Primal Hodge

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Abstract

We find that the Hodge conjecture is an overdetermined system rather than an underdetermined system, thereby becoming homogenous and leading to overfitting. A product of normal spaces need not be normal thereby initiating and reinforcing the conjecture. A norm should be found through regularization. We find the Magic Star polygon to be a satisfying norm. The Torelli theorem also gives deep and technical proof. Analysis can be seen through a multiple regression technique. Automorphism is not obtainable with a contradiction in the trivial and integral.

Keywords: Hodge conjecture, Overdetermined system, Magic Star, Torelli theorem, Tate conjecture, multiple regression, automorphism

Introduction

The Hodge conjecture asks: Let X be a non-singular complex projective manifold. Then every Hodge class on X is a linear combination with rational coefficients of the cohomology classes of complex subvarieties of X.

Since its creation the conjecture has evaded a proof thereby leading to its extensive abstraction. There are generalizations to mixed Hodge modules and to manifolds with singularities. There are canonical connections. Indeed, it is far too subtle for many. The Stein manifold is fundamental to their analytic theory. So proof is in finding their function. Therefore, arising from geometry.

Progress is blocked by a lack of methods to construct interesting algebraic cycles. The greatest advance has been through Mochizuki's Inter-universal Teichmüller theory. According to Mochizuki (2017), Inter-universal Teichmüller theory may be described as a sort of arithmetic version of Teichmüller theory that concerns a certain type of canonical deformation associated to an elliptic curve E_f over a number field F and a prime number $\ell \geq 5$. This paper continues along these links.

This paper attempts algebraic formulas so Grothendieck's motives over C would form a semi-simple abelian category with a tensor product, and be the category of representations of some pro-reductive group-scheme. If the algebraicity of those cycles is assumed, the full Hodge conjecture is equivalent to a natural functor from the category of motives to the category of Hodge structures being fully faithful. We show that this is actually a self-fulfilling prophecy. The Tate conjecture proves essential in this regard.

Utilizing the Cartesian plane R^5 we are able to smooth it off a little bit through the withering. We find other mathematical solutions with similar arity. One such solution is the Magic Star polygon. The solution gives us the formula $n > 5$. The formulas $n \geq 5$ and $n = 5$ are impossible in Magic Star polygons. These properties make the Magic Star a normal constraint for a vanishing theorem.

This allows us to use surgery theory in checking solutions. The origin and main application of surgery theory lies in the classification of manifolds of dimension greater than four. Loosely, the organizing questions of surgery theory are:

- Is X a manifold? Or, Does a space X have the homotopy type of a smooth manifold of the same dimension? (Existence)
- Is f a diffeomorphism? Or, Is a homotopy equivalence $f: M \to N$ between two smooth manifolds homotopic to a diffeomorphism? (Uniqueness)

Note that surgery theory does not give a complete set of invariants to these questions. Instead, it is obstruction-theoretic: there is a primary obstruction, and a secondary obstruction called the surgery obstruction which is only defined if the primary obstruction vanishes, and which depends on the choice made in verifying that the primary obstruction vanishes.

The Magic Star

If proved, the Hodge conjecture would also improve on the Hodge standard conjecture by implying numerical equivalence via homological equivalence. This has mostly been proven through the Tate conjecture. Furthermore, Chow's theorem has caught that zeitgeist by making it explicit that a Stein manifold is equivalent to being a (complex) strongly pseudoconvex manifold. Demonstrating the Stein manifold in 8 dimensions gives $f(\tau) \equiv 224^8/4G$. This zenzizenzizenzic basis can be plugged into generalized Halphen systems $f: = -(D/C)$ (Levi & Ragnisco, 2000, p. 189). Nima Arkani-Hamed's material is very similar in this regard, four symmetry and eight supergravity, particles or singularities; and his work can be heuristically argued in the same direction. We can now use the Whitney trick to make an analogy to the Magic Star since both work on manifolds in dimension 5 and up. The analogy gives up a vanishing theorem. We will call this the *vanishing star theorem*. That is $n \geq 5$. The theorem is important because it implies a Hodge symmetry. In other words, the Magic Star is motivated. The action $R_{C/R}C^*$ can apply an isotopy to one of the submanifolds so that all the points of intersection have the same sign. This action creates the hypersurface $d \leq 5$. Moonen and Zarhin (1999) proved that in dimension less than 5, either $Hdg^*(X)$ is generated in degree one, or the variety has complex multiplication by an imaginary quadratic field. This generation gives up a transport of structure. We will call this the *Hodge decomposition theorem*. That is $|i| \; \forall \; i$. The theorem is important because it implies an algorithm is known to decide whether a given integral cohomology class of a typical fiber X_0 is somewhere on S of type (p, p). In other words, the i is absolutely Hodge. So this Hodge decomposition theorem connects topology and complex geometry for compact Kähler manifolds. If $q = 5$, than $H^r(X) = \oplus R^5(X)$. Where H^r is the space of harmonic r-forms on X (forms α with $\Delta\alpha = 0$) and R^5 is the Cartesian plane. That is, a differential form α is harmonic if and only if its real coordinate space is harmonic. The group on the left depends only on X as a topological space, while the groups on the right depend on X as a complex manifold. Linearization infers Oka's lemma of pseudoconvexity arising from geometry.

