Interpreting science through feasibility and replicability: Extending the scientific method by applying "Lower Dimensional Feasibility, Absent Falsification" (LFAF)

Vernon M. Neppe MD, PhD, FRSSAf, DFAPA [a] and Edward R. Close PhD, PE [b] [c]

Abstract: [d]

In this paper, we re-visit and amplify the philosophy of science concept of "Lower Dimensional Feasibility, Absent Falsification (LFAF)" originally proposed by Neppe and Close in 2012. [1] LFAF is pertinent because it extends scientific thinking beyond Popperian falsifiability [2] by including feasibility as another level of proof. We show how LFAF can be applied to nine different areas of science namely:

1. *the scientific method;*
2. *the philosophy of science approach with the addition of feasibility making scientific evaluation more versatile;*
3. *the critical role of mathematics in science; including whether mathematics is simply required for calculations or an essential part of reality;*
4. *the need to expand mathematical logic;*
5. *the need to amplify the logic of scientific data approaches;*
6. *recognizing that exact replicability is almost impossible except in the harder physical sciences where minimal confounding factors don't matter;*
7. *re-evaluating the fundamental concepts of science and how critical the LFAF concept is;*
8. *analyzing the nature of creativity and of reality, including using the model of TDVP [e];*
9. *the extension of the concept of science by applying LFAF: This includes feasibility.*

LFAF has key applications across the sciences. This is particularly so in:

A. *the practice of Medicine, where the feasibility of:*
   - *a diagnosis is extremely important and often bidirectional inferences are applied; and*
   - *the prescriptions of treatment are usually based on unstated feasibility measures of*

---

[a] Vernon M. Neppe, Director, Pacific Neuropsychiatric Institute, Seattle, WA; Distinguished Professor, Exceptional Achievement Organization; and Adj. Prof., Department of Neurology and Psychiatry, St Louis University, St Louis, MO; Director, Human Performance Enhancement Division (HPED) of the World Institute of Scientific Exploration (WISE).

[b] Edward R. Close. Research Associate, Pacific Neuropsychiatric Institute, Seattle, WA; and Distinguished Fellow, Exceptional Creative Achievement Organization.

[d] The "LFAF" concept was originally described in our book *Reality begins with consciousness: a paradigm shift that works (1st Edition)* [1].

[e] TDVP: [3; 4] The Triadic Dimensional-Distinction Vortical Paradigm is a metaparadigmatic model developed equally by Drs. Vernon Neppe and Edward Close. It is based on the available broader empirical data of all the sciences (physical, biological, consciousness and psychological), validated partly by mathematical theorems, applying LFAF for scientific validation, and applied to philosophy (as "Unified Monism"). The key features are tethering of Space, Time and broader "Consciousness (STC), nine finite discrete dimensions and further transfinite discrete dimensions all embedded within a "continuous infinity". TDVP allows for a model of life that always *exists* in the infinite, and an infinite order translated in the finite into multidimensional order.

patient response without sufficient side-effects: These characteristics ensure the best measures of efficacious outcome (irrespective of whether statistical results have demonstrated falsifiable data). AND IN:

B. *Dimensional Biopsychophysics, a discipline in which the multidimensional perspective is extraordinarily important. Applying LFAF, allows for the scientific empirical, inductive and mathematical studies of extra dimensions. This is critically important because the concept of extra dimensions is no longer only theoretical because mathematically the 9 dimensional spin model has been derived and demonstrated by several calculations and is replicable* [5; 6; 7; 8; 9]*. Such LFAF studies can apparently also now include the relatively non-local* [8; 10; 11; 17; 12]*, psi* [12]*, explorations of altered states of consciousness, the covert happenings that may be affecting our day-to-day reality, and models for "theories of everything". Without including the addition of feasibility, these advances would not be possible.*

We also introduce a new model for consideration, the 11 Neppe-Close Revolutions (11NCR): This necessarily extends Kuhn's various stages of understandings of the revolutions[61] *of change—the reshaping of science—by adding several more paths along the eleven key periods of adjustment.*

'Let us suppose that an ichthyologist is exploring the life of the ocean. He casts a net into the water and brings up a fishy assortment. Surveying his catch, he proceeds in the usual manner of a scientist to systematize what it reveals. He arrives at two generalizations:

(1) No sea-creature is less than two inches long.

(2) All sea-creatures have gills.

These are both true of his catch, and he assumes tentatively that they will remain true however often he repeats it.'

'In applying this analogy, the catch stands for the body of knowledge which constitutes physical science, and the net for the sensory and intellectual equipment which we use in obtaining it. The casting of the net corresponds to observation: for knowledge which has not been or could not be obtained by observation is not admitted into physical science. An onlooker may object that the first generalization is wrong. "There are plenty of sea-creatures under two inches long, only your net is not adapted to catch them."

The ichthyologist dismisses this objection contemptuously. "Anything uncatchable by my net is *ipso facto* outside the scope of ichthyological knowledge." *In short,* "What my net can't catch isn't fish." *Or — to translate the analogy —*"If you are not simply guessing, you are claiming a knowledge of the physical universe discovered in some other way than by the methods of physical science, and admittedly unverifiable by such methods. You are a metaphysician. Bah!" ……

"The mathematics is not there till we put it there."'

Sir Arthur Eddington, 1938 [13 f]

---

[f] Sir Arthur Eddington (1882 - 1944), the great British Astrophysicist and Philosopher of Science, quoted from Eddington's book *The Philosophy of Physical Science* in 1938 [13]. Eddington became world-famous when his observations on 29 May 1919 of the

Sir Arthur Eddington's remarkable insight that obvious experimental data may not locate all of reality reflects an understanding that at times our approach to what we regard as science is limited. We cannot appreciate all of reality when only applying a small component of reality. And our approach to science is clearly linked with our perception of reality.

Therefore, we must examine whether:

- the Scientific Methodological Approach has some limitations and needs additions;
- the Philosophy of Science Approach must be amplified;
- specifically feasibility would make such Philosophy of Science approaches more versatile;
- there is a critical role for mathematics in science;
- the axiomatic basis of mathematical logic must be expanded;
- amplifications of logical scientific data approaches;
- replicability is a key issue in science;
- the fundamental concepts of science should be re-examined;
- lower dimensional feasibility, absent falsification (LFAF) is critical;
- the need for LFAF in the Neppe-Close Triadic Dimensional Distinction Vortical Paradigm (TDVP) [14; 15; 16; 17];
- we can analyze the nature of reality;
- we can apply a summation for what science is all about.

In short, the answers to all these items are "indeed, we must expand and amplify these areas". A common theme to all twelve of these issues involves considering what is feasible, as well as what is falsifiable and what is replicable. This is why in this paper we emphasize our proposed new concept of "lower dimensional feasibility, absent falsification".

Key concepts

We're dealing with several concepts in the Philosophy of Science. Consequently, we apply some key concepts in the sections that follow, Issues 1 through 12.

These are presented over the next few pages because they allow a tabulated prioritization of where the concepts of science fit, what constitutes science, and what may need to be expanded to encompass what is now known.

We clarify these concepts with Tables, marrying them with data in the text.

Issue 1: The classical scientific approach and its limitations

We always begin with understanding what is known and what is not known.

---

bending of starlight near the eclipsed sun confirmed predictions made by Albert Einstein in his General Theory of Relativity. http://en.wikiquote.org/wiki/Arthur_Eddington.

- In Table 1A, we tabulate the *general scientific approach* that is *conventionally* used, based on the consensus approach of what is known. This *approach* to science may reflect a legitimate way to conceptualize science that has been well-tried and tested over centuries.
- We then test ideas to establish if we can extend what is known, or at least, if we can replicate what is known. We frequently apply statistical approaches to ensure that the hypotheses are appropriately tested.
- At the next level, we ensure that our methodology to test our ideas is appropriate. This involves careful planning, not only of our sample and sample sizes and its generalization to the appropriate population, but application of appropriate techniques to ensure the research method we've applied is legitimate.
- We then analyze our results appropriately, applying the pre-defined techniques we had listed in our hypotheses. From there, we're able to discuss our results, recognize limitations and strengths and arrive at conclusions. In this approach, we emphasize what is falsifiable and what is potentially replicable.

Table 1A: General scientific approach and the place of feasibility	
Literature review *What is known:* *Limitations:*	• This includes *current consensus opinions.* • Limits are at times unnamed as not stipulated.
Hypotheses and ideas	
Statistical and non-statistical hypotheses	• *Stipulated statistical analyses* • *Non-statistical "unproven" components amplified* • *Induction techniques*

Methodology	• *Samples and comparisons*
	• *Key controls*
	• *Evaluation tests applied*
	• *Data collection*
	  ○ *Statistical analytic techniques*
	  ○ *Non-statistical analysis*
	• *Uncontrolled data and confounding factors*

Results	• *Statistical analyses based on falsifiability* • Non-statistical pertinence: Sometimes neglected but often inductive methods involve observations that are not statistical
Discussion	• *Strengths* • *Weaknesses*
Conclusions	• *Generalizations from the specific data to the general* • *Replications* • Further ideas generated.

The solutions to extending this scientific approach are then added in Table 1B.

- Before rejecting data as unscientific because it may not be *falsifiable*, we need to apply *feasibility* as the next stage.
- Even more so, if something is falsifiable but has not been falsified, feasibility can amplify data (as in Medicine). Under those circumstances, feasibility often makes the results more practically useful.
- The higher the level of scientific proof, the better. We argue that mathematical proof is the highest level of scientific proof because it does not rely on frequentist or Bayesian statistical arguments. [12 8]
- The axiomatic basis of mathematics may have to be clarified and expanded to accommodate new empirical knowledge about the nature of reality.

In Table 1B, the current scientific approach (that is listed in Table 1A) is amplified. The major additions pertain to feasibility of the hypotheses and outcome. By adding in extra pieces into the "jigsaw puzzle" of what is realizable, this procedure allows for extending our boundaries of knowledge, and for creativity and originality. Such a technique is critical, inter alia (we will see), when applying multidimensional models.

This way we do not avoid excluding data that might be incorrectly considered as irrelevant, when more appropriately it would be labeled as feasible. The inclusion of feasibility considerations allows for what might be critical conceptual jumps to other dimensions, and for expansions of scientific theory based on new information.

