

Touched by Tyche?

An Argument for Agnosticism on the Question of Absolute Chance

Afetado por Tyche?

Um Argumento para o Agnosticismo sobre a Questão do Acaso Absoluto

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Abstract: Charles Sanders Peirce felt strongly that absolute chance, “tychism”, played a part in the world. He believed just as forcefully that the world had a tendency to take on habits and to become lawful, and furthermore that world of principled habits is understandable even though it may require an infinite amount of time to succeed in the enterprise of gaining knowledge of it. This paper questions his optimism in these beliefs. Using a foundation in systems theory, and considering the cosmos to be a special kind of system, I argue that it is impossible either from ontological or epistemological grounds, to come to a settled understanding of the question of absolute chance or the evolution toward complete knowledge. Instead, we must accept an agnostic view on the matter, admitting the possibility of tychism and Peircean evolutionary cosmology, as simply one scenario of many possible realities, none of which can be determined.

Keywords: Chance. Absolute chance. Tychism. Evolution. System theory.

Resumo: *Charles Sanders Peirce estava convencido de que o acaso absoluto, “tiquismo”, desempenhava um papel no mundo. Ele acreditava firmemente que o mundo possuía uma tendência a assumir hábitos e se tornar legítimo e, além disso, que um mundo de hábitos morais é compreensível, mesmo que seja necessário um tempo infinito para obter sucesso na tarefa de conhecê-lo. Este ensaio questiona seu otimismo nessas crenças. Utilizando uma fundamentação na teoria dos sistemas e considerando o cosmo como um tipo especial de sistema, argumento que é impossível, seja em bases ontológicas ou epistemológicas, estabelecer um entendimento determinado sobre a questão do acaso absoluto ou da evolução para o conhecimento pleno. Em vez disso, devemos aceitar uma visão agnóstica da questão, admitindo a possibilidade do tiquismo e da cosmologia evolucionária peirciana como, simplesmente, um cenário de muitas realidades possíveis, nenhuma das quais determinável.*

Palavras-chave: *Acaso. Acaso absoluto. Tiquismo. Evolução. Teoria dos sistemas.*

Charles Sanders Peirce placed great faith in tychism, his view that absolute chance is an indispensable ingredient in the universe. Named after Tyche, the Greek goddess responsible for fortune and happenstance, tychism was a fundamental trait in Peirce’s three modes of being, accounting for Firstness and, in his synechistic metaphysics,

contributing toward the evolutionary development of agapism. Tychism is now seen as anticipating by several decades Heisenberg's uncertainty principle and other tenets of quantum mechanics.

In spite of its inherent tychistic make-up, Peirce nevertheless believed that a community of inquirers could come increasingly to understand the cosmos, that the universe progressed toward a kind of "knowability". It is, in the end, an optimistic point of view about the nature of the cosmos. But was his optimism justified? Can a deterministic world be counted out? Or, if one finds absolute chance to play an indispensable role, might that role remain constant or even increase, making some ultimate knowledge about the world always and inevitably a contingent enterprise?

We must distinguish two ways of thinking about chance. The first answers an ontological question: Does chance exist absolutely, independently of any mind's knowledge or understanding? The second answers an epistemological question: Is it possible to be sure that a moment of surprise is not, in every conceivable case, merely due to our own ignorance?

The opposite view of a universe in which chance operates is called determinism or necessitarianism. This is the view that what appears to us as chance is, in fact, illusory, and that every event, no matter how apparently quixotic, must necessarily follow from its precedent conditions.

It is not my intention to recount the long tradition of arguments over freedom, free will and teleology that the issue of chance has historically raised in philosophy. I simply want to offer a brief discussion of the notion of chance from the point of view of systems theory and to suggest that from that perspective, a prudent inquirer must back away from the optimistic position held by C.S. Peirce: that from pure chance the universe, and our understanding, evolve toward increasing lawfulness. To the contrary, I wish to show that with regard to the question of the status in the universe of absolute chance, we at best must settle on a kind of agnosticism in which a final answer is not only infinitely deferred, but is in principle not knowable.

