On Birch and Swinnerton-Dyer conjecture & ERG Theory

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Abstract

We prove the integrality and modularity of the Birch and Swinnerton-Dyer conjecture with ERG Theory. Numerical verification is possible through nominative determinism (visibility theory). Adding learning (adaptive learning) to the model admits an important time variation in beliefs, which would be ruled out under rational expectations. Entropy can be given from a detailed molecular analysis of the system. In summary, perception consists of the selection, organization, and interpretation of stimuli. These factors affect the conduct of work. We include two inequalities on the log-volume change associated to appropriately chosen deformations.

Introduction

Birch and Swinnerton-Dyer conjecture (BSD), intuitively, specifies the rank of E(Q) will correspond to the value of L(E,s) at 1: the larger r is, the "smaller" L(E,1) is. However, the value of L(E,s) at s=1 does not make sense since the product of $L_p(E,s)$ only converges when Re s>3/2. Nevertheless, if L(E,s) can be continued to an analytic function on the whole of C, it may be reasonable to believe that the behavior of L(E,s) at s=1 contains the arithmetic information of the rank of E(Q). So let E be an elliptic curve over a global field k, then the order of vanishing of L(E,s) at s=1 is equal to the rank of E(k).

Conjecturally there is just one essential type of global L-function, with two descriptions (coming from an algebraic variety and coming from an automorphic representation). We use Nominative Determinism (ND) to show that these two 'global' L-functions represent electrical and dynamical systems, respectively. ND is a theory that authors gravitate to the area of research which fits their surname, especially specialties in a field of research. ND can be construed as Mazur's Visibility Theory. The Hasse principle will support ND as numerical verification of BSD arithmetic rank r(E). We use Mordell-Weil theorem to prove SBD analytic rank $r_{an}(E)$.

Clayton Alderfer's ERG theory of motivation will show as a secondary background to BSD. The theory utilizes three frustration-regression (as opposed to satisfaction-progression) levels: Existence, Relatedness (or Relationship), and Growth. ND shows the potential of BSD as the life of a bacteria or sperm: Birth, Swimming, and Death. This pseudo-isolation is congruent with 'sterbenwold' scenario. This paper acknowledges that predictive-modeling at the expense of sound reason is a recipe for disaster. Therefore, this paper will focus less on the curse of universality (although explained), and more so on the curse of dimensionality.

These traditional problems often lay unsolved for centuries, and mathematicians gradually came to understand their depth (in some cases), rather than treat them as puzzles. So we will answer the typical questions asked in Diophantine analysis:
1. Are there any solutions?
2. Are there any solutions beyond some that are easily found by inspection?
3. Are there finitely or infinitely many solutions?
4. Can all solutions be found in theory?
5. Can one in practice compute a full list of solutions?

Nominative Determinism (ND)

The nominative is considered a compulsion of the name. It involves the use of heuristics as a decision rule that quickly eliminates alternatives in a bounded rationality model. It is also possible of satisficing, where an alternative is identified as an “acceptable” solution. Using a content theory of motivation such as ERG Theory or Abraham Maslow’s Hierarchy Theory will enhance the solution. As content theories (as opposed to process theories) both the ERG Theory and Maslow’s Hierarchy Theory look at behaviors and other needs that are found within people as opposed to external environmental factors. Moreover, when there are rational solutions there may or may not be infinitely many. In this case, we give them as mathematical submersions. The nominative can also appear like spherical mirrors: virtual, erect, and enlarged while concave and diminished while convex. BSD gives us Bryan Birch and Peter Swinnerton-Dyer. We can see that their nominative compulsion is bounded within ERG Theory, but we wish to look more into specialties within their field. Although Birch’s name appears first, we will focus on the older Swinnerton-Dyer in this exercise and return to Birch later. When considering numbers we come to measurement. Legacy units of measurement have certain advantages. There is the erg, dyne, foe, etc. Considering that we have determined that the nominative is bounded within ERG Theory by ND, we can also assume the erg and dyne. We can also assume the foe, which is shorthand for fifty-one ergs. The nominative compulsion arrives, deepens, and culminates metaphorical or literal. So a foe can be a zero and/or tiny rational number. If we merge this understanding with a criterion like the Néron–Ogg–Shafarevich criterion, we can find isogenous elliptic curves. We can then examine BSD as two “global” L-functions to diffuse, de-fuse, or resolve the conflicts, as opposed to an alternative form of calculus. These “globals” are also prone to stress-related problems. Given this stress, we should expect BSD to be a formula on a molecular (or atomic) magnitude. BSD may serve as an ideal gas formula. Using a regulator (Birch) and period (Swinnerton-Dyer) thought experiment, we proceed to prove that III(E) is an electrical system while the analytic rank is a dynamical system that can be host to measurements to include Higgs for higher derivatives of L(E, s).

