

DICE: A HAZARDOUS SYMBOL FOR CHANCE?

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*Le hasard de la vie
Nous conduit tout droit au fond de l'oubli
Pour renaître à jamais dans l'amour de la nuit
D'un souffle qui nous tire du coeur de l'ennui*
Baron de Chambourcy

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1. Give Philosophy a Chance

What is chance? This is what we are examining in the present paper. We do so by discussing if *Dice*, or *Dice throwing* to be more explicit, is a good representation of chance. We are at the same time investigating a notion and developing a methodology about how we can do that. For chance or other notions. Right now chance is the lucky girl but we keep an eye on other nice animals: Siberian tigers, Teddy bears, Guinea pigs.

The heart of the methodology here is *symbolization*, in a very simple sense, symbolized by the balance. The balance is a renowned symbolization of justice. Something very general, untouchable, not to say intangible, is presented very concretely in front of us. Justice certainly does not reduce to a balance how beautiful it can be, but the balance is a starting point, a runway for our thought to take off in the direction to the sky of ideas.

We have to be careful: if we choose the wrong springboard, we will not go very far, or go in the wrong direction, reaching Columbia instead of India, Hesperus instead of Phosphorus, as it happened once upon a time.

This symbolic methodology goes here hand to hand with *imagination* and *structure*. Images may be limited and illusory but they can mirror reality to help us to go through the looking glass. Structure, not to say structuralism, means establishing relation with other notions, considering that nobody lives in isolation and that relation, one of the four basic aspects of the Logos, is a key for understanding. Beside, outside, upside, inside *chance* there are many other notions that make sense of it.

By using this threefold strategy, we will by chance experimenting philosophy. Let's throw the Dice: *Alea iacta est! Rien ne va plus ...*



2. The Chance of being Lucky

Everybody knows the word “chance”. But what does it mean exactly? And how can we better know what chance itself is?

Most of the words we are using have a meaning which is: fuzzy, incomplete and confused, not to say inconsistent. And these three features often come together. This can be seen as a problem ... or not! They allow flexibility, fundamental for the development and creativity of thought.

This contrasts with the dream of a perfect and rigorous language promoted at the end of the 19th century by people like Frege. A radical solution like wanting a very clean house and body without any star dust, a perfect beautiful society as it was promoted by the Nazis, without Rats and Jews. No chance ...

One may reply: I don't want sprawling in the mud like a pig. Of course, but it is important to go beyond dichotomy, to see that the rejection of one tendency is not the acceptance or promotion of a diametrically opposed tendency, as ugly and ridiculous as the *prima facie* one is. These are two sides of the same coin and it is not just a matter of flipping the coin. We can look for a third option. Not necessarily to go beyond, in the sense of Hegel's *Aufhebung*, leading to the synthetic queen of his trilogical dialectic, crowning thesis and antithesis. Maybe more like the *middle way* of Buddhism. Precision without preciosity.

The meaning of chance, like the one of many other notions, cannot be definitely fixed, arrested by any thought police or locked into some language boxes. There should always be a second chance.



When examining the meaning of a word, one may want to go “inside” the word, to decompose it, to look for its origin and etymology. This makes sense up to a certain point and it depends how it is done. This analytic method may straightforwardly lead to nonsense, a vivisection driving to death. If we decompose the word “chance” in its six letters and look for the

meaning of the word in these letters or in their combination, we need to be very lucky to reach any understanding.

A more intelligent decomposition is to look for morphemes, but the meaning of a word does not reduce to morphology. This is striking if we are aware of the multiplicity of languages: the same common notion can be expressed in so many different ways. For example the word “cause” used in English to express the notion of causality has two pretty different expressions in Latin and Greek, “causa” and “αἴτιος”. And this is true also of its classical opposite, “chance”, in Greek: “εὐκαιρία”.

We need to keep this in our mind when looking at the etymology of a word. Etymology is only one key and it can open the wrong door. But to be too cautious can block any chance to access to paradise. With an open mind, let’s have a look at the etymology of chance (*Online Etymology Dictionary*):

from Old French *cheance* "accident, chance, fortune, luck, situation, the falling of dice" (12c., Modern French *chance*), from Vulgar Latin *cadentia* "that which falls out," a term used in dice, from neuter plural of Latin *cadens*, present participle of *cadere* "to fall," from PIE root ***kad-** "to fall."

