili showed a decreasing risk of war while also using vaguer words, betraying uncertainty. Georgia's allies also show an increasing risk of war, but restraint prevailed.

Another Hogenraad study examined the speech of leaders in Iran, Israel, and the USA between 2008 and 2012:

Textual fingerprints of risk of war. Robert L. Hogenraad Universite ´catholique de Louvain, Louvain-la-Neuve, Belgium Rauf R. Garagozov Center for Strategic Studies, Baku, Azerbaijan (Literary and Linguistic Computing. The Author 2013. Published by Oxford University Press on behalf of ALLC. All rights reserved):

We compute the rate of textual signals of risk of war recognizable in series of consecutive political speeches about a disputed issue serious enough to entail an international conflict. The speeches concern Iran's nuclear program. We trace textual signals forewarning of risks of war that reactions to this affair lead to. The thrust of the textual analysis rests on the interplay of affiliation and power words in continuous texts, following D. C. McClelland's model for anticipating wars. The speeches are those of Iranian President Mahmoud Ahmadinejad, US Secretary of State Hillary R. Clinton, Iranian Grand Ayatollah Ali Khamenei, and Israeli Prime Minister Benjamin Netanyahu. Prefiguring a military confrontation before it occurs involves structuring information from unstructured data. Despite such imperfect knowledge, by the end of January 2012, our results show a receding risk of war on the Iranian side, but an increasing risk on the American one, while remaining ambiguous on the Israeli one…. We computed a global rate of vagueness from the [Hiller] vagueness scale (the percentage of the number of vague words to the total number of words in the section of the document under analysis)…

4.3 The course of the rate of vagueness. The average rate of vagueness is 6.7 in Ahmadinejad (min/max¼0/7.8, SD¼1.2, N¼42), 8.7 in Khamenei (min/max¼8/9.5, SD¼0.3, N¼47), 7.6 in Netanyahu (min/max¼6.4/8.4, SD¼0.4, N¼34), and 7.4 in Clinton (min/max¼6.1/9.2, SD¼0.6, N¼34). The course of the rate of vagueness increases linearly and significantly in Ahmadinejad, Clinton, and Netanyahu (but not Khamenei) (Table 4 and Figs 5–7). The speed of increase is slow in each data set, between 0.02 and 0.03 a month. The course of vagueness in Netanyahu adds up to the absence of direction noted earlier for the risk of war: his speeches remain in a lasting state of vagueness throughout. We further bothered to find correlations between the risk of war and the rate of vagueness. We found only one, in Clinton's speeches, a statistically significant lagged one between the risk of war at T0 and the rate of vagueness at Tþ1 (r¼0.66, n¼33, p<0.0001, CI 95%¼0.37/0.86 using 20,000 resamplings). Changes in the risk of war in Clinton are followed in proportion by changes in the rate of vagueness one month later.

Thus, while teachers committed to conducting recitation in class, even when unprepared, resort to vagueness inadvertently to slide over their uncertainties about facts, politicians may intentionally signal flexibility with vagueness, while also signaling resolve by removing vagueness from their speech.

Knowledge acquisition in the 3rd Domain

As it turns out, a strong case has been made by Psychology for very different kinds of learning activities, and most of these, perhaps even all, apply only to acquisition of the mundane

knowledge generated in the 3ʳᵈ Domain. The major theories about learning are reviewed below to reveal what kind of knowledge is created.

Classical, Pavlovian conditioning

This form of learning is arranged by the timing the presentation of a naturally evocative stimulus (termed the Unconditioned Stimulus, US), such as fresh meat presented so a hungry dog can see and smell the meat, which triggers an Unconditioned Response (UR), here salivation, with a previously neutral signal, such as a bell rung or light shown without any prior history for the animal. It is found over repeated presentation trials of pairing the US with the CS that the presentation of the previously neutral CS without the US will trigger a response similar to the UR termed the Conditioned Response, CR. This form of learning is covered in every basic psychology text, so coverage here will be thin. The timing of the CS with the US is important. If the CS follows the presentation of the US, the CS will fail as a trigger for the CR. The optimal timing appears when the CS precedes the US by approximately a half second. Also of interest is the nature and rate of extinction for the CS when trials are run in which the US is no longer paired with it. For our purposes, Classical Conditioning appears to involve "mindless" learning of mundane information that is of little to no significance for conscious functioning.