Table 1B: Specifically the additions to the classical scientific approach *(added to Table 1A)*	
Hypotheses and ideas	• ***Mathematical proofs and logic.*** *Mathematics and logic are keys to further understanding of science. This is, at times, appreciated; but sometimes it is not.* It is generally assumed by most scientists that mathematical logic is complete, as it is currently understood. Gödel's incompleteness theorems prove that this is an error. [18; 19] • ***What is feasible?*** Feasibility till now has been neglected, yet, we argue, it is a key to the scientific method. Often the not provable, becomes cogently pertinent science that is not refuted and yet feasible.
Limitations	Limits are frequently not stipulated, yet often reflects unrecognized components of research, particularly in the extra-dimensional context.
Results	• ***Feasibility based on jigsaw pieces but not falsified:*** o *Creativity and originality* o *Metaphysical jumps to scientific approach* o *Exclusion of data*

Consensus is sometimes based on outmoded concepts not on truth. [20] This consensus approach to scientific investigation is always based on our limited knowledge of the nature of reality. Many new hypotheses, based on a deeper and/or broader understanding of the nature of reality, are possible. The literature of what is known is constantly changing as more is learned or applied about the true nature of reality; for example, new light was shed on the nature of reality by relativity [21; 22], quantum mechanics [23] and Gödel's incompleteness theorems, [18; 19] yet the scientific approach has not been modified to accommodate them. Additionally, both in the feasibility and falsifiability approaches, new axiomatic mathematics and logic are introduced as critical "players".

Issue 2: Resolving the scientific approach by amplifying the Philosophy of Science

When we combine falsifiability and feasibility, we delineate a new Philosophy of Science approach called 'Lower-Dimensional Feasibility, Absent Falsification' (LFAF) as in Table 2A, which describes the key concepts

Table 2A: Philosophy of science key concepts	
Philosophy of science (PoS):	The branch of philosophy that examines the foundations, methods, and implications of science. PoS includes what science is, its pertinence, reliability, purpose, ontology, and areas related to science, such as metaphysics.
Falsifiability (in the scientific contex):	Carl Popper's concept: [2] The empirical or mathematical demonstration of the falseness of a hypothesis. The level of proof is a negation and falsifiability is often in practice, limited to aspects of our *current experiential* reality of 3 spatial dimensions (length breadth height) in a moment in time (the present) and therefore called 3S-1t. Falsifiable in LFAF refers specifically to scientific falsifiability not any other common synonymous uses such as "incorrect", "erroneous", "mistaken", "inaruurate", or "imprecise".
Strength:	*Falsifiability's strength:* it is a powerful way to negate an incorrect hypothesis.
Limitations	*Falsifiability's limitations:* it is insufficient for cosmological concepts like evolution, and can frequently not be applied beyond 3S-1t, particularly if events or objects are not falsified.
Feasibility (in the scientific context): *Not CF:* *The strength of SF:*	Vernon Neppe's concept: The empirical or mathematical demonstration of the manifest portion of something that we can experience, perceive, or conceive of, that is not falsified. Feasibility, like feasibility, refers to something that is testable and involves demonstrable proof by empiricism, deduction or induction: It involves descriptions of attempts at scientific proof —"scientific feasibility" (SF). However, there is an alternative non-scientific English idiomatic use —"common feasibility" (CF): This common linguistic use of feasibility "it is possible (or probable) to do or effect something easily or conveniently" is different from SF. "Feasibility" is as SF only in this paper as part of LFAF. (SF) Feasibility is more versatile than falsifiability in that it can add meaningful reasoning to different scientific contexts such as

Table 2A: Philosophy of science key concepts	
<u>*Limitations of feasibility*</u>	extra dimensions, evolution, cosmology, meaningful medical practice, psi, and even extend mathematics and logic. SF manifests like filling in a jigsaw puzzle piece into the experiential stage of 3S-1t. But this more multifaceted feasibility *lacks the power* of falsifiability analyses.

But some disciplines must be part of science yet require LFAF to be so. Sometimes, we don't even recognize that we're using is LFAF. In table 2B, we list the key LFAF elements.

***Table 2B:* Lower-Dimensional Feasibility, Absent Falsification**

"Lower-Dimensional Feasibility, Absent Falsification" (LFAF):	Neppe and Close in 2012 [1] developed this new theoretical Philosophy of Science approach to scientific proof. The basis of LFAF includes logically feasible concepts in hypotheses that may not be falsified or even falsifiable in our experiential reality of our three dimensions of space embedded in the present moment in time (3S-1t). LFAF is applicable at all dimensional levels and allows a greater versatility of scientific approach without excluding the greater power. [8] Applying our *dimensional domain* of 3S-1t that we experience while alive, we could have named this method of analysis "3S-1t FAF" (or "3S-1t feasibility, absent falsification"). This would have been perfectly logical. But it eliminates the option of other analyses, relative to different dimensional frameworks. [10, 11]

These disciplines and specific areas need to be respected as sciences. Yet, they often cannot apply the scientific method because falsifiability alone is not available or relevant. Applying "feasibility" makes them meaningful: Paradoxically, these disciplines are currently regarded as sciences, yet it is the scientific feasibility (SF) that's more pertinent as the LFAF approach makes them sciences that can be carefully examined for their data (Table 2C).

Table 2C: The disciplines and specific areas that demand to be sciences
• **Medicine** emphasizes clinical pertinence. Clinical relevance in medicine is more important than statistical correlations. The medical approach is often bidirectional with correlations in medicine (dual directional "causality" or linkage) [24 25; 26; 27]
• **Evolution** reflects the historic past, and feasibility assumptions need to be made about this discipline because it is often inherently not falsifiable.
• **Cosmology**: Cosmological findings often involve applying pieces of the jigsaw puzzle and testing for feasibility because the distances and times involved are astronomical.
• **Dimensional biopsychophysics (DBP)** [g] involves studies of dimensions. This includes dimensions beyond the usual 3S-1t that we can directly experience. We can sometimes only be aware of the extra dimensions only through little clues manifesting in 3S-1t: We

[g] Dimensional biopsychophysics: This is a new discipline established by Neppe and Close [1] to fill the void of how to describe multidimensional reality in the physics, biological, consciousness and psychological sciences.

call these jigsaw puzzle pieces. These should be scientifically feasible. DBP interfaces and impacts several areas such as biology, physics, and consciousness research.

Concepts like feasibility and falsifiability reflect not only scientific methodological approaches. They are actually fundamental to the *Philosophy of Science approach* to conceptualizing science. The concept of LFAF broadens science in the disciplines of evolution, cosmology, dimensional biopsychophysics, and particularly in common practice, in medicine.

Falsifiability is quite insufficient to deal with all our current sciences. Applying LFAF allows for more versatility plus more power to expand hypotheses and results. LFAF is particularly pertinent to accentuate the disciplines and concepts listed in Table 2B, significantly broadening science, including evolution, cosmology, and multidimensionality and making medical interpretations more meaningful and applicable and allowing the introduction of new disciplines, such as dimensional biopsychophysics.

Table 2D: Concepts that demand to be scientifically evaluated

- **Life**: "Life" is far more than the physical testable RNA and DNA expression. Biology involves the feasible as experienced in 3S-1t only, just as physics does, yet the beginning of life might not be falsifiable, and, we argue, appears to be far more than just 3S-1t. [8]
- **Ordropy:** Order can be reflected in finite multidimensional order. Moreover, we have argued that such "ordropy" [h] might derive from the infinite continuity. At that level, it is inherently not falsifiable, but we might experience the feasible jigsaw pieces in 3S-1t.
- **Infinity:** Infinity integrates with the finite and transfinite, and we argue, embeds this metafinite.[i] [8] The continuous infinite is extremely difficult to conceptualize and because there are no measures, much of it must be inherently non-falsifiable. Moreover, the quantized finite extending into the transfinite may be difficult to measure, except at times, ordinally. This, again, might lead to data that cannot be calculated exactly, and therefore cannot easily be falsified, yet can be feasibly examined.
- **Psi :** *Psi phenomena* [j] cannot be explained other than recognition that they appear beyond space or beyond time or require greater consciousness. This means that they are "relatively non-local". [8, 10; 11; 28] We postulate they involve at times extra dimensions beyond 3S-1t. They therefore fit into the discipline of Dimensional Biopsychophysics.

Practical non-falsifiable science

---

[h] "Ordropy: is the Neppe-Close term for multidimensional order. [8] Ordropy is more than just a negation of entropy (implying a tendency to disorder). Its presence may relate to the ordered biochemistry that we, living beings, experience every moment, and the maintained order of our living. But it also has an infinite component, with a hypothesis of being the source of all order.

[i] "Metafinite" refers to the composite term for the "discrete finite" (such as the 9 dimensions), plus the higher transfinite.

[j] Psi" is a composite term used for so-called "extrasensory perception" (ESP) and "psychokinesis" (PK). To the layperson, it is the generic term for psychic, paranormal, anomalous and sixth sense. Psi phenomena constitute part of the scientific discipline called "parapsychology".

There are, therefore, special circumstances in which the classical approach of Karl Popper in the Philosophy of Science [29] that requires only "falsifiability", do not apply.

<u>Issue #3: Feasibility</u>

Feasibility can, but falsifiability cannot, be applied to certain recognized scientific endeavors. These include not only evolution and cosmology. For example, certain models took some years to demonstrate: What were their statuses before they could be tested and potentially falsified? A classic example is Einsteinian General Relativity [21; 22]. In today's world of theorizing, the Neppe-Close TDVP model [17] has very strong areas of strength, but there are creative ideas and particularly concepts about infinity that have speculative components. Does that mean there is room for expansion? Indeed, yes: TDVP generates some 600 hypotheses, and about 20 have been definitively demonstrated. [6] These examples cannot be solved with Popperian falsifiability alone [2], but they can by applying LFAF.

We amplify other apparently legitimate scientific endeavors:
When we study "dimensions" that might exist beyond "3S-1t", we're examining an ostensibly critical area. Dimensions relate not only so for psi phenomena, and even more so for alleged survival after bodily death [8]. They are also pertinent for models in mathematical physics, such as models of indeterminacy, entanglement, and solutions for questions that are unsolved by applying 3S-1t. [16] This includes conundrums [6] such as the mixing angle [5], intrinsic angular momentum and intrinsic electron spin [30], the disappearing electron cloud [31; 32], pure mathematical 9D spin calculations, weak universality [33], and the possibility of either the non-spherical electron or questions about light speed [32]. Effectively, these are examples of the 9-dimensional spin models that have been demonstrated through the Neppe-Close TDVP model. [5; 6; 7; 8; 9]

Because these models cannot be represented in 3S-1t alone, they need to be portrayed multidimensionally (in this instance in 9-D). This means that only some incomplete pieces of the metaphorical jigsaw puzzle can be reflected in 3S-1t alone, allowing for representations of feasibility even when not falsifiable. [8, 17]

Additionally, there are areas that do not necessarily reflect specific numbers of finite dimensions, like the 9-dimensional spin demonstrated by TDVP [8], but can be applied to any number of dimensions that fulfill certain stipulated conditions.