Fall is here the key. But before falling in love with the root of “chance”, let’s have a look at its semantic web. Here is an interesting pseudo-Socratic dialogue:



Thesaurus.plus

What can we infer from that? Better not to bet all eggs in one basket. There are different words for the same thing and different things for the same word. Meaning is circulating and fluctuating through words. This was magisterially pointed out by Michel Bréal in his book *Essai de Sémantique* (1897), coining the word “semantics”. The English word “chance” has not the same meaning as the French word “chance”, which curiously has exactly the same spelling (but a more beautiful sound line).

Are they true enemy brothers? Not really, because one of the meanings of the French “chance” is one of the submeanings of its English cousin, the Lucky one. And vice versa, the aleatory English aspect of the word “chance” is not outside of the semantic field of its French neighbor. On the one side of the so-called English Channel, one meaning prevails, on the other side another meaning prevails. At the end we have a symmetric inequality.

The English word “chance” is generally translated in French by a word of Arabic origin “hazard”. It is related to a mysterious castle in Syria where people in the middle age were throwing Dice and nowadays even more dangerous things.



Hazardous means in English dangerous or bad luck, contrarily to the French meaning of “hasard”, mainly equivalent to the English chance, more neutral, not to say contingent. To complete the picture of our semantical navigation and in memory of the great sailor Ferdinand Magellan, we will also consider the Portuguese case.

We have then the following table:

			
	Luck	Chance	Hazard
	Chance	Hasard	Malchance
	Sorte	Acaso	Azar

We have three notions, or better, three variations of the same notion, expressed by different words in these three languages. It can be useful, for the good or for the bad, to have in mind these semantical fluctuations. Especially if we are on the road to the end of the word, and we want to escape any *accident*, in the sense of Aristotle or Ayrton Senna.



3. Dicing on the Beach of Infinity

When we throw Dice, the result is physically very difficult to determine in particular due to the homogeneity of the dice cubes.

Can we equate this very high indetermination with an absolute *Indetermination*, if any. If we do so, are we not in the same situation as when equating a huge quantity with infinity? And can we say that grains of sand on a beach is the right symbol for infinity? We have to be careful not to confuse quantity with quality. Very hot is not the same as boiling. To live 1.000 years is not the same as being eternal.



It is true that we don't know if physical reality is in itself completely determined or not. If it is, if God does not play Dice, the indetermination is human not ontological. If it is not, if the universe is a Satanic roulette, throwing Dice is anyway mainly a physical phenomenon, even if the Dice are thrown by human hands. Chance is therefore physically symbolized. This vision of chance seems too restricted, not good enough for an open perspective free of physicalism. The general notion of chance is not limited to physical phenomena, it is related to anything that can happen, in particular psychological, emotional, sociological, historical, biological events.

And a physical phenomenon is not necessarily a very good example of epistemological indetermination because physics is the easiest way for describing and predicting what will happen, with the so-called laws of

physics. We can predict a solar eclipse, the trajectory of a missile, etc. And laws implicitly mean here that these phenomena are ontologically determined. *La Mécanique Céleste* or *Cosmic Karma*.

Of course things have changed in modern physics, in particular in quantum physics. But Dice are not a very good example of quantum phenomenon. Dice appear more as particles, we don't see much wave here, unless considering handwaving, which is also part of the game. In this case Dice throwing can be seen as an expression of the mysterious wave/particle duality.



But without developing a new age fantasy or a remake of Little Red Riding Hood in Las Vegas, we can however still defend Dice. Dice used for gam(bl)ing are not big rough cubes on which you can sit, or that you can use as tables for the last supper. They are small and polish, with rounded corners and perfectly identical - generally pairwise used. There is an almost perfect physical identity between two Dice. And each dice is identical to itself, not like anybody else is, but its six faces and eight round corners are identical. We are in the kingdom of regularity, uniformity and symmetry. Notions which are far beyond the daily physical world made of incongruities, like the paving stone on which you stumble when going to go the bakery to buy a baguette with an irregular shape. Gaming Dice are therefore from another world, a mathematical world.

But the divine symmetry of a gaming dice is broken, not to say soiled, by some marks, not to say stains. Devil prints? If you closely look at one of these Dice, you will see that there are different signs on each of its faces, or better, different arrangements of similar signs, dots precisely. And that makes all the difference, according to which the game makes sense. What would be the interest of playing Dice if all the faces were exactly the same?

The result of throwing Dice is meaningful not because of the positions of the Dice, but because of the “numbers” which appear at the top of each dice.

And there are no connections between these inscriptions and the physical moves of the Dice. This lack of connection is a good symbol for chance.

Each of the six faces is different from the other faces, but this is a rather symbolic difference. Symbolic here in the distorted loose sense of formal logic. Symbols without meaning that need to be interpreted. They need a top model!

Depending on model theoretical numerology, you lose or win, or can use the “result” as a sign for action, as a revelation for anything you want. The chance is on your side ...