Imitation and modeling

This form of learning is obvious to any who have watched young animals and children mimic or imitate what an adult or peer does. Because the responses are under voluntary control (unlike classical conditioning in which the response are under autonomic control), it would be expected that consciousness plays a significant role in such learning. However, neurologists has discovered what they term a "mirror neuron." When such neurons are not working, imitation ceases. *"Human brain studies using FMRI (Functional magnetic resonance imaging) revealed a network of regions in the inferior frontal cortex and inferior parietal cortex which are typically activated during imitation tasks. "* (Iacoboni, M.; Woods, RP; Brass, M; Bekkering, H; Mazziotta, JC; Rizzolatti, G (1999). *"Cortical Mechanisms of Human Imitation". Science. **286** (5449): 2526–8.*). Thus, despite the use of consciously controllable movements, consciousness may play a small or nonexistent role in imitation of mundane activities.

Stimulus-Response Associative learning

This was one of the most studied topics in Psychology over the past century. Research included verbal associative leaning and sensory-motor skills learning by adult humans, as well as by rats, monkeys, and pigeons. Early on S-R Associative Learning Theory was popularly known as Edward Thorndike's Connectionism theory in which humans and animals learned to reliably make voluntary responses after reward or punishment stimuli. Trial and Error learning is a major topic for S-R Learning theory. Trial and error learning is the epitome of mundane learning,

because there is no necessary or natural association between for an arbitrary stimulus-response arrangement.

Thorndike's Law of Effect was for a long time the most prominent guide for psychological research. Simply stated, behavior that is rewarded in a discriminable situation will be reinforced to be performed in that situation, and conversely, behavior that is punished will be suppressed in that situation. Thorndike's Cats in the Puzzle Box research model illustrates the possibility for a lack of any necessary natural S-R learning association. In one procedure, a cat could escape entrapment in a box by pressing a lever that opened the box for escape. Cats quickly learned from trial and error to push the bar to escape. However, Thorndike also arranged for escape, not by a bar push, but by the cat's jumping (lashing about); as soon as the "frustrated" cat would jump, the box would be opened for escape, and cats quickly learned to jump. Thorndike also explored a seemingly unnatural escape behavior by opening the box when the cat made an anal lick (they are good at self-cleansing).

Many researchers thought mistakenly that the S and R could be associated regardless of what the stimulus was like, because learning trials, and extinction trials (the cat's stopping bar pushing or jumping when the box no longer opens) appeared similar, so stimuli choice appeared arbitrary. However Thorndike also reported, with no fanfare catching attention, that extinction for the anal lick was different. He made two points. First, the anal lick performed was unnatural, it was partially done, not fully. Second, after only one or two extinction trials, the cats no longer did their false lick to get out.

Much later researchers found that some S-Rs were naturally, easily learned with a high resistance to extinction, but other S-R combinations were not learned well and rapidly extinguished. The popular explanation is simply that animals have evolved to make particular mundane associations, e.g., a rat getting sick from eating an unusual food will avoid eating that food (or drink) after only one punishing trial and the avoidance persists without extinction (see Seligman, M. On the generality of the laws of learning. Psychological Review 1970, Vol. 77, No. S, 406-418 at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.741.7989&rep=rep1&type=pdf).

<u>BF Skinner's Operant Conditioning</u>

Operant Conditioning is the term for a highly controlled and systematic delivery of rewards (or punishments, politely termed aversive stimuli) delivered in response to bar presses (the "operant" behavior), with experimental Subjects ranging from humans, to monkeys, rats, pigeons and other animals. Speed of learning and extinction were studied, and done so across simple tasks and chained-linked tasks. Skinner was a staunch behaviorist who avoided speculating about what a human of rat might be thinking about while learning. His research never asked Subjects what they thought, because he distrusted introspection for gaining any scientifically credible evidence. Prediction and control of behavior were demanded by his science strategy. Strictly black box

research measuring what goes in and what comes out. He was gifted at gaining adherents to his form of Behaviorism. But, alas, it appears to have provided a blind alley for Psychology. Just too much data about mundane operant response arrangements and equally mundane somatic rewards.

<u>Gestalt insight</u>

The Gestalt school of psychology germinated in Germany and was brought to America after developing European adherents. Its research program was focused on the nature or perception (mainly visual). It had rational roots in a Platonic view of reality of universal forms providing the basis for perception. Perception was guided by innate rules that could be discovered by introspection, and by intuiting what led to animal behaviors when conversation was precluded. A major proponent was Wolfgang Koeler with his book, the Mentality of Apes (1925). Koeler depicted situations in which animal responses were not randomly made to randomly presented stimuli, but instead presented situations (involving boxes or sticks) in which an intelligent animal could intuit or mentally construct the solution to a puzzle to gain a reward.