Feasibility examinations also may be non-specific. In this context, they may allow for broader mathematical studies. These include the multidimensional geometry that we have called "dimensionometry" [k], the mathematical ways to move across dimensions called

[k] dimensionometry [3; 4] The logic and mathematics of geometry extended to include further dimensions. These domains include at least nine dimensions.

"dimensional extrapolation" [l] [8], the Calculus of distinctions (CoD), which is the new calculus involving quantal not infinitesimal analysis [m], and the extension of CoD called "the calculus of dimensional distinctions" [n] [34]. Finally, there is the important complex process of movements across dimensions called "indivension". [o] [8]

If we decide to ignore such ostensible areas of contradictions in the applications of scientific method, we may be missing much of what constitutes reality. At least, these endeavors should be given the opportunity to be examined scientifically.

Feasibility is sometimes much more pertinent in Medicine than falsifiability.

Furthermore, there are areas where falsifiability is not a key element, but whether that potentially falsifiable area is "feasible".

A practical example here involves medical pharmacological studies. If a drug works better than placebo such that it achieves falsifiable statistics at the one in a thousand level, the result might well potentially just be reflecting a 51% improvement on the drug compared with 47% on placebo. However, the statistical power might relate to say, 5000 patients being in the study sample. Moreover, such a result could even be replicated. Indeed, the USA Food and Drug Administration mandates two double-blind studies for the drug to be approved as efficacious and hence marketed. Yet, would a doctor use such a drug?

In Medicine, we have a higher level of expectation than just results that can show that a medication may work better than placebo in 4% or 10% of cases. What matters in clinical practice are the results. The patient must get better or at least consistently improve with the proposed intervention. That is our measure of success. It is not measured by the result of a double-blind study with slight differences only sufficient to make the intervention better than placebo.

Effectively, we need to prescribe an appropriate antibiotic, based on demonstrable marked specific bacterial sensitivity that allows the confident prediction of the patients improving in perhaps 98% of cases. Consequently, *falsifiability* is limited in relevance in Clinical Medical Practice. It might work statistically, but the clinical significance relates to whether it is *feasible to use the drug*, not the results of any double blind studies that generate statistical, but not clinical significance. What is relevant is, *"is that prescription feasible?"*.

---

[l] dimensional extrapolation [3; 4]. A mathematical dimensionometric process for defining the dynamic relationship of dimensional domains and number theory through rotation and projection.

[m] Calculus of distinctions: (CoD) [3; 4] Well-defined logical and mathematical operations involving the drawing of distinctions, constituting the most basic concept underlying all logic and mathematics. Particularly relevant to TDVP are distinctions of content, extent and impact. The CoD was developed by Ed Close, who was later assisted by Vernon Neppe.

[n] the calculus of dimensional distinctions [3; 4] (CODD). The CoD with extended notation and detailed operations applicable to finite n-dimensional distinctions.

[o] indivension [3; 4]: A new TDVP term (derivation: Individual-units; dimensions): the process of moving across, between and within dimensions, and interfacing across different levels of social systems.

Therefore, we must add to the most usual scientific approach of falsifiability by recognizing that there may be legitimate reasons to apply another level of scientific proof, namely "is it feasible?" This paper is about feasibility and extending of the Popperian idea of falsifiability [2] to what we have called "*Lower Dimensional Feasibility, Absent Falsification" (LFAF).*

Issue #4: The critical role of mathematics in Science.

We point out that there is more to the scientific approach by examining just falsifiability. We must recognize that science extends beyond that. Is the information obtained from the research, theoretical extension, or other scientific approach feasible? Sometimes, it might be just the overt component of the total potential data set that is available. It's like a piece in an incomplete jigsaw puzzle, filling in one more 3S-1t section in a vast infinite expanse.

We argue that mathematics is a very definitive way to establish scientific proof and can be applied for key feasible and falsifiable events in science (Table 4A).

Table 4A: Pertinent Mathematical LFAF Terminology[6]	
Axiom:	A feasible statement or proposition that is regarded as being established, accepted, or self-evidently true.
Conjecture:	An unproven supposition, opinion or conclusion, which is feasible and often well supported, based on incomplete information
Contradiction	(Mathematics) A combination of statements that are incompatible.
Corollary:	A feasible or falsifiable proposition that follows from (and is often appended to) one already proved: a direct or natural consequence or result.
Derivation:	A falsifiable sequence of statements showing that something (like a formula or theorem) is a consequence of previously accepted source statements.
Equation:	A falsifiable statement that the values of two mathematical expressions are "equal to" (=) or "equivalent to" (≡).
Exponent:	A quantity representing the power to which a given number or expression is to be raised, usually expressed as a superscript (e.g., the n in x^n)
Inequality:	The falsifiable symbolic expression of the relation between two expressions that are not equal, employing signs such as ≠ "not equal to " ; at times, > "greater than," or < "less than".
Integer:	A whole number (positive or negative); a number that is not a fraction.
Lemma:	A falsifiable subsidiary or intermediate theorem in an argument or proof.
Proof:	Evidence or argument establishing or helping to establish a fact or the truth of a statement (at its most proven level, it is falsifiable)
Theorem:	A general, usually falsifiable, proposition that is not self-evident but proved by a chain of reasoning; a truth established by means of accepted truths; in mathematics, rule in algebra, geometry or other branches of mathematics expressed by symbols or formulae.

Even though statistics may justify research, the proofs of mathematical logic are the most powerful ways to demonstrate scientific results. We personally regard mathematics as a fundamental component of reality, not just a way to carry out calculations in finite aspects of reality. (Table 4B).

Table 4B: The two options of mathematics
• *Either* mathematics is relevant to science. If so, we can incorporate it within nature and it is part of the scientific empirical and inductive methods. • *Or* mathematics is irrelevant to science, and purely applied just as a method of calculation, however it still is a powerful method of proof.

Among current mainstream scientists, there is dispute as to which of the dichotomous interpretations of the basis for the application of mathematical logic are correct. This is not new, even the ancient Greek philosophers, Aristotle and Plato, disagreed on this issue. Essentially, does mathematics just involve a mechanical calculation? Or is it more than that? Is mathematics a fundamental part of the natural logic underlying the empirical results obtained by the experimental investigation of reality. This latter choice allows us to appreciate the beauty of mathematics and particularly, its necessary role in reality. However, either way mathematical logic is critically important and mathematics has a value in the approach to scientific proof, relevant in applying both the falsifiable and the feasible.

Table 4C: The three endpoints of mathematics applying empirical and inductive methods
• Mathematics allows for demonstrable proof: The derivation is then replicable. • Mathematics cannot prove something: The question or theory remains open. • Mathematics definitively proves something is incorrect: This is often reflected by an “inequality” and the consequence is recognized as a “contradiction”.

Very relevant might be situations where mathematics shows that two sides of the equation are unequal. This creates an inequality. Sometimes, further limits may need to be stipulated, as in Fermat’s Last Theorem (FLT) which mandates an inequality under the limits of the theorem (exponent N≥3) because the result required must be integral, not a fraction, so that there is no solution and the two sides of the equation must necessarily be unequal. [35] In this instance, for centuries this was a *feasible conjecture*. Then the inherent *contradiction* in the equation was demonstrated when it was *falsified* and so FLT truly became a proven *theorem*.

As another example, the stipulated *limits* of 3S-1t turned out to be insufficient for a *falsifiable* solution to mathematically deriving the Cabibbo mixing angle [36] , but such a derivation was nevertheless *feasible* as a proposed idea that could be based on a 9 dimensional spin model as hypothesized by TDVP. [1] When Close and Neppe went beyond 3S-1t and tested that hypothesis, it became falsifiable and was proven [5; 7]. Moreover, it could easily be mathematically replicated, and based on the same original hypothesis based on the hypothesis that the quantized finite elements of TDVP that 9 vortical dimensions must exist [1], the authors have used similar 9-dimensional spin principles to demonstrate several other findings. [5; 6; 7; 8; 9; 37; 38]

Importantly, this kind of example makes what could otherwise have been labeled as "metaphysical", and abandoned as one of those insoluble quantum mysteries that laureate Feynman might have shrugged his shoulder and recognized as inexplicable, into a genuine hypothesis applying the scientific approach of LFAF. But looking at the feasibility of the data, potentially allows us to examine ideas that are more creative scientifically. And finally, this allows an additional logically consistent way in which information that is feasible as pieces of the 3S-1t jigsaw puzzle can be included as part of the puzzle that is reality.

Issue #5: Amplifications of specific scientific data approaches

Deductive reasoning is a very common scientific technique, based usually on *empirical observations*. However, *inductive reasoning* is very relevant particularly when not all data is available to directly observe. This may require *inferences* to be made. These inferences are legitimate and critically important in many sciences. Inferences might be applicable to basic physics observations —how many times do apples need to fall downward off a tree to infer gravity? Inference and with it inductive reasoning, are always legitimate scientific methods.

There are many technical and/or operational terms that are pertinent in scientific approaches to analyzing empirical data (Table 5A).

Table 5A Techniques of scientific data approaches	
Deduction	By contrast, involves the inference of particular instances by reference to a general law or principle.
Empiricism	Is based on, concerned with, or verifiable by observation or experience rather than theory or pure logic (Popper [2])
Induction	Involves the logic of inference of a general law from particular instances. The extension is the *observation-inductivist* method (opposed by Popper [2; 29; 39]) of indirect testing only, applying theory and understanding implications. The Neppe-Close jigsaw puzzle in LFAF may be an example here, applying the principles of feasibility without being falsified.
Inference	Involves the process of deriving logical conclusions from premises or findings that are known or assumed to be true.
Jigsaw puzzle pieces	The Neppe-Close TDVP concept applies mainly to our current experience and observations, where little pieces are added that may be pertinent for analyzing other dimensions. These pieces may be discrete bodies of

Table 5A Techniques of scientific data approaches	
	conceptual, theoretical or empirical data.
Mathematical induction	Applies one or more means of proving or disproving a theorem by showing that if it is true of any particular case, it is true of the next case in a series, and then showing that it is, indeed, true or false, in another particular case. Proofs by infinite ascent or descent are examples.
Observation	In science, what is directly observed: Direct evidence or experience through the senses that gives rise to documentable empirical data.
Replicability	Scientific technique showing that positive findings can be repeated: A strong indicator of validity: If the same results are obtained every time an experiment is performed, it is said to be replicable.