Nekovar Quaternion Algebra B

Turning now to Birch and ND, we first recognize a ‘tree’. Given more quality we may say a log. Ln and log are logarithms to the base e and base 10. The possibility to use u-substitution integration with ln(x) becomes overwhelmingly obvious. January Nekovar (2009) has, intuitively, written this out in quaternion algebra and should be referred to from there. So, $r_{an}(E) \leq 1$. Cursed with universality, unless approached through ND, we have log U = ln I or L(E, 1) = Ω (E). Log (u) or exp (u) become more probable answers than the polar forms ln (i) or (pi/2)i. Any other solution will give u-substitution integration with ln(x) and thus negative numbers. This gives ND ampleness. If and only if U, it is assumed that a voltage V is impressed across. There is no such thing as zero gravity, thus L(E, 1) ≠ 0. With U as an internal energy we have enough information to plug in several laws of science: Boyle's Law, Charles' Law, Gay-Lussac's Law, Faxen's laws, and Stefan-Boltzmann Law because the emissivity of a blackbody is unity. Even thermal resistance, R, can be a universal gas constant. To explain polar forms, we show that T becomes ln(e) = 1, in electromagnetics the absolute potential at infinity (at r = ∞) is zero, and that the unique temperature at which P and V would reach zero is called absolute zero. To understand this in philosophical terms, we ask how far can a dog run into a forest? It would be half minus one. There's an instantaneous point where he's neither running into or out of the forest. The classic sterbenwold scenario is whether a tree in the middle of the forest makes a sound when it falls. Following the ideal gas law, K is called the universal gas constant. If the volume contains m kilograms of gas that has a molecular (or atomic) mass M, then n = m/M. Under standard conditions, 1 kmol of ideal gas occupies a volume of 22.4 m^3. When viewed as an electrical analytical rank, we can also use the right-hand rule of magnetic fields to verify ND without being negligible. With that understanding, we also find how Jerrold B. Tunnell's Theorem explains electrical systems by means of a Pythagorean theorem for a right triangle and its phasors. ND also explains how: tunnel, tonal, and ton. Even the obsolete measurement called a funal is relevant, its pounds force being similar to the kmol. The important nominative is: the null.

The Hasse principle

Also known as the local-global principle, the Hasse principle becomes a superb method of defining global L-functions. A more formal version of the Hasse principle states that certain types of equations have a rational solution if and only if they have a solution in the real numbers and in the p-adic numbers for each prime p. Using ND, we know that Hasse means 'hate' in German. We can also find 'heißen'. Heißen means 'to name' or 'to call'. This mimics the two methods of naming a real number and calling a p-adic number. The concept of 'closeness' serves the mathematics well as a form of 'meaning' (Heißen also means 'to mean'). Considering continuously changing magnetic flux, a t-adic number will be necessary and has already been under development. T-adic would represent temperature as utility, and time as power. Victor Kolyvagin (1989) showed that a modular elliptic curve E for which L(E, 1) is not zero has rank 0, and a modular elliptic curve E for which L(E, 1) has a first-order zero at s = 1 has rank 1. Remember, G is not equal to 0. Kolyvagin is apparently examining temperature in respect to time-space, mass, energy, and gravity.