In the box experiment, a banana reward was attached high off of a ceiling so that an ape could not reach it, even by jumping. With a box placed in a chimpanzee's cage, after a while, one chimp (brighter than the rest), suddenly moved the box under the banana and was able to reach it by climbing on the box. Koeler described this behavior as demonstrating problem solving insight. In another situation, it took one or more sticks to reach through their cage to snag the banana. Based on such phenomena, the Gestaltists derided the American research using mundane stimuli and responses. Gestalt psychology was comfortable about theory building and research that involved mental concepts, such as introspection and insight. By contrast, American Psychology was a new field, and thought that aping physics as an operational science was their key to academic acceptability. Apparently, the bizarre nature of the new theory about quantum mechanics had not caught their attention. Gestalt psychology proved to be a side branch for American Psychology.

<u>Cognitive learning</u>

By the mid twentieth century, some prominent American psychologists had become disenchanted with the minutia of little isolated mundane Ss and Rs forming associative bonds. For example, the eminent perception psychologist, James Gibson, published a book of research which explained that S-R bonds lacked any useful explanatory power for understanding natural perception (Gibson, J.J. (1950). *The Perception of the Visual World.* Boston: Houghton Mifflin.). Gibson argued that natural visual perception was the result of the holistically projected imagery on the retinas with the brain processing the information to fit into the brain's construction of a conceptualized 3 D space that of course did not physically exist in any way within the brain. The brain's neuroanatomy was organized to create visual perception without extra intentional mental management. He thus thought that mentalist psychology was about as wrong as Behaviorism for

understanding perception. The Tripartite Domain Theory agrees with Gibson that cogitation does not produce perception, but for a different reason than his. Our explanation is that the body brain mechanisms processing sensory data eventually deliver that data to a consciousness that realizes perception—the brain is a data sourcing mechanism, but not the seat of conscious perception.

Evidence has been found indicating inborn anatomical design for feature detection

Evidence that the visual system is born with feature detection capabilities

Retinal and striate cortex feature detectors. Research on cat retina and striate cortex found movement and bar pattern detector sensitivity in both the retina and the striate cortex area of the visual cortex. Researchers found that light movement and light pattern detection were anatomically supported. (Hubel, T., and Wiesel, D., Receptive fields of single neurons in the cat's striate cortex. *Journal of Physiology* (1959) **148**: pages 574-91).

Visual cliff avoidance by inexperienced neonates. A visual cliff apparatus is a sheet of plexiglass, stiff enough to support crawling infants, placed over two distinctively different underlying patterns. One pattern is a checkerboard placed under the glass, and the other is created by dropping the pattern four feet down, so that a "visual cliff" appears. Preterm (16) and term infants(16) were set on the glass and prompted to crawl. The researchers observed that the infants showed aversion to the cliff, and did this before having acquired any experience from falling. (*Lin, Yuan-Shan; Rielly, Marie; Mercer, Vicki S. (2010). "Responses to a Modified Visual Cliff by Pre-Walking Infants Born Preterm and at Term". Physical & Occupational Therapy in Pediatrics. 30 (1): 66–78*)

Infants have a greater interest in faces than other patterns

In one study, infant brain activity was found to be most active when shown faces as compared to other stimuli, indicating an inborn capability to perceive and find attraction in faces (https://news.stanford.edu/news/2012/december/infants-process-faces-121112.html). In another study (Development of infants' attention to faces during the first year, Michael C. Frank,[1] Edward Vul,[1] and Scott P. Johnson[2] Published online 2008 Dec 27. doi: 10.1016/j.cognition.2008.11.010), researchers found that, "In simple tests of preference, infants as young as newborns prefer faces and face like stimuli over distractors. " This preference to attend to faces is found at birth, and so appears to be inborn.

Pareidolia

This is the tendency for humans to interpret a vague stimulus as something known to the observer, such as seeing shapes in clouds, seeing faces in inanimate objects or abstract patterns, or hearing hidden messages in music. A wide variety of studies have found such a tendency exists, and that implies innate structural design in the nervous system (https://en.wikipedia.org/wiki/Pareidolia).