Deductive reasoning is a very common scientific technique, based usually on *empirical observations*. However, *inductive reasoning* is very relevant particularly when not all data is available to directly observe. This may require *inferences* to be made. These inferences are legitimate and critically important in many sciences. We can add to these common concepts applying new language and concepts to the multidimensional (Table 5B).

Table 5B: The milieu of dimensional science

9-D	Nine dimensional model: This was first postulated in TDVP [1] and then later derived.[8] 9-D involves nine dimensional spin and incorporates the lower dimensions and all the science in them such as 3S-1t.
Restricted 3S-1t (-1+C): [3; 4]	The restricted reality that we, sentient beings, experience during physical life associated with limited perception and responses. Most of reality is hidden at the various relative non-locality levels. [10; 11]
Distinction: [3; 4]	Anything that can be distinguished, in any way whatsoever, from everything else: Any finite object, event, image or thought distinguishable from its surroundings.
Dimensions: [3; 4]	Non-congruent, non-parallel extensions measurable in terms of variables of extent (CoD) such as Space, Time and (dimensional) Consciousness. Operationally, in the Euclidean framework, for convenience, dimensions are defined as orthogonal to each other and characterized in degrees of freedom. A continuous distinction that can be measured in units of extent. These interact together forming different domains with specific properties.
Infinite: (TDVP): [3; 4]	Limitless, unbounded, continuous, without end subreality in Space, Time and Consciousness (C-) Substrates. *The infinite subreality contains the finite* discrete and transfinite subrealities. Infinity involves a continuous subreality, that obeys the laws of nature, but we conceptualize the gestalt—the whole—and the total content of infinity is almost completely unknown.
Metafinite: [3; 4]	(Neppe-Close TDVP). The discrete transfinite plus the lower finite dimensions. All the discrete, quantized, pixilated. Embedded in the infinite continuity (see "Transfinite").
Metaparadigm: [3; 4]	Broadest paradigm impacting all sciences, mathematics and philosophy.
Transfinite: [3; 4]	The transfinite is sometimes called "countable infinity": Realistically, the number is so large, it blurs and by definition cannot be counted. However (in TDVP), "transfinite" essentially still involves a discrete extent (so it is technically quantal though ordinal in measure). Transfinite is contrasted with the "infinite" that is never discrete or countable, though continuous, but the "finite" also includes the lower dimensions. In TDVP, we sometimes refer to the "transfinite" as the "tenth-plus dimension". [21; 22]

Let's combine the concepts of Tables 5A and 5B examining inferences. These are often are linked with feasibility.

Inferences might be applicable to basic physics observations —how many times do apples need to fall downward off a tree to infer gravity? Inference and with it inductive reasoning, are always legitimate scientific methods.

We can combine our inferences with examples from two critical disciplines where inferential feasibility is critical, namely, the Medical Sciences, and in Dimensional Biopsychophysics.

Medicine: In Medicine, physicians and their patients pay great homage to falsifiability and recognize statistically the relevance of double blind studies to demonstrate basic efficacy. However, clinically in practice applies inferential thinking for life-and-death decisions: Patients do not want to know they have 5% chance above placebo chance to survive or get better; they want what is feasibly the best treatment.

Indeed, the basis of medical practice involves inference in both diagnosis and treatment. Indeed, inference is extraordinarily important in *medical causality*, a scientific discipline that functions predominantly on inferred data. Neppe [24, 40,] and also Neppe and Close [10, 11, 24, 41,] have indicated this feasibility assumptions may be very powerful as the causality is often "bidirectional". For example, a laboratory test of HbA1C is high demonstrating diabetes which condition has a cluster of specific symptoms; or that symptom cluster allows the diagnosis of diabetes, and is almost invariably associated with a raised HbA1C level). Medical diagnosis reflects feasibility and sometimes, but not always, may be falsifiable.

Dimensional Biopsychophysics: Next, we turn to Dimensional Biopsychophysics (DBP), applying particularly the concepts in Table 5B, to appreciate the particularly relevant role of inference in multidimensional frameworks. In DBP, the multidimensional spectrum involves applying what is feasible when it might not yet be, or even ever will be falsifiable. So frequently, we're applying the inferential spectrum, but applying inductive reasoning. This allows us to further scientifically interpret key new and old data using LFAF.

This reasoning is so because we can observe only partly what is happening, namely the overt 3S-1t expression, with the rest of the 9 dimensions (for example) or of the transfinite, or even the infinite, being covert, because we cannot access the other dimensions. We have to infer, and apply what is feasible, because we usually have data that is not yet falsifiable empirically. However, sometimes mathematics provides a higher level of proof. [6]

This is exemplified by the examples of the Close and Neppe derivations of the Cabibbo angle[5], intrinsic spin and the angular momentum [30] and the electron cloud. [28; 29] Here, the mathematics allows us to even prove that these falsifiable calculations can be derived and potentially replicated by others. And the initial LFAF hypothesis was based on the proposal that 9-dimensional spin was feasible as suggested by the data that was available through the Neppe-Close TDVP model. [5; 6; 7; 8; 9]

Dimensions are extraordinarily important, and require their own extensions of mathematics. For example, each higher dimension contains the dimension below, and this continues until the zero dimension of a single point. But there may, in empirical finite reality, be no single point—no singularity, so to say— because every thing is quantized.

We can look at dimensions in terms of each making distinctions from each other. Once they go beyond 3S-1t into the extra usually covert dimensions, they require feasibility evaluations.

Issue 6: Amplifications of logical scientific data approaches

We can understand the complexity of the mathematics behind dimensions by recognizing the different *existential distinctions* [34,8]:

- *Extent:* dimensions are measurable—they have extent in space, time and "Consciousness extent" (STC_x), applying either interval or ordinal measures. [p]
- *Content* is the second existential distinction, in this instance mass, energy and "content of Consciousness" (MEC_c)
- The third distinction is the *impact* of these factors on the content and extent. This can be through physical Mass-Energy results (e.g., the influence of earthquakes) or through the "impact of Consciousness" (C_i) on STC_x or MEC_c.

This all can be further developed by the mathematical technique called the "calculus of distinctions" (CoD). Applying LFAF, at the 3S-1t levels, this is often *falsifiable*; but at higher levels, the math may or may not be *falsifiable* because we need to be able to prove it, but it is *feasible*, and involves extra dimensions.

One important mathematical-logic approach is to apply the *"calculus of dimensional distinctions"* [34] (CoDD) which involves the example of our experience of existential distinctions above, and which extends the CoD across to the many dimensions that we cannot directly experience. [3; 4]

Table 6A: Distinctions and dimensions (falsifiable or feasible or both)
• Distinctions are characterized by triads involving separations e.g., of self and not-self • Existential distinctions reflect everything that exist, like the quantized, discrete finite and transfinite contained in the continuous infinite • Experiential distinctions involve our experiential frameworks (e.g. in 3S-1t) with perceptions, conceptualizations and interpretations • Higher finite dimensions mathematically involve the calculus of dimensional distinctions.

Three separate points are pertinent:

[p] We introduce here three different existential levels of Consciousness: C_x, C_c, and C_i, for extent, content and impact of Consciousness, respectively. [34,8] Often, scientists do not recognize that these three major distinctions are different and apply "like" with "not like". This might produce an incorrect outcome as the three concepts are different. [24]

- *The 3S-1t jigsaw pieces:* At times, our 3S-1t experiences are influenced beyond those overt dimensions. Yet, we can only find small missing clues in 3S-1t: This is what we call the *"jigsaw puzzle"* pieces. This jigsaw is particularly consequential as it establishes that certain findings though not *falsifiable* in 3S-1t, may be *feasible* enough to continue making hypotheses and testing them, if possible, or as necessary. These jigsaws express little components of the multidimensional in 3S-1t, and, conversely, might reflect impacts that are extremely pivotal in higher dimensions.
- *Role of math:* Mathematics frequently allows scientists to use higher levels of certainty, because the resultant proofs are, at times, incontrovertible. Mathematics even plays a critically important role in scientific inductive techniques.
- *Exact repetitions:* Finally, in the rare instance of the situation repeating itself exactly, we would want to *replicate* any experiment or even spontaneous data.

However, *replication is necessarily inexact* because we can never have the exact circumstances: At least something changes in our dynamic world every time—there is never a situation where everything is the same. So effectively, real scientific experiments are only very rarely truly replicated.

We may be very close to replication in Physics, for example, because the reality of subtle changes that may confound such as temperature, weather, individuals present, exact methodology might seldom make a difference in physics. However, those same confounders in Consciousness Research might be critical and result in a failed replication, or be recognized as a different experiment.

<u>Issue 7: Is replicability sufficient?</u>

"Replicability" is a critically important concept in "science". This involves scientific techniques showing that positive findings can be repeated. Indeed, there are those who would argue that science involves replicability. Replication is, in effect, the positive expression of the negative that is falsifiability. By replicating, we demonstrate that we can predict that our experiments or observations can be repeated, at will. This is very powerful. In contrast, by falsifying we are stating that a specific circumstance is negated. Both are closely linked with LFAF.

The absence of falsification allows us to continue our probe. Whereas the data may not be exactly expressed such that we can replicate, by applying another jigsaw piece we get closer at least to beginning to repeat the experiment and finding the data still works: It's repeatable.

There are, nevertheless, certain circumstances that apply the best scientific methods but cannot be replicated. Psi phenomena are the classical examples. Does this make "psi" necessarily unscientific, the limitations of our ability to obtain the same circumstances every time, relative to replication of any experiment: The, so to say, Eddington thought description that started this paper, where the smaller fish fall through the nets? [13]

Most times, as in so-called "hard science" such as macroscopic aspects of physics, subtle differences are unimportant. But even then, circumstances such as the exact weather, corresponding time of day, even the sidereal time [42], the emotional state and the broader attitudinal traits of the experimenters [43; 44], the subjects, and anyone else involved in the experiment, cannot ever be replicated exactly. The experiment is always subtly different. In psi, this is critical. Does this mean that this is not ever scientific? It certainly does not. It means we have to be very careful with our fishnets and recognize the inherent limitations.

Experimental psi phenomena in the living appear very fragile, requiring careful controlling of many pertinent variables. This may be why we need to pool several studies. That has the advantage of overall increasing the power of the data, but also washing out several otherwise confounding circumstances that might otherwise be variables such as experimenter effects, sidereal time and exact locations. Let's look at Table 7A as an example illustrating the statistical data on psi. [8] Eight of the six sigma results are based on meta-analyses. The "survival" analysis is based on individual data.