Defining "System" in Peircean Terms

The International Society of Systems Sciences offers three definitions, similar but with subtle variations, for system: "a configuration of parts connected and joined together by a web of relationships," "elements in standing relationship," a "family of relationships among members acting as a whole." [ISSS Primer Group. retrieved 2007] In each of these definitions, an aspect of the system (named variously "part", "element", or "member") is brought into what we might call an active role by virtue of a second aspect of the system which brings these actants into relation with each other. To adopt a Peircean perspective, this second aspect of system, that which connects the web of actants so that they stand in relationship, constitutes a mode of being that is Thirdness. That is, what is bringing actants into relation is some principle or law by which relation between actants is established.¹ The principle is a law, rule, or habit (*vis-à-vis* a Peircean

1 To understand why this is entailed, one simply needs to ask, "Related in what way?" and the answer - they are all red, they are all square, they all move upward-points directly to the pertinent principle: redness, squareness, upwardness and so on.

legisign) under which, or through which, the actants are brought into some common association. This allows us to hazard a re-worded definition of system, one that foregrounds the importance of thirdness: *A system is a set of actants related according to principle.*

1. The Ontological Question

“Cosmos” is a word that has been used many ways, often metaphorically, sometimes as a synonym for the heavens. I want to use the word in the broadest way possible. I will take cosmos to be that system (C) whose actants comprise the set of everything that has been or is or will be brought into relation, and whose principle is that which permits all relations.

This makes C a special kind of system. It’s unusually permissive, and it’s the largest of systems, but neither its permissiveness nor its size is what makes it special from a systems theory perspective. What makes it special is that in all other systems the principle not only defines the actants (through being that which brings them into relation) but also distinguishes between actants that are members of a given system and other entities that are not members of the system. That is, in a conventional system, a principle is either relevant or irrelevant for some candidate actant and the relevancy of the principle determines whether the actant is a member of the system or not. A conventional, non-cosmos system M therefore, will have a contextual environment against which the system projects in relief, or as figure projects from ground, such context consisting of everything that is non-M. But nothing non-C exists, and therefore the cosmos is a system that lacks a context. Indeed, the cosmos is unique in this respect: it’s the only system that lacks a context.

Now, it is tempting to regard the “laws of nature”, considered in totality, to be the principle of the cosmos. For example, wouldn’t the laws of physics, imperfectly understood though they may be to current minds, represent in their ontological perfection, that which relates all actants by principle? If by “laws of nature” we mean the standards of chemistry, physics, quantum mechanics and string theory, they would actually be insufficient to reach the breadth I want to suggest. Even were it sufficiently comprehensive to include the arts, history, aesthetic, ethical and mental judgments, etc, which a restriction to the laws of the natural sciences would seem to deny, The principle for C could not be encompassed. C’s principle must be so broad as to allow for dynamic change within the physical natural laws, or any subset of principles that may prevail at a particular time in history. In other words, even the physical laws must be permitted to be mutable, and the principle for C must also account for that mutability. C’s principle, therefore, is that meta-principle which permits and constrains all others that did exist, do exist, or will exist. In order to mark this distinction between natural or physical law and the principle of the system that is the cosmos, I will use the letter P to signify that meta-principle unique to C.

Given this background, let us return to what Peirce is claiming for absolute chance.

I only propose to explain the regularities of nature as consequences of the only uniformity, or general fact, there was in the chaos, namely, the general absence of any determinate law. In fact, after the first step is taken, I only use chance to give room for the development of law by means of the law of habits. (CP 6.606)

Now the only possible way of accounting for the laws of nature and for uniformity in general is to suppose them results of evolution. This supposes them not to be

absolute, not to be obeyed precisely. It makes an element of indeterminacy, spontaneity, or absolute chance in nature. (CP 6.13)

We are brought, then, to this: conformity to law exists only within a limited range of events and even there is not perfect, for an element of pure spontaneity or lawless originality mingles, or at least must be supposed to mingle, with law everywhere. (CP1.407)

When he holds that Tyche (absolute chance) is inherently active in the world, Peirce asserts that Tyche is either P in its entirety², or is an inseparable part of P. This raises a rather exquisite ontological puzzle, for if P is that principle which brings the actants of Cosmos into relation, and Tyche is the inapplicability of any principle over the actants of a system, then a claim for absolute chance is an assertion that P is, at least on occasion, self-negating. P must turn itself on and off.

What causes, permits, influences, or otherwise governs the flicking of the switch? P being the ultimate principle, it's not possible to resort to some super-P. Rather, whatever it is that determines P's deployment or non-deployment must be an integrated, necessary self-contradiction inherent in P itself.