Hawk/Goose effect

"In <u>ethology</u> and <u>cognitive ethology</u>, the **hawk/goose effect** refers to a behavior observed in some young birds when another bird flies above them: if the flying bird is a goose, the young birds show no reaction, but if the flying bird is a hawk, the young birds either become more agitated or cower to reduce the danger. It was first observed by <u>Konrad Lorenz</u> and <u>Nikolaas Tinbergen</u>." (https://en.wikipedia.org/wiki/Hawk/goose_effect). Thus, such young birds showing fear appear to have evolved to have inborn feature detection and fear for dangerous predators.

Reasoning and common sense logic

Most of our perceptions about what's going on in the world, at work, in society, while driving on the road, when interpreting the shenanigans of politicians, shopping, watching movies, reading stories, playing competitive games… comes from the multitude of instances in which we have experienced life's twists and turns, tried to reason and failed, sometimes guessed right and sometimes screwed up badly We do Not apply any formal reasoning, such as applying Aristotelian syllogisms.

Mature folks know they are susceptible to being mislead, tricked, and cheated. By contrast, youth brought up in happy middle class homes (is that what happened to millenials?) may be radically optimistic about applying their presumed accumulation of vast knowledge to solve the problems their seniors fumbled. Thus, our youthful visionaries can argue with sincerity that use of all carbon fossil fuels must be stopped soon, before the world ends. Cows must be slaughtered to stop polluting the atmosphere. All airplanes must be grounded. Nuclear power plant technology, always dangerous, must be abandoned. Glass faced skyscrapers must be torn down as energy wasteful. Wind power, sunshine, with perhaps some tidal wave technology, will provide for all of our energy needs. Common sense logic has gone with the wind.

Knowledge Transformation

Transformation by the sciences (Kuhn's insight on paradigm shifting)

We are taught in school that science is a grand human enterprise. It suffers no fools, employs only objective data to evaluate its modeled predictions, and is thus self-correcting with great contrast to other institutions, such as the stock market, politics, and law. Creativity is rewarded for achieving new models that work, or improving on older models, we are taught.

The myth about welcoming innovation (Magueijo)

A brilliant grad student in physics at the time I address, Joao Magueijo (now a PhD Cambridge graduate in theoretical physics focused on cosmology). JM was involved in many collegial

discussions about a hot topic of the day, the so called Inflation Theory of the Big bang. Inflation theory provides a model for the Big Bang expansion to resemble how the world appears now. It relies on the speed of light as being constant just as theorized by Special Relativity. Inflation theory was not popular with the Brits as being a speculative American product. To create another model for the expansion, JM thought to relax the Einstein postulation of light always traveling at a constant speed regardless of its surround. If light could travel faster than its current speed, then so too might the material exploding at the singularity, and the relative uniformity of the universe might be comfortably modeled. The constancy of the speed of light is a foundation principle for physics, so hypothesizing that it might have been different at the time of the Big Bang was threatening to all sorts of other models in physics. What MJ experienced was not mere intellectual jousting from established professors and editors, but nasty personal ridicule (Magueeijo, J. Faster than the Speed of Light. Cambridge, MA: Perseus Publishing, 2003) What JM realized was the physics establishment was built on the foundation of accepted beliefs, and was threatened by change, not reinvigorated by innovation.

Kuhn's paradigm shifting Stages

Kuhn's review of the history of science found that there were four discernable stages by which an established paradigm for science changed (such as the classical physics of Isaac Newton). There was no sudden Ah Ha moment when a world view would change.

The first stage is when the normal scientific beliefs then current and used for teaching and research become suspect.

The second stage develops when prominent professors attend to anomalous research findings or reinterpretation of accepted theory, with serious doubt generated about the currently accepted paradigm.

The third stage is adoption of a new paradigm to accommodate accepted findings.

The fourth stage is the new paradigm's general acceptance as the best one known.

The central point is that there is no sudden, overnight, rejection of the former paradigm, but an extended period of challenges, and debate for replacement to take hold.

Transformation in life

Hard knocks (the 2-hour drive).