Table 7A: Nine areas of psi demonstrating 6 sigma data [12] *(less than one in a billion against the event statistically occurring by chance).* [8]
• *Ganzfeld*
• *Global Consciousness Project (GCP)*
• *Remote Viewing (RV)*
• *Random Number Generators (RNGs)*
• *Presentiment*
• *Bem Protocol*
• Less Usual Six Sigma Protocols o *Staring Protocols* o *Survival After Bodily Death* o *Precognition and Six Sigma Data*

Ironically, even such experiments when examined by meta-analyses, and therefore eliminating confounding factors, are replicable in many instances. If needed such studies generate remarkable statistics exemplified by the nine different areas of psi that generate frequentist statistics of six sigma levels —about less than a one in a billion against chance statistic! [6] However, the power of each study was usually small, and replicability generally would require only very large sample sizes. This has led to the difficulties encountered in parapsychological research of proving individual hypotheses.

Whereas, sometimes some data is demonstrable without meta-analysis, the statistical *replication* of adding together many studies is an excellent way to remove confounding factors because effectively the different factors dilute themselves. Interestingly, such an approach moves data analyses from what would not have been regarded as falsifiable or replicable, but feasible to analyze, to the level of falsifiability and replicability (Table 7A). However, what the results demonstrate is simply what the data shows. It is one step off from psi, in that it could be argued that the basis of the statistics could be biased from questionable response protocol measures. Instead, for many individuals, examples that provide intensely personal spontaneous descriptions are often more persuasive than even any profoundly significant statistics. Yet these events are not falsifiable, but the data is certainly feasible, and may involve many cogent pieces of jigsaw puzzle type proof. These experiences are what are vividly recalled, not e.g., that 53% of hits occurred when there should have been 50%!

Of course, the Table 7A data are based on so-called "frequentist statistical analyses". And that says little about the research methods, simply the results. We know based on the history of psi research how careful researchers have been. Their whole methodology has been built on eliminating sources of physical or recording error, for example, more than in any other science in history—indeed, parapsychology has become the model for the sciences. [45; 46]

Nevertheless, we could apply another kind of statistic, Bayesian priors. [12 8] If we begin with the hypothesis that something is impossible, that the chances of it being true are zero, it does not matter that one is talking about one in a billion against chance statistics! [12 8]

This argument has some legitimacy: Marcello Truzzi has argued that *"An extraordinary claim requires extraordinary proof.*[47] Simply stated, claims of psi profoundly rock our current perspective. But as a supplement to statistics, we may need to add spontaneous data, and personal experiences to such data: This way the individual scientist may perceive it as "feasible", whereas with the statistics alone, he or she may require other supporting evidence.

Moreover, there might be areas with evidence and even proof in science that could not initially be replicated. Sometimes this was because solutions had not been discovered, as with the Close derivation of the Cabibbo mixing angle. [5; 9; 48] This is an example of where for fifty years, the solution was regarded as insoluble, but it had only previously been examined within the 3S-1t perspective. The solution required applying the data beyond 3S-1t, in this instance, in 9 finite dimensions: At that point, the result could be mathematically derived. Even more so, some analyses might involve proofs requiring the infinite, and we simply have insufficient data about the infinite. Yet without incorporating the infinite into the model, Gödel's incompleteness theorem might come into effect so that the data would be insufficient mathematically [18; 19]. However, if this cannot be falsified, the jigsaw pieces in 3S-1t, at least provide semblances of feasibility.

Issue 8: Re-examining the fundamental concepts of science

Prof. Henry Bauer has written a remarkable paper [20] which encapsulates too some of his larger writings like books. [49] We've found correspondences of many aspects of the difficulties he points out, with the points we're also making. Both Bauer[49], and Neppe and

Close [48] recognize the limitations of science as we know it today [41]. Let's crystallize science as we know it.

Bauer indicates that there is no (totally) satisfactory definition of "science": Does it apply "the scientific method"? [20] Not always. If science is quantitative like the "hard science" of physics, then economics is also a hard science because it, too, is highly quantitative and technical. Does science require applying mathematics and is that itself a science? We certainly believe that math is very useful, but it's not a necessity. Mathematics, is so to say, a metalevel above science because mathematical proof is so definitive. Moreover, we argue that mathematics pervades all disciplines, not only as solutions but also as an integral part of reality. Whether then it is part of science is a question of definition: Whether science can be expanded to that metalevel.

Does science necessarily require examination of Karl Popper's major thesis, that science involves examining only potentially falsifiable events? [2; 29; 50] We've seen that feasibility and LFAF extends this, and therefore, falsifiability is sufficient but not necessary.

Is science supposed to be an "objective, value-free, and unbiased" method[20]? In practice, this cannot be so: The scientist necessarily bases ideas on his—and often the consensus's—subjective and historical impressions. But this may be false to begin with. To Bauer, *"mistaken views about Nature have often enough disproved themselves (eventually)"*. Science "self-corrects" a great deal, but then, as Bauer points out, it must have been untrue before it self-corrected. [20]

Science is now subject to anonymous peer-review, yet this *"does not shield people from being jealous, opportunistic, self-serving, or harboring idiosyncratic beliefs, nor does it ensure competence or ethical behavior."* [20] This, indeed, is a problem for all these reasons: Rejection of the new, threats to current thought, even misappropriation of ideas.

Certainly, we know historically that science is resistant to new scientific discoveries! [51] Bernard Barber cites many, many examples through the ages of discoveries incorrectly criticized and dismissed by contemporary peers. These range from Galileo (and the Church) on cosmology, to Lister and Semmelweiss on anti-sepsis, to Mendel on heredity, Helmholtz and Faraday commiserating on this, Planck's experiences on quantum theory, Einstein's isolation particularly from 1915 to 1919 on relativity. And even in modern days to the cause of peptic ulceration being bacterial (Helicobacter pylori). That initial ridicule ultimately led in 2005 to Marshall and Warren receiving the Nobel Prize. [52] Indeed, the history of creative thought can be conceptualized as the overwhelming denial of what then might have been unfalsifiable data. Without the next stage, LFAF, where feasibility is key, the little creative jigsaws would have been simply regarded as "metaphysical" not "science".

As Arthur Koester famously pointed out [53]: *"Innovation is a two-fold threat to academic mediocrities: it endangers their oracular authority; and it evokes the deeper fear that their* *whole laboriously constructed intellectual edifice may collapse."*

And E Alan Price, and later Neppe, have amplified this: *"Moreover, in terms of the empirical 'physicalistic presupposition' involving the notion that all knowledge has its basis in what is physically perceived, and only physically, it is of course deceit and illusion to speak of knowledge based on non-physical perception and therefore, it follows that parapsychology is dealing with deceit and illusion."* [54, 55] We are missing out on discovery.

To the pre-eminent Physics Nobelist, Max Planck [56] *"science advances one funeral at a time"*. He recognized that *"a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."* This is tragic to modern researchers. Moreover, to Planck: *"Truth never triumphs — its opponents just die out."* [56]

Certainly, as we envisage it, old ideas must be overridden and buried. This is not new: It was already a significant problem as long ago as 1943, as pointed out by Erwin Schrödinger [57] in a lecture given in Dublin Ireland: *"We feel clearly that we are only now beginning to acquire reliable material for welding together the sum total of all that is known into a whole; but, on the other hand, it has become next to impossible for a single mind fully to command more than a small specialized portion of it."*

Science today is an "umbrella" concept. And in today's modern science, [20] scientists appear to know more and more about less and less. How do they prioritize and see the bigger picture? Even *"overwhelming consensus in the scientific community"* [20] does not imply that something is correct. Michael Crichton summarizes it: [58]
"I want to point to what I consider an emerging crisis in the whole enterprise of science, namely the increasingly uneasy relationship between hard science and public policy."

In legal court interpretations, we use levels of probability: On a more probable than not basis (≥50%); clear and convincing evidence (say ≥80%); and beyond reasonable doubt (say ≥95% postulated certainty) [59]. Certainly, we would expect "feasible" in science to be at least at that ≥50%, but we would prefer it to be ≥95% or even ≥99% as we build that jigsaw puzzle. Scientists, individually, can, similarly, apply their own different levels of assessing findings.

In Table 8A, we refer to what we call the *"the 11NC revolutions" (or "11NCR")*: Of the11 legitimate phases, individual scientists might be somewhat arbitrary as to which level of classification and even attaining a consensus of scientists might not imply they are correct. The spectrum ranges from complete individual rejection to scientific acceptance.

We need to be very careful in going with the mainstream because creative endeavors and new discoveries are seldom driven by consensus. *"Essentially, substantive propositions should be answered substantively in every particular … The greatest scientists in history are great precisely because they broke with the consensus."* [49 20]

So how, then, can we apply consensus and peer review, and maintain a paradigm or specific knowledge as science? Again, we need to apply LFAF, otherwise this might not even be a science at all and still simply metaphysical speculation or a philosophical standpoint. We, surely, must be careful that when using current consensus ideas, and rejecting feasibility, we regard the greatest contributions to science as "metaphysical" —implying they are non-scientific, sometimes creative philosophy. We might then recognize, too, the irony. LFAF is an impetus for change but in the context of identifying different levels of acceptance in this new science. It ranges from utter rejection to complete acceptance (Table 8A)

Table 8A: The eleven phases of denial and acceptance of Neppe and Close ("the 11NC revolutions" or "11NCR")
1. Initially there is *"it's too wrong to be wrong"*, often accompanied with a condescending smile or chuckle; the alternative phrase is the derisive *"it's too false to be false";*
2. then there is abject rejection, often accompanied by ridicule and name-calling: *"the insults are deserved. I know, I'm an expert";*
3. then *"that's a good try, but it's simply not true"*;
4. then the consensus rejects it: *"it's definitely incorrect"*;
5. then it is unlikely, but it may mentioned as a hypothetical for completeness: *"it's an unlikely outlier that we mention just to cover all our bases";*
6. there is the stage of *"I'm opting out: This is outside my discipline, so I don't understand it or haven't studied it. Let me suspend judgment";*
7. then *"maybe there is something there, but I need more";*
8. then *"there is some evidence… interesting"*;
9. then *"it appears to be proven: the evidence is cogent; but most scientist don't accept that"*;
10. then it is hailed as *"it's a new breakthrough"* (even though it may have been proven much earlier);
11. then "*it's obvious: we all know that"*.