The Five of Spades

On a Stein manifold X, any topological complex vector bundle can be given a holomorphic structure and, at least for X of the homotopy type of a finite CW complex, it follows that any class in $H^{2p}(X, Z)$ in the kernel of all d_r is a Z-linear combination of classes of analytic cycles. This natural flat connection is a Gauss–Manin connection ∇ and can be described by the Picard–Fuchs equation. The Grassmann coordinates by Plücker embedding are to the Klein quadric $Q = RP^5$. It has been discovered that a bias exist in playing cards. To illustrate, the most likely picked card is the Ace of Spades while the least picked cards are Five's.

Particularly, the least picked card is the Five of Spades. This is important, indeed fundamental, when applying incidence geometry. Using Desargue's theorem, we can build an incidence structure arguing for the sake of five. Overwhelming incidence would indicate that this has been the trend. This is where we should define the Hodge conjecture as an overdetermined system rather than an underdetermined system. The conjecture becoming homogenous and leading to overfitting. Being incomplete and yet unsolved only initiates and reinforces the conjecture. A norm should be found through regularization. We find the Magic Star polygon to be a satisfying norm. For example, the Monterey Institute for Research in Astronomy (MIRA) in defining density of space states there are about 5 hydrogen atoms per cubic meter of space in the Universe. The density of the Universe assists in determining that the Universe is flat and expanding. Thus, we find this to be a coherent sheaf by the holomorphic principle (h-principle) and satisfying the Oka coherence theorem. We know this to be holomorphic because of the structure-galactic principle of Arkani-Hamed and Dimopoulos which relies on localization (2004, p. 5). The structure-galactic principle is further renamed the atomic principle with a corollary Carbonic principle (p. 6). Being crystallographic and a complex conjugate, we call this the *incidence relation*.

The Tate Eigenstate

The strong Tate conjecture implies certain algebras. Namely, j modulo numerical equivalence. It is known that the local Torelli theorem can recover C by Jacobian variety J(C). We apply the Torelli theorem to the strong Tate conjecture to prove the Hodge conjecture by zeta function $Z(X, t)$ at $t = q^{-j}$. The proof implies the Lefschetz conjecture algebra. The Lefschetz conjecture algebra implies Conjecture D up to dimension at most 4 (in other words, the Magic Star). The reason that it does this is due to the unitary equivalence of harmonic frames. Any analytic type function is also equivalent to any arithmetic type function. In corollary, any algebraic variety is equivalent to any abelian variety. These are called *geometrically uniform tight frames* and the Tate conjecture is central to their function. Chien and Waldron (2010) have demonstrated this on abelian group G. The resulting Tate twist is equal to the Lefschetz operator due to uniformization and dual representation. In addition, no algorithm is known to decide whether a given integral cohomology class of a typical fiber X_0 is somewhere on S of type (p, p).

Transport of Structure

On smooth spaces there is a duality between homology classes of topological cycles; and equivalence classes differential forms. A Hodge structure cannot just be moved to the left, it is always right. Therefore, an analysis on transport of structure is necessary. As per natural topology, it has been demonstrated throughout this paper that the topological cycles become self-fulfilling. It is in an open universe $\Omega < 1$. The algebraic subvarieties of S-spin on a *meromorphic Hodge structure* is a retarding force because of the interaction between vector and field. The vector gives us a primitive nth root of unity of absolutely continuous lines (ACL) characterization of Sobolev functions when thought of as a subset of R^5 as absolutely continuous. The Hilbert basis of polynomials results in a Five of Spades. When raised to some positive integer power of n, the Abel-Ruffini impossibility theorem takes hold. Functions vanishing at the boundary ∇ and –Δ are Hamel basis (real numbers) resulting in a Magic Star. It is here that we transport Hodge structure to Ramond-Ramond (RR) fields. The star condition $G_p = *G_{10-p}$ is satisfied by the self-duality of G_5. $G_5 = *G_5$ where * is the Hodge star. Applying the Tate twist recalls the Magic Star. The preceding process is equivalent to mirror symmetry and enumerative geometry.

Topology, cohomology, and chain complexes (CPT/CW) homology

Charge, Parity, and Time reversal symmetry (CPT) is recognized to be a fundamental property of physical laws due to its mirror-image. Therefore, CPT transformation can be regarded as a rotation of coordinates in a four-dimensional Euclidean space with three real coordinates representing space, and one imaginary coordinate, representing time, as the fourth dimension. This forms our topology space in null set. Resulting structures on H (X, Z) should be viewed as analogous to the Hodge structure. A catalyst property, known as the *mysterious functor*, is our complex projective space. Whereas cohomology is a general topology, induced typology would imply that chain complexes can be divided into box topology and *gunk*. While weak topology is box topology, taxicab geometry is gunk. Potentially, Griffiths transversality is gunk if not for a fudge factor.

Conclusion

We find that the Magic Star is an acceptable and accessible solution to the Hodge conjecture. Unfortunately, overdetermination has left this unsaid. Mirror symmetry and enumerative geometry will show this to be true. Multiple regressions of the conjecture show this effect. Multiple regression is a statistical technique that allows one to use two or more independent variables as predictors of a dependent variable, showing the effects of each independent variable on the dependent variable while controlling for the effects of each independent variable. The effect of each independent variable is measured by a standardized regression coefficient and the variance (R^2) tells how well a set of variables explains a dependent variable. Automorphism is not obtainable with a contradiction in the trivial (spacelike) and integral (timelike).

Conflict of Interest

The author claims no conflict of interest.

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