I once took a two hour drive with a very bright PhD colleague to meet a client. As we started out, I mentioned something about a movie star making the news over a tragedy, bright, beautiful, and rich, but suffered from a romance gone bad. I reflected a moment, and added that her prominence made the news, but this is the way ordinary life flows with ups and downs for everyone, even for

the well off. My young friend shot back that I was too pessimistic and wrong about life. After driving down the highway about a mile, I challenged him to identify just one person he knew who went through life happy go lucky, spared of bad stuff, except taxes and natural age deaths. Easy to do, he said. After about 15 minutes he said that he had found just such a happy, carefree person. I did congratulate him for his discovery, and hid my doubt. After another few minutes passed, he then said he made a mistake. How? Well, he said that he had selected his middle aged Mom as the blissful soul, but forgot or suppressed a few sad facts. She was yet anguished over an extramarital affair Dad had about five years ago. She also had arthritic fingers, knees, and shoulders that hurt from moderate activities, such as washing the dishes. I cheerfully said that we still had about an hour and a half on this leg of our trip to think of an uneventful happy life……

Meditation

The NDE/OBE phenomena all but proves there is another reality than what we experience in our day to day mundane lives. The advocates for meditation claim that it can enable the mind effectively to detach from the body and thereby enter the domain of pure consciousness. According to the Tripartite Domain Theory, meditation would have a legitimate target in the 2nd Domain.

Religious education (teacher centered)

People who become very serious about religious education may experience epiphanies in which they feel a direct contact with the Divine. According to the Tripartite Domain Theory, such felt experiences may indeed by true.

Self-study of scripture (the spirit of Protestantism)

Lengthy and intensive study of scripture has reportedly generated an experience of contact with the Divine.

The born-again experience

A Pew Research survey of 35,000 Americans in 2014 found that approximately 28% experienced being born again. The intensity of religious feeling associated with being Born Again implies they had entered the 2nd Domain to have achieved their Intense feelings. (https://www.pewforum.org/2015/05/12/chapter-1-the-changing-religious-composition-of-the-u-s/pr_15-05-12_rls_chapter1-08/)

Spiritualism

Spiritualism is a quasi-religious belief that the dead have not perished, and may be contacted. Spirit mediums claim to be able to communicate with those who have passed over. Christianity

sensibly warns that enlisting the services of mediums risks treachery by charlatans, which is not to deny that there may be a few who can communicate with spirits, but it's risky business

What does it Mean to "Know" about Something?

For purposes of the following discussion, the classes of knowledge are defined as either transcendental, in the sense of idealized Platonic forms, or mundane, in the sense of "arbitrary" states of the environment as perceived by the ordinary sense-perception mechanisms of the body for sight, hearing, movement, touch, etc. There are two specific topics of knowledge that we will analyze, and these are about *creation of the world*, and the *nature of consciousness*.

Knowledge about the Creation of the World

If we were able to extricate ourselves from our material world (the 3rd Domain) to observe it, we would then be positioned to "see" how its appearance might possibly differ from how it seems when viewed from its interior. The main benefit of an external observation location would be to see how it came about, how it was formed, assuming it had a creation. However, as argued in Article 7 by the Principle of Interior Unknowability (PIU), we cannot ever be located outside of the material world, even if we could go backward in time, to observe its formation. Thus, any definitive scientific search for knowledge describing the nature of Creation is precluded by applying the PIU.

For our souls when functioning in the 2nd Domain of consciousness, either by a NDE, by a true death, or possibly thru meditation, knowledge about the nature of Creation is reported to be made available -- that is what the NDE/OBE reports reliably claim.

Knowledge about the Nature of Consciousness

As argued in Article 7, according to the PIU analysis we cannot see what consciousness is, how it may appear to an external observer, and thus have no way to objectify its nature by comparison with anything that may be scientifically observed. We experience consciousness thru immersion in a field of consciousness, but cannot objectively describe it anymore than we could describe the fragrance of a rose to someone else. While alive in the 3rd Domain, we are intellectually aware of having consciousness, particularly when we become *aware* that we are observing or thinking about anything, but we are not able to otherwise observe its nature as we might real objects existing in the material domain. Neurology, Psychology, and Philosophy are unable in principle (according to the PIU) to objectify "consciousness" as an observable phenomenon.

During the NDE/OBE, it is claimed that the individual consciousness participates in a universal field of consciousness in which all knowledge is instantly available, but even then "consciousness" does not appear as any entity itself that may be observed.

The quest to develop knowledge about *Creation* and *consciousness* ends here with the conclusion that, by our being immersed in them, they are not ever directly observable to us. However, conventional science is plagued by those who either seek to deny their existence (i.e., by contending that nothing can be said about existence before the Big Bang, and that consciousness is an unimportant epiphenomenon), or conversely seeking to scientifically describe and explain Creation and consciousness, whereas the PIU shows that both of such opposing perspectives are wrong.

 I expect that it would only be God that would have any ability to objectify knowledge of "consciousness" and Creation.

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