Where do we stand? In our opinion, *when so-called scientists write that "it's too false to be false", they're saying a great deal, not usually about the science behind the work, but about themselves, because with the speakers' ignorance or their resolute rigidity, flows forth their character.*

Wolfgang Pauli used different phraseology but with the same implications: [60] *"it is not even wrong"*. "Not even wrong" might conveniently be applied as an insult to areas such as psi, but linguistically it's a contradiction because of the double negation. It may turn out to be correct, and might be the ultimate back-handed compliment.

It would be interesting to establish if any of the "too false to be false" scientists, have ever in history made any creative contribution to knowledge. We would suggest that such dogmatic rigidity of thinking would prevent this happening.

Ironically, as Thomas Kuhn's points out in his famous *The Structure of Scientific Revolutions* [61], every contemporary mainstream belief or paradigm opposes significant change, and even more vehemently, resists any contradiction of the prevailing view. It can take a very long time before valid minority views become incorporated into a new mainstream. And as this is what produces change, the stability in our world-views is dichotomous: It's good because new ideas might be wrong; and it's bad, because it prevents legitimate progress.

And, ironically, familiarity may breed contempt: How can you, the reader, who may be close to us be making a major contribution? Surely, it would be Professors Smith and Jones, whom we don't know, because the grass would be greener on the other side?

Thomas Kuhn's theory of scientific revolution encompasses a repetitive and ongoing cyclical transition that involves three stages [61] namely:

- normal science;
- crises when paradigm shifts are contemplated or recognized with new assumptions; and
- scientific revolutions when the paradigm alters after a qualitative transformation in theory.

Through our proposed 11 Neppe-Close Revolutions model (11NCR), we have necessarily extended Kuhn's various stages of understandings of the revolutions[61] of change—the reshaping of science—by adding several more paths along the way. This results in eleven key periods of adjustment.

Kuhn describes the process of recognition, of discovery, of the crises and of the frequent failures, of alternative models, of resistance to the anomaly, of the transition to change, and ultimately of acceptance of paradigm change, at which stage the cycle repeats itself, but with added specialization of components of the paradigm. [61]

Of course, adding "feasibility" to the mix might paradoxically lead to being stuck on Level 1 of 11NCR for longer. Before it could just be rejected but not as science, so maybe as a Level 3 ("good try, but this is not science") but now, for some, it might not be classifiable initially as even feasible, because of it's ostensible Bayesian impossibility [12] [8] . That may be why the Planckian Funerals [56] arguing against the limitations of advancements to occur are important. Scientists have difficulty with "unthinking"! These 11 stages are not easy to negotiate because they are so threatening, and we can see this in areas where, for many, the evidence is cogent, such as in psi research, and yet for others the data is completely rejected, often out of ignorance.

Scientists might not easily admit variants of the following sentences: *"I'm too threatened by this. I want to stay with what I know. In any event, I must not need to unthink what I've learnt. And I'm an academic and my job is at stake."* Instead, ironically, often those who shout the most about maintaining the status quo, are *ignorant of their own ignorance* about a proposed new paradigm. They've not studied the paradigm in detail, and likely might not even have the requisite training and experience even to make judgments.

We have seen this repetitively in the disciplines of Psi and Consciousness Research, for example. This is, at times, particularly ironic, because with respect, we suggest a feasible unstudied conjecture; This area is so multidisciplinary that few scientists in the area have been able to allocate even as much time to study this area as they would to a regular bachelor's degree in a recognized university discipline, such as physics or psychology.

This contrasts starkly with other disciplines, perhaps their own, these same experts would never dare to comment unless they had, at minimum, a PhD specializing in the specific area of the discipline being commented on.

So in disciplines like parapsychology, this might be one reason why "too wrong to be wrong" *level 1 statements of the 11NCR* are often very inappropriate: The critic should not be commenting at all or recognizing level 6 is more logical: *This is outside my discipline, so I don't understand it or haven't studied it. Let me suspend judgment.* That individual may be perceived as an "open-minded, appropriate skeptic" as opposed to the Level 1 individual who would be the "pseudo-skeptic" who will not evaluate for "feasibility" stopping at the "not falsiable" level.

But on the other hand, importantly, some paradigmatic models are incorrect and not feasible. And if they were falsifiable, they could be falsified using the correct approaches; yet most times, they are not falsifiable. Such justified rejection would reflect scientific success in maintaining the status quo: What is new, is not necessarily better.

Issue #9: Lower dimensional feasibility, absent falsification (LFAF) [41]

It now becomes clear why we've proposed LFAF. Because falsifiability is usually limited to only 3S-1t, we proposed LFAF as our new model approach to the philosophy of science. LFAF recognizes that some elements cannot be falsified at this time in 3S-1t, yet there may be ample feasibility evidence in 3S-1t. [8]

This is why we propose the model of LFAF: Lower dimensional feasibility (usually 3S-1t), absent falsification is sometimes equivalent to using a jigsaw puzzle in 3S-1t and filling in the pieces that fit. However, we do not allow any contradiction where a piece of that jigsaw does not fit, because that would imply it is falsified or misinformation or contradicted by empirical evidence. [8 62] So applying the feasibility jigsaw pieces, extends the falsifiable because it can incorporate incorrect jigsaw pieces.
By demonstrating the limitations of Popperian [2; 29; 39] demands for the falsifiability of science in metadimensional realities (i.e., beyond 3S-1t), we apply this Lower Dimensional Feasibility—Absent Falsification (LFAF) approach when it is logically indicated. [8]

This is the key worth emphasizing: Because data at the higher dimensional levels cannot be completely represented in 3S-1t, the results present like single puzzle pieces in a whole, multidimensional (i.e., >3S-1t) puzzle. The data are only there in part because they do not portray the multidimensional just what is observed through the 3S-1t framework. [10; 11] Consequently, conclusions may be feasible yet not falsifiable, or falsified in the traditional sense as they cannot be directly or completed represented in 3S-1t. [8] There is a great deal that is covert or hidden, and not expressed in our experiential 3S-1t.

A word of caution: Our current laws of physics and observation can account for maybe 99.9% or even 99.99% of the world of reality that we experience. [8] For these, we can usually apply Popperian falsification alone, though even then feasibility is useful in certain instances, such as in Medicine, where double-blind studies, though remaining the key to measure acceptance of research studies, are certainly limited, as indicated, in clinical practice. [40]

Ironically, and importantly, when we apply the well-accepted principle of Karl Popper's falsifiability [36] to the validity of our current materialistic 3S-1t paradigm, some of the current conventional laws are falsified (perhaps within that tiny 0.01%). [8] Such falsification is sometimes at the quantal level, and sometimes unexplained, but paradoxes occur that do not contradict our data, only making then ill understood conundrums. In physics, we cannot explain 'entanglement' and 'non-locality'.

At times, these unexplained elements in 3S-1t alone occur in Consciousness Research, for example, involving what to us, from our "restricted 3S-1t" framework [q] would be regarded "relatively non-local" [10; 11]. Yet, these might involve occasional "windows of visualizing" through that altered states of consciousness and applying a different set of dimensional domains as our framework for that state. [63] Their occurrence exemplifies contradictions that simply should not exist if the current 3S-1t paradigm that reflects all of existence would be correct. Alternatively, the contradictions or unknown element may simply be interpreted as *unexplained conundrums that defy explanation* when they may well be solved by another paradigm. It is insufficient for the Physics "Nobelist of the people", Richard Feynman to write that they cannot be understood or explained. [64] *They demand solutions for us to continue scientific progress.*

There are some obvious empirically based prejudicial examples, that were initially unexplained and not falsifiable such as the origins of hypnosis, electricity, X-rays, meteorites, sterilization of bacteria preventing illness, the round Earth, Earth revolving round the sun, Einsteinian relativity, warping of reality, splitting the atom, and psi. [6, 49] They all would presumably in their times have been dogmatically rejected as *"too false to be false"*. Only their later *post hoc* justification supported the Popperian view because they were then falsifiable or replicated [36]: They simply moved from metaphysics to real science. With LFAF, they would never have been metaphysical. They would have had feasible pieces of the jigsaw

[q] Restricted because we cannot even experience all of 3S-1t.

puzzle and eventually moved from the lower level of certainty, potentially feasible science to falsifiable and replicated science.

LFAF sometimes allows creative explorations, metaparadigms and theories of everything to become legitimated creative scientific endeavors and not metaphysics.

Table 9A: Science or philosophy? Some pertinent terms.
<u>Meta-:</u> A prefix implying in the context used here: "broader higher level of order" e.g. Gödel used the term "metamathematics". [3] This "meta" is different from "with, across or after".
<u>Metaparadigm:</u> Broadest paradigm impacting all sciences, mathematics and philosophy (origin Neppe and Close, 2012). Alternative, more specific, improved term for "TOE". [3]
<u>Metaphysical:</u> A philosophical term for models or ideas that cannot yet be classified as scientific; metaphysics embodies the theoretical, conceptual, or speculative.
<u>Theory of Everything (TOE):</u> A commonly applied, but ambiguous term for a complete explanatory model of reality conforming to the laws of nature. TOEs should seamlessly reconcile with all the major theoretical models and authoritative sources of all the sciences and mathematics. [3] TOEs are sometimes regarded as primarily philosophical, yet the original, limited meaning was in Physics. [3] [r]

We've understood that LFAF applies a much more versatile technique than Popper's alone. It keeps Popperian principles [36], and also applies the Neppe and Close concepts of feasibility, which, in turn, adds to Popper. In LFAF, we recognize that the experiences of our lives are *relative* ones—relative to this experiential *restricted* 3S-1t. It is "restricted" because there are many other 3S-1t features that mankind does not experience (such as echolocation in dolphins, extended olfaction in dogs, and X-rays in machines). These elements might not be directly falsifiable, but they are, at least, feasible relative to our 3S-1t experiential reality.

Given our restrictions in experiencing all of 3S-1t, how much more so are the covert higher dimensional experiences? We can locate clues to these covert components because some tiny 3S-1t jigsaw puzzle pieces might be feasible and provide pointers for preliminary analysis. Sometimes we directly experience portions of these covert areas in certain altered states of consciousness, like meditation. [8] [24] [12] [6] This might change our world-view: Consequently, we might, when applying 11NCR, be a little softer in our critique: *"It's obvious it has to be incorrect: We all know that that cannot be so"* (Level 4 of 11NCR) as contrasted with the starting position that cannot be, *"it's too wrong to even be wrong"* (Level 1 of the 11NCR).

By demonstrating the limitations of Popperian [36] demands for the falsifiability of science in multidimensional realities (i.e., beyond 3S-1t), we therefore apply the LFAF (lower dimensional feasibility—absent falsification /falsified) approach when logically indicated. The challenge is sometimes daunting because in the multidimensional realities, something may never have been done before. We regard the principles of LFAF as key to motivating any scientific models.