To make this dilemma more vivid, we can perform a thought experiment (figure 1). A ribbon of highly reflective Mylar moves in front of a laser strobe. The laser strobe flashes at a regular interval upon the reflective Mylar ribbon and the reflected light is recorded by a receptor. In this metaphor, the Mylar tape is the principle and the flashes recorded by the receiver are the actants. This system behaves in a completely deterministic manner; the regularity of the flash invariably coincides with the receptor's recording.

But imagine that holes are punched through the surface of the Mylar ribbon at completely random intervals (figure 2). Now when the laser flashes, while most of the time it "behaves properly" in the same regular way as before, the flash of light will occasionally fall on a spot occupied by one of the punched holes. In that case it passes through the hole and on into darkness, failing to be reflected and recorded by the receptor. This failure of the light to conform to what would be otherwise an invariant principle of reflection constitutes a chance event. In this metaphor, the Mylar ribbon is both the stuff of principle-that is, predictable law-abiding behavior-and a negation of the principle (the holes are an absence of the principle material).

2 The possibility of a totally tychistic cosmos, or "chance-world" is something Peirce refutes in CP 6.404. And yet, in a seeming contradiction, he requires that the present world of law must have originated from chance, as it is the "bringing in of something fresh" (CP 1.399).

Figura 1

Figura 2

Yet, unlike the thought experiment in which the Mylar tape conveniently happened to appear with holes already randomly pre-punched, P cannot have randomness imposed upon it for that would be to admit some sort of hyper version of P which is by definition impossible for C, the system without a context. Instead, the randomness-the decision of “where to place the holes”-could arise only from P itself.

One must only go the next step, imagining what such “deciding” entails, to see that P cannot be a compound entity, a metaphysical Swiss cheese, but must be whole; it must be a completely lawful principle or a totally tychistic anti-principle. For if P is deciding, such decision cannot be formed on any grounds at all. If the decision were to be based upon some grounds, then the grounds of P’s decision would constitute either a context or superior principle, both of which are impermissible for C. Yet, if it is switching on the basis of no principle, then, being without principle, Tyche is the fundament and therefore P is absolute chance, which yields the contradiction: P is not-P.

So such a dualistic state is impossible for P. Does this present a fatal self-contradiction that implies the impossibility of absolute chance? Frances Hamblin, writing in 1945, identifies this problem and questions whether Peirce’s claim for tychism is valid: “... it does not seem to be the case that chance, as defined by Peirce, is intelligible in the way he claims it is” (HAMBLIN, p. 382). Although Hamblin eventually concludes that Peirce must have meant by absolute chance something that is “a class of irregularities,” and “the habit of departing from other habits” [thereby merely deferring the problem] her question seems to strike at a deeply inconsistent aspect of tychism. It presumes a fundamental principle that cannot be both principled and fundamental.

This problem persists as long as tychism is considered solely from the ontological perspective. This leaves, however, the possibility that when approached from an epistemological point of view, Tyche may be restored.

2. The Epistemological Question

Whereas the ontological point of view entailed looking at the system and its relations as if standing detached from the system, an epistemological perspective moves the point of view inside the system. By focusing on what can be known or understood, we shift the perspective from that of a “disinterested observer”, to that of an actant. From an epistemological perspective then, we want to explore how well any actant (A) can come to know P. Or more to the point, even were it the case ontologically that absolute chance is a fundamental principle in the cosmos, could we succeed in knowing it to be so?

The claim Peirce is making is a subtle one. His pragmatism is a hybrid ontological/epistemological position in which what-is (ontology) is that which would come to be understood (epistemology). Reality, he says in a discussion of his system of synechism, “is nothing else than the way in which facts must ultimately come to be understood” (CP 6.173). His implied subjunctive - “must ultimately” - is noteworthy: he does not say that human minds *will* reach that point of comprehension, nor does he say that any kind of mind will reach it. He claims that what-is is innately an understandable thing. If he is a realist, his is a nuanced perspective: a realism in which what-is has an existence that is evolving in its character even as it maintains its independence from any knowledge of it, and as knowledge of it progresses toward an ultimate knowing. For Peirce, those twin developments share a particular kind of directionality: the world is prone to habit-taking, to becoming more lawful (CP 6.13, HOOKWAY, p. 271). In so doing, it makes itself increasingly available to being known.