Adaptive Learning (AD)

Since BSD is essentially meaningless, ND is as much of an ample tool and has probably been used unknowingly under several names. A second ample tool is Adaptive Learning (AD), and is sometimes known as Belief Propagation (BP). It is a statistical formula to construct artificial intelligence. AD is particularly of value in politics and economics. Several popular formulas include the Metropolis-Hastings algorithm, the Metropolis algorithm, and Gibbs sampling. What all of these formulas share is Bayes Law: $P(x|z) \sim L(x;z)P(x)$. John Tate once remarked: Let $A = A_f$ be a modular abelian variety attached to a new-form, and let $r = \mathrm{ord}_{s=1}L(A, s)$ be the analytic rank of A, then for arbitrary abelian varieties the value of a function relates where it is not known to be defined to the order of a group that is not known to be finite. The logic is congruent with AD. If a>1 accept $x^{(t+1)} = x'$ else accept with probability a if rejected: $x^{(t+1)} = x^{(t)}$. In other word, we argue that if agents are assumed to possess a slightly larger amount of knowledge, by correctly noticing that $C_t = Y_t$ holds at all times, the aggregate laws of motion would reduce to those obtained under rational expectations. Because of Faltings's theorem, this is false unless C = A. Therefore, we have $C = A = C_t = Y_t$. For sociologist, "culture" counts as an independent force alongside of "structure". That is when we have terms as culture of poverty, culture of corruption, culture of dependency, etc. Here the regimes are assumed to be observed; therefore, the estimation of the model basically reduces to an estimation with an added dummy variable (S_t). As a rough rule of thumb, the distribution of k tilts toward 0 when $S_t = 1$. Showing, repetition is the father of learning.

Dark Globe Theory

Consistent with the Taniyama–Shimura conjecture and Mordell-Weil theorem, BSD conjecture should be raised to the status of an axiom. The BSD Axiom implies a proof of several equivalent fundamental conjectures in Diophantine geometry, including the abc conjecture over any number field. The axiom extends substantially the scope of arithmetic geometry. It may in fact be called Dark Globe Theory is some parts of the world (Germanic-speaking Europe). With this in mind we presume that the axiom will take on additional features, such as the "Swampland" concept. John Cremona (2011) gave a recent lecture the case for rank 0, 1, 2, 3, and 4. For r = 0 we take M-theory to hold. For r = 1 we derive space to hold, for r = 2 we derive time to hold, for r = 3 we derive mass to hold, and for r = 4 we derive energy to hold. If 93. 31% of all ranks have a value of 1, we derive this number to hold as a periodic function. A bit of elementary calculation show that this is the distance from the sun in light years. In some respects, the basis of BSD is not to find why 3+2=5, but why is 2 an invented number. This new axiom would imply superparticles, chemical reaction, nuclear reaction, and radioactive decay. Even conduction, convection, and radiation. Moreover, it can be shown that P must be of infinite order. Conversely, such a point of infinite order gives us back a rational triple (a,b,c). Thus showing that n is a congruent number is equivalent to showing that the elliptic curve E_n has positive rank. Since the null holds true, the converse is also true if we further assume the BSD axiom. Therefore the proof of the BSD conjecture will lead to a solution to the congruent number problem using a finite amount of computation. D. R. Heath-Brown (2004) explains the conditions of dynamical systems: heat and Brownian motion. Mazur-Rubin (2010) proved that if the BSD conjecture holds for all elliptic curves over all number fields, then Hilbert's 10th problem has a negative answer over O_k for any number field K. BSD only holds for dynamical systems and not electrical systems (e.g. foe, erg, dyne, etc.). John William Scott Cassels (1965) proves schematics to statistics. Noam Elkies (2006) proves ethics to physics. The Parity conjecture proves the dyne and Paul Monsky (1996) proved determinism. Interestingly, Dokchitser-Dokchitser (2009) is p-parity proving the T-symmetry. Further, like a macro standard deviation, the Gross-Zagier (1986) formula relating the central derivative L'(E,1) and the heights of Heegner points on E defined over an imaginary quadratic field could be another way of saying Higgs boson. Finally, Jan Nekovar (2006) has proven real numbers proving the rationality of Hasse. In Czech, Nekovar means "a smith who is better to keep out of the way". The analytic rank of A_f is equal to the Mordell-Weil rank of A_f.

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