---

[r] Nevertheless, applying metric comparisons to 24 "TOEs", TDVP scores far the highest with a perfect score. [8]

To us, after six years of intense Neppe-Close collaborative study, interaction and work, involving thousands of hours of collaborations and between us, and a combined half-century prior to our meeting, we are pleased to be able to apply our metaparadigmatic, so-called "theory of everything" model of TDVP. We do so because TDVP appears to be a major example of LFAF—in fact, LFAF was developed as a necessity while TDVP was being developed. We could not have progressed with TDVP without LFAF. Yet, TDVP is certainly, based on objective measures, the best candidate for a "Theory Of Everything (TOE)", a term which we prefer to call a "metaparadigm" because "TOE" to us, is an ambiguous and misinterpreted phrase. [3] So let's briefly apply TDVP as an example of how LFAF can move from the creative and metaphysical to a metaparadigm.

Issue #10: Moving from "creative thought" and the "metaphysical" to a "metaparadigm": Applying LFAF in reality and in TDVP as a TOE

The Neppe-Close Triadic Dimensional-Distinction Vortical Paradigm (TDVP), in our opinion, illustrates the concept of metaparadigm and also applies and, at times, requires the principles of LFAF. Additionally, it provides support for LFAF because it demonstrates the importance of feasibility analyses of those portions of a so-called 'jigsaw puzzle' of little bits of information that are in 3S-1t, but reflect some aspect of the hidden other dimensions. Therefore another application of LFAF is allowing for creative ideation including proposing some theories of everything.

In Table 10A, we illustrate such an example: We list the mnemonic DICTUM, or more correctly DICTtUuM as some of these letters are duplicated. This epitomizes the key features of this TDVP model. Consciousness is key, and it is inseparably linked (tethered) dimensionally to Space and Time. Everything in reality—both the quantized finite and the continuous infinite that contains that finite— is unified producing the philosophical mind-body theory of Unified Monism. A great deal of TDVP can be demonstrated by applying appropriate mathematics. Importantly, we could not have developed LFAF without outlining the appropriate extension of scientific method that we've called TDVP.

Table 10A: TDVP principles [6 14; 65 12]
DICTtUuM
Dimensions
Infinity
Consciousness
Triadic **t**ethering of Space, Time and Consciousness Extent; Theory of Everything.
Unification, **U**nified Monism
Mathematics

We've written extensively about the TDVP model in many publications [8], with the most recent even showing how it can feasibly provide mechanisms for every described form of psi. [12] So, TDVP has moved from the theoretical to the testable, and now to the practical applications of another science (Consciousness Research) [12]. Frequently, this includes mathematical derivations. In one recent paper, for example, twenty hypotheses were tested and demonstrated. [6]

But the key here is not TDVP. Instead, it is to illustrate how LFAF allows what may be creative thought to be incorporated into science whereas previously it was not—it would have been non-provable and therefore regarded as "metaphysical". So, LFAF extends metaparadigmatic models and potentially extends creative ideas to the scientific realms. But moreover, reciprocally the model of LFAF developed as a consequence of this metaparadigm (TDVP).

Issue #11: Re-examining the nature of reality

The nature of reality is very complex. This means that examining any areas such as science or LFAF or dimensions or TDVP that bear upon reality, will be complex as well (Table 11A).

Table 11A Reality experience and existence concepts	
Reality:	All of what exists. The *infinite and metafinite subrealities* make up an indivisible holistic unit. *In TDVP*, a sub-hypothesis is that this discrete metafinite is likely *embedded* in the continuous infinite. In sentient beings, reality is subjective, perceived or experienced.
Common reality	Common (or Consensual) reality may be verified independently by a majority of conscious observers. Much of reality is hidden so that what exists is far greater than this *common reality*. Reality requires the inseparably tethered components of S, T and C and conforms to natural law.
Covert:	Hidden realities are covert. For living humans, it is everything except the overt "restricted 3S-1t". We can interpret little pieces of this covert reality as a jigsaw puzzle in restricted 3S-1t. But though covert, this level of reality still is likely important in our day to day living realities.
Existence:	Everything that exists, covert and overt. In TDVP, we postulate this involves everything in reality, with infinity embedding the metafinite.
Experience	What we can directly observe in our dimensional domain. In living humans this is limited to "restricted 3S-1t" only. In other dimensional domains, it depends on the framework of that observer.
Overt	the reality we can experience: restricted 3S-1t; not covert.

Now where LFAF with its jigsaw pieces ends, and true creative speculation based on mathematical logic and known jigsaw type empirical data begins, can be a source of debate.

Reality includes our overt experience in 3S-1t. Though individualized and idiosyncratic, at times, there may be consensus as when millions watch the Super Bowl, but even then, the interpretations may be subjective and different for every individual. And beyond that overt experience, we argue is a covert, but unitary, existence of all of the discrete quantized pieces of the finite being embedded in a continuous infinite.

Similarly, at what point do our windows of subjective experience end as a science? And conversely, where does the speculative—and therefore the metaphysical— begin?

Issue #12: The summation: What science is all about.

We put all these issues together.
There are fundamental differences, from approaching a methodology that is scientific, to the philosophy of science approach which includes LFAF, to recognizing a key potential role of mathematical derivations, to allowing for extending ideas from the falsifiable to the feasible and beyond, to multidimensional frameworks, to applications of what is feasible in Medicine, and to conundrums in physics such as entanglement, and to psi [12] such as in the relative non-locality context. These all are ways of approaching "science". The concept of what constitutes "science" must be clarified.

In this paper, we've shown that "feasibility" allows us to apply far more than we could before: Effectively, science might be difficult to define because it's not a unitary concept: We argue that science must be conceptualized in a multi-axial manner (Table 12A). On the one axis is our methdological approach to problems, on another axis is the application of LFAF, and on the third axis is the appropriate role of mathematics and logic in applying the empirical, inferred, observed or phenomenological information, such that mathematicologic is not only distinct from science, but part of science.

Table 12A: Extending the multiaxial definitions of science	
Approach to problems	Extend the current approach to include feasibility.
Requirements of *proof*	Philosophy of science requires LFAF.
Mathematical integration	Apply further appropriate feasible and falsifiable techniques.

We conclude showing the value of our twelve headers, and in each, we see the roles of not only of falsifiability which is sometimes unattainable, but also ensuring that we look at what is feasible.

We recognize that what is feasible is possibly often a level of proof below falsifiability; and, yet, we understand too that sometimes, what is feasible is far more pertinent in practical living, as in Medical practice, than demonstrating replication of data and that falsifiable data is not falsified. The two are not parallel ideas but again part of that multi-axial spectrum that is science.

Feasibility makes scientific endeavors more complete and allow us to sometimes not know all the truth but, at least, paste in legitimate jigsaw puzzle pieces, adding them randomly or in specific places. Indeed, we can now better understand the twelve issues we've discussed:
- The conventional Scientific Methodological Approach has limitations and requires additions to become more complete.
- This means the Philosophy of Science Approach must be amplified to include what is feasible, too.
- Specifically feasibility would make such Philosophy of Science approaches more versatile.
- Mathematics is not just an isolated discipline to calculate by: math certainly helps there, but we regard it as an essential part of reality becoming more comprehensible and approaches being more feasible and proven.
- Consequently, the axiomatic basis of mathematical logic must be expanded to make extend our approach to science.
- The amplifications of logical scientific data approaches include such esoteric techniques as the calculus of distinctions and dimensionometry, if need be, using feasible pieces of our 3S-1t jigsaw.
- Replicability remains a key issue in science, but often we can only replicate if the exact experimental set-up exists: Consequently, meta-analyses may be useful to dilute out confounding factors.
- These factors imply that the fundamental concepts of science should be re-examined; Science is not all it is made out to be—there are limitations.
- Extensions of science require the appropriate extensions of techniques: lower dimensional feasibility, absent falsification (LFAF) is critical, in that regard.
- LFAF can be applied to examining Theories of Everything or metaparadigms reflecting reality. The model of TDVP, from which LFAF thinking derived, is a prime example.
- Extending science allows us to further analyze the nature of reality.
- These factors allow us to apply this perspective for what science is all about.

Four final areas of emphasis are apposite to conclude these comments:

1. **The value of mathematics:** As Eddington emphasizes, *"the mathematics is not there, till we put it there"*. [13] The further adaptation, as needed, of mathematical logic, of itself requires new ways of theorizing so that extra dimensions and pertinent distinctions can be incorporated.

2. **Porous fish-nets:** Yet, we should also go beyond mathematics to the empirical.

Eddington's fish-nets[13] must be recognized as having their own limitations. They cannot be regarded as reflecting all of what our current science should be utilizing. There are gaping holes in conventional science, holes that can and should be feasibly evaluated. These holes may allow us to appreciate more the mechanisms of psi, to approach the relatively non-local scientifically, and to recognize the value of assessing some results with an awareness of the difference between our 3S-1t *experience* and the broader *existence* in the finite and the infinite.

3. **The versatility of LFAF:** We now can recognize the value of LFAF. This involves identification of the current limitations of our scientific approaches, definitions, methods and concepts. We must realize the necessity to amplify knowledge when we need to. This way we can broaden our perspectives, extend science appropriately, allow the creative to merge with the scientific, and move to the 21st century.

4. **The jigsaw collaboration:** Pieces of the jigsaw puzzle add to the creativity of our endeavors to understand more about *reality*. We seldom have the complete picture, and even though science is necessarily progressing we can always put in little extra pieces into our creative understanding. That should allow future scientists to progress even more, and reflect another major property of science, namely *scientific collaboration*. This is a major contribution of feasibility for science. Appling LFAF helps us all not only now, but in future generations.

References:

1. Neppe VM, Close ER: *Reality begins with consciousness: a paradigm shift that works (First Edition)* 1 Edition. Seattle: Brainvoyage.com, 2012.
2. Popper KT: *The logic of scientific discovery*. London and New York: Routledge / Taylor and Francis e-Library, 2005.
3. Neppe VM, Close ER: Brief glossary of key terms in *Reality begins with consciousness: a paradigm shift that works (5th Edition)*. Edited by. Seattle, WA: Brainvoyage.com. pp. lxiv-lxxiv 2014.
4. Neppe VM, Close ER: *Reality Begins with Consciousness (RBC) — Glimpses and Glossary* 2nd Edition. Seattle, WA: Brainvoyage.com, 2014.
5. Close ER, Neppe VM: The seventh conundrum: the mathematical derivation of the Cabibbo mixing angle in fermions. *IQNexus Journal* 7: 2; 41-43, 2015.
6. Neppe VM, Close ER: How some conundrums of reality can be solved by applying a finite 9-D spinning mode1. *IQNexus Journal* 7: 2; 7-88, 2015.
7. Close ER, Neppe VM: The Cabibbo mixing angle and other particle physics paradoxes solved by applying the TDVP multidimensional spin model. *IQNexus Journal* 14: 1; 13-50, 2014
8. Neppe VM, Close ER: *Reality begins with consciousness: a paradigm shift that works (5th Edition)* Fifth Edition. Seattle: Brainvoyage.com, 2014.

