The Zero-sum Game of Physics

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Abstract

This short letter claims that the whole of physics comprises the predication of trivial exercises. The premise is metasymmetry, a self-consistent and unassuming notion which yields only trivial zero-sum statements. Therefore a theory of everything (TOE) also defines a theory of nothing (TON).

Metasymmetry - Splitting Nothing

Proceeding with complete ambivalence (no "first principles"), we invoke metasymmetry at every juncture. We accept no axioms and must see processes cascade as series of opposites (or duals)[1]. Broadly stated, this pursuit is tautologically trivial. In Gödel's view, we see the boundary of a theorem's domain of support also defines its domain of invalidity.

Is the assumption of symmetry biased? Mathematically we must admit antisymmetry to balance symmetry. Furthermore, we can demonstrate composition of asymmetric functions by summing over even/symmetric and odd/antisymmetric basis functions. Consider the infinitesimal scalings of the Gaussian (symmetric) and its derivative (antisymmetric). One is a fundamental solution of the conventionally framed Schrödinger equation and heat equation. The other is related and is implied for completeness.

Condensation - From Amateur to Expert Perspective

A chess master's deterministic moves seem impossibly random to the amateur.

To condense information, we project the unknown onto our unique local state. Jumping into quantum mechanics *ad hoc*, we recall the probability of observation of a state Ψ_2 depends upon our knowledge of the detector state Ψ_1. We neglect the unitary Hermitian operator A:

$$\Pr = \int \Psi_1^* A \Psi_2$$

If Ψ_1 is unknown (spread over phase space), then $\Psi_1 = \sum_i c_{i1}\psi_{i1}$ is a uniform distribution where $c_{i1} \to 0$, and $\Pr \to 0$; unless *both* Ψ_1 and Ψ_2 are unknown (independently uniform).

So, as we know, the measurement of any state is ultimately limited by the "overlap" or similarities with our local state; our *perspective*[2]. Our assumptions - our experimental setups, the very fact that we detect the universe with luminous baryonic matter and not something else - all define our perspective and bound our conclusions.

Physicists - Free Agents

Given no axioms (no constraints), we have no conclusion. However, we can again start with an *ad hoc* metaphor and begin trivial generalization. In the scientific zero-sum game, we sit at the "plane of the present"[3], carefully gauging our next move. What fortune that we may tailor our perspective with optimism: to choose to forget the preceding game, to choose to learn expert moves(methods), and to choose to start the next game with a new objective! Thus each scientist's unique perspective/bias appears to be both a personal right and responsibility.

[1] M. Castagnino, arXiv:0907.1933v1 [quant-ph] (2009)

[2] *Perspective* here refers to configurations of atoms in detectors as well as the metaphysical mind.

[3] J.G. Cramer, arXiv: quant-ph/0507089