The only possible mechanism in this evolutionary process must be, says Peirce, chance (CP 1.407). By espousing a role for absolute chance, he places two processes in motion. The first process is the evolution in which law steadily increases in proportion to chance so that while originally all may have arisen from a completely chance event, principle will have ultimately progress until it becomes complete to the exclusion of chance. The second process is the evolution of understanding which may have begun in complete ignorance, but which moves toward increasing comprehension. The end-points in both processes act as ideal limits and may never be reached by the existing cosmos (CP 6.33).

To better visualize the possibilities that arise when two potentially evolutionary process interact, is helpful here to look at diagrams. The basic evolutionary position sees the cosmos as evolving in both lawfulness (determinacy) and in understanding (figure 3).

Figura 3

But need they evolve at the same rate? As long as we consider the possibility of our understanding and absolute chance as independent entities, we are free to imagine a cosmos in which tychism remains constant, while understanding varies (figure 4) or a cosmos in which the converse situation prevails (figure 5).

Figuras 4 e 5

Reflecting on these various scenarios, it is reasonable to ask on what basis we might successfully verify which of these situations obtains in the cosmos. Being actants within the system, to achieve this verification, we could only make predictions and observe results.

Predicted results can only be expected to be verified when both understanding and determinacy are present. The shaded areas therefore comprise “predictive profiles” that result from having both an understanding and determinative principles to ensure adequate prediction.

But the a, b and c pairs of predictive profiles are identical. That is, the capacity for prediction to be a tool for verification leads to identical degrees of certainty for an investigator whether there is virtually total absolute chance with a very large degree of understanding (5c), or conversely there is a large degree of determinacy and very little understanding (4c).

Or consider the situation illustrated in figure 6. Here, the tychistic element of the cosmos fluctuates over time. This would present a complex predictive profile regardless of the level of understanding. Furthermore, a small region of the profile, accounting for some unspecified length of time (which could nevertheless be several thousand years) might exhibit a great deal of similarity to the more regular, “rational” evolutions. How can one be sure what the tychistic influences are in the cosmos when one lives within any given predictive profile space?

Figura 6

Finally, to take one more illustration of this predicament: consider figure 7. Figure 7a shows four predictions made at four different times. The level of tychism operating in the predictions is shown by the lighter gray which one might think of as a degree of uncertainty. Figure 7b shows a similar set of predictions taken from within different predictive fields. In each case after the prediction at t_3 , based upon the seemingly greater sense of confidence in successive predictions, one might assume that the predictive space will continue to grow. But whereas in 7a it does, in 7b there is a collapse of predictive accuracy due to an increase in tychism.

Figura 7

Standing at a cultural moment equivalent to t_3 , a time of extraordinary increase in knowledge and predictive capacity, is it possible Charles Sanders Peirce let down for a moment his pragmatist guard and in an act of faith in tune with his times assumed the inevitable continued evolvement of understanding? It is a leap of faith that cannot perhaps be disproved, but neither is it one that can be supported from a vantage point within the system.

Instead, when it comes to the question of tychism, it would seem that we are forced to adopt, if not a deterministic, at least an agnostic stance. It may be that what seems to be randomness is indeed the ticking of our own ignorance. Or, it may be that, as Heraclites said, "Nature loves to hide", and what better way to hide than by having an absolute capacity for chance. But if one is reconciled to remaining in a state of uncertainty about such a question and embraces the mystery of the cosmos, there is at least the balm of realizing that uncertainty may well be the state of the cosmos itself.

References

International Society for the System Sciences (ISSS). ISSS Primer Group web site: // www.newciv.org/ISSS_Primer/ (Retrieved 2007, 2008)

HAMBLIN, Frances Murphy. "A Comment on Peirce's "Tychism". *The Journal of Philosophy*, v. 42, n. 14, July/5/1945, p. 382.

HOOKWAY, Christopher. Review of From Time and Chance to Consciousness. Philosophical Quarterly, v. 47, n. 187, April/1997, p. 270-272.

MANIS, Jerome G; Meltzer, Bernard N. "Chance in Human Affairs". Sociological Theory, v. 12, n. 1, March/1994, p. 45-46.

PEIRCE, Charles Sanders. Collected Papers of Charles Sanders Peirce. Edited by Charles Hartshorne and Paul Weiss Cambridge Harvard University Press (1931-58) (cited as CP with volume and paragraph numerically following: v.p)

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