9. Close ER, Neppe VM: Mathematical and theoretical physics feasibility demonstration of the finite nine dimensional vortical model in fermions. *Dynamic International Journal of Exceptional Creative Achievement* 1301: 1301; 1-55, 2013.
10. Neppe VM, Close ER: Relative non-locality - key features in consciousness research (seven part series). *Journal of Consciousness Exploration and Research* 6: 2; 90-139, 2015.
11. Neppe VM, Close ER: The concept of relative non-locality: Theoretical implications in consciousness research. *Explore (NY): The Journal of Science and Healing* 11: 2; 102-108, http://www.explorejournal.com/article/S1550-8307(14)00233-X/pdf 2015.
12. Neppe VM, Close ER: Explaining psi phenomena by applying TDVP principles: A preliminary analysis *IQNexus Journal* 7: 3; 7-129, 2015.
13. Eddington A: *The philosophy of physical science*. Ann Arbor, MI: University of Michigan, 1938 (republished 1958).
14. Close ER, Neppe VM: Specific challenges involving the Close and Neppe research: The fourth conundrum: applying the Triadic Dimensional Distinction Vortical Paradigm (TDVP) constructs in our dimensional calculations. *IQNexus Journal* 7: 2; 31-33, 2015.
15. Neppe VM, Close ER: A Proposed Theory of Everything that works: How the Neppe-Close Triadic Dimensional Distinction Vortical Paradigm (TDVP) model provides a metaparadigm by applying nine-dimensional finite spin space, time and consciousness substrates and the transfinite embedded in the infinite producing a unified reality. *IQNexus Journal* 16: 3; 1-54, 2014.
16. Neppe VM, Close ER: The Triadic Dimensional Distinction Vortical Paradigm (TDVP): The nine-dimensional finite spin metaparadigm embedded in the infinite *Dynamic International Journal of Exceptional Creative Achievement* 1401: 1401; 4001-4041, 2014.
17. Neppe VM, Close ER: TDVP: a paradigm shift that works —how the Triadic Dimensional Distinction Vortical Paradigm challenges conventional scientific thinking and explains reality. *Telicom* 27: 1; 24-42, 2014.
18. Smullyan R: *Gödel's incompleteness theorems*. Oxford: Oxford University Press, 1991.
19. Berto F: *There's something about Gödel: the complete guide to the incompleteness theorem*. New York: John Wiley and Sons, 2010.
20. Bauer H: Misleading notions about science and their consequences. *WISE journal* 4: 2; 30-36, 2015.
21. Einstein A: *Relativity, the special and the general theory* 15 Edition. New York: Crown Publishers, 1952.
22. Close ER: *Infinite continuity: a theory integrating relativity and quantum physics*. Los Angeles: Paradigm Press, 1990.
23. Einstein A, Podolsky B, Rosen N: Can quantum-mechanical description of physical reality be considered complete? *Phys. Rev.* 47: 10; 777-780, 1935.
24. Neppe VM: Phenomenological consciousness research: ensuring homogeneous data collection for present and future research on possible psi phenomena by detailing

subjective descriptions, using the multi-axial a to z SEATTLE classification. *Neuroquantology* 9: 1; 84-105, 2011.
25. Palmer J, Neppe VM: A controlled analysis of subjective paranormal experiences in temporal lobe dysfunction in a neuropsychiatric population. *Journal of Parapsychology* 67: 1; 75-98, 2003.
26. Palmer J, Neppe VM: Exploratory analyses of refined predictors of subjective ESP experiences and temporal Lobe Dysfunction in a neuropsychiatric population. *European Journal of Parapsychology* 19: 44-65, 2004.
27. Neppe VM, Palmer J: Subjective anomalous events: perspectives for the future, voices from the past, in *Parapsychology in the 21st century: essays on the future of psychical research*. Edited by Storm L, Thalbourne M. Jefferson, NC: MacFarland. pp. 242-274 2005.
28. Neppe VM, Close ER: On Non-locality I: Relative non-locality. *Journal of Consciousness Exploration and Research* 6: 2; 90-96, 2015.
29. Popper K: *Conjectures and refutations*. London: Routledge and Keagan Paul, 1972.
30. Close ER, Neppe VM: The eighth conundrum: angular momentum and intrinsic electron spin. *IQNexus Journal* 7: 2; 44-45, 2015.
31. Close ER, Neppe VM: The eleventh conundrum: The double Bell normal curve and its applications to electron cloud distribution *IQNexus Journal* 7: 2; 51-56, 2015.
32. Close ER, Neppe VM: The ninth conundrum: two different solutions to electron rotation *IQNexus Journal* 7: 2; 46-49, 2015.
33. Close ER, Neppe VM: The tenth conundrum: weak universality based on the 9D findings. *IQNexus Journal* 7: 2; 50, 2015.
34. Close ER, Neppe VM: The Calculus of Distinctions: A workable mathematicologic model across dimensions and consciousness. *Dynamic International Journal of Exceptional Creative Achievement* 1210: 1210; 2387 -2397, 2012.
35. Close ER: Appendix B: 1965 Proof of Fermat's Last Theorem, in *The Book of Atma*. Edited by. New York: Libra Publishers. pp. 93-99 1977.
36. Close ER, Neppe VM: The sixth conundrum: theoretical knowledge on deriving the Cabibbo angle. *IQNexus Journal* 7: 2; 39-40, 2015.
37. Neppe VM, Close ER: Translating some conundrums of the universe by applying a 9 dimensional spinning model of finite reality: References. *IQNexus Journal* 7: 2; 84-88, 2015.
38. Neppe VM, Close ER: A Perspective overview of the seventeen conundrums: Abstract *IQNexus Journal* 7: 2; 8-10, 2015.
39. Popper K: *A world of propensities* London: Thoemmes, 1990.
40. Neppe VM: Double blind studies in Medicine: perfection or imperfection? *Telicom* 20: 6 (Nov. -Dec); 13-23., 2007.
41. Neppe VM, Close ER: The second conundrum: Falsifiability is insufficient; we need to apply feasibility as well Lower Dimensional Feasibility, Absent Falsification (LFAF) as a scientific method *IQNexus Journal* 7: 2; 21-23, 2015.

42. Spottiswoode SJP: Apparent association between effect size in free response anomalous cognition experiments and local sidereal time. *Journal of Scientific Exploration* 11: 2; 109-122, 1997.
43. Rosenthal R: On the social psychology of the psychological experiment: The experimenter's hypothesis as unintended determinant of experimental results. *American Scientist* 51: 268-283, 1963.
44. Neppe VM: The experimenter effect in medical research. *South African Medical J* 62: 3; 81, 1982.
45. Neppe VM: Why parapsychology is amongst the most important of the sciences, in *In search of psi*. Edited by Rock AJ, Storm L. Ashland, OH: Pari Publishing. pp. 225-227 2014.
46. Neppe VM: Why parapsychology is amongst the most important of the sciences. *Australian Journal of Parapsychology* 5: 1; 4-22, 2005.
47. Truzzi M: On the extraordinary: An attempt at clarification. *Zetetic Scholar* 1: 1; 11, 1978.
48. Neppe VM, Close ER: *Reality Begins with Consciousness (RBC)—Key Features* 2nd Edition. Seattle, WA: Brainvoyage.com, 2014.
49. Bauer H: *Dogmatism in science and medicine: How dominant theories monopolize research and stifle the search for truth*. New York: McFarland, 2012.
50. Popper K: Replies to my critics, in *The Philosophy of Karl Popper, Part II*. Edited by Schilpp PA. Illinois: The Open Court Publishing Company. 1974.
51. Barber B: Resistance by scientists to scientific discovery. *Science* 134: 3479; 596-602 1961.
52. Press release). Retrieved 3 October 2005, from http://www.nobelprize.org/nobel_prizes/medicine/laureates/2005/press.html. 2005.
53. Koestler A: *The Sleepwalkers*. London: Hutchinson, 1959.
54. Price EA: Two apparently reciprocal telepathic dreams and suggestions for a new approach to the study of spontaneous cases. *Parapsychologica* IV: 9 1970.
55. Neppe VM: Revisiting survival 37 years later: Is the data still compelling? *Journal of Spirituality and Paranormal Studies* 33: 3; 123-147, 2010.
56. Planck M: *Max Planck: Scientific Autobiography and Other Papers*. New York: Harper 1949.
57. Schrödinger E: *What is life? with mind and matter and autobiographical sketches*. Cambridge: Cambridge University Press, 1992.
58. Crichton M: *Aliens cause global warming: A Caltech lecture* in Caltech Michelin Lecture. Caltech.2003.
59. Neppe VM: *How attorneys can best utilize their medical expert consultant: A medical expert's perspective.* Second Edition. Seattle: Brainquest Press, 2008.
60. Peierls R: Wolfgang Ernst Pauli. 1900-1958. *Biographical memoirs of Fellows of the Royal Society* 5: Feb; 174-192, 1960.
61. Kuhn T: *The structure of scientific revolutions* 1st Edition. Chicago: Univ. of Chicago Press, 1962.

62. Close ER, Neppe VM: Translating fifteen mysteries of the universe by applying a nine dimensional spinning model of finite reality: A perspective, the standard model and TDVP. Part 1. *Neuroquantology* 13: 2; 205-217, 2015.
63. Neppe VM, Close ER: Limitations of the standard model of physics. *Dynamic International Journal of Exceptional Creative Achievement* 1201: 1201; 2001-2010, 2012.
64. Feynman RP (ed.). *The Feynman lectures on physics*. USA, Addison-Wesley, 1965.
65. Neppe VM, Close ER: The third conundrum: How the core dimensional calculations in the Neppe-Close Triadic Dimensional Distinction Vortical Paradigm (TDVP) contributes to a workable model of reality. *IQNexus Journal* 7: 2; 24-30, 2015.

Acknowledgements: We greatly appreciate the comments and editorial assistance of Jacqueline Slade and Suzan Wilson.