The hands throwing the Dice are also a good symbol for chance because they express the opposite of manipulation and/or control. The hand is considered as the symbol of human being. Hands are tools and have been used for developing artificial tools, like fork and knife, not to speak about cranes and bulldozers, that enable human being to transform and shape reality, like a god. When playing Dice, he stops to be a god, maybe he just let God plays for him. Blowing Dice can also be an interesting symbolization, a more feminine and meteorological version. *Gone with the wind* ...

Dicing is therefore in many ways a good symbol for chance, balancing between hazard and luck, something rather absurd.

Now even if we agree that Dice are good chance representatives, we have to go through the looking glass, to the other side. A symbol is good but it is just a sign. The sign in itself has no value. Its cash value, or to speak in a more platonic way, its true value, is what is behind/beyond it, what it is pointing at. But we will not go straight to the point, if any. We will first make a detour, or worse, we will go in the opposite direction, trying to understand what determinism is. And we will do that also using symbolism.

4. The Secret Mechanism of the Key Code

Face to face to chance, we have determinism. A good symbol for determinism is something mechanical. We will not take here a big machine like a locomotive or the universe. Let's choose a more familiar and smaller machine: a watch. If you have a plastic watch you may wonder what we are talking about. But we are talking about real watches, a Patek Philippe Calibre 89, or the 2015 Vacheron Constantin with 57 complications.



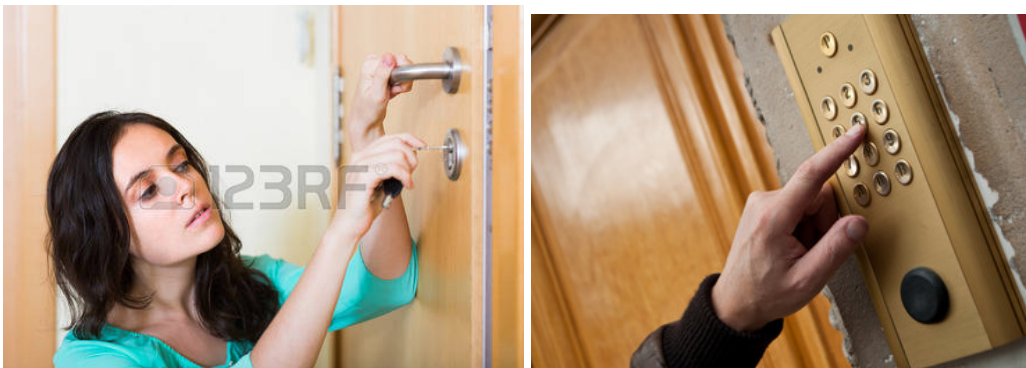
Another example of the same kind, domestic and of human dimension, is a key. Both cases are interesting because the relation between the mechanism and its use and/or meaning is quite mysterious. A relation not as absurd as between a dice face and the number on it, but quite strange.

Can we say that the mechanism of a watch captures or expresses time? It is even difficult to say that it does this analogically, unless we believe in Ptolemaic astrology. We can think that the solar system and the universe are big rotating machinery but the mechanism of a watch does not work in the same way. Rotation is the only common ground. The solar system is only metaphorically a gearing mechanism, its teeth, if any, can be seen only with the binocular eye of our reason. The exact time given by a watch and what is going on earth and elsewhere belong to two different determinisms, causal chains, that mysteriously coincide.

Regarding the key, we have a mechanism which has as an effect and use completely different from its nature. With this mechanism you can protect your house and/or open a door to a safe with gold bars. The key to open the safe can be in gold but need not. Using a Saussurean language, we can say that there is no relation between the signifier and signified. The key is therefore, funny enough for such symbolic queen, the opposite of a symbol. It can be considered as the symbol of the anti-symbol, the arbitrary sign: there is no relation between the word "consciousness" and the reality of consciousness, but the word opens the door to this reality, makes you conscious of it.

The essential nature of the key(lock) is that it is a complex mechanism that cannot so easily be replicated or shaped (from the keylock it is difficult to create the key). It has a complicated physical specification. This sophisticated physical determination tends to be replaced nowadays by the high mathematical indetermination of a secret code, similar to Dice throwing. Instead of keys and gold bars we now have plastic money and its secret codes.

With good material technology you can replicate the key. For the secret code there is no key because there is no key to indetermination. You just have to fix a high improbability by setting the data. That's not difficult: to generate such an improbability, you don't need to count to 100.



It is like playing Dice. But the good thing is that you always win: knowing the pin number of your credit card or your safe, you can have access to it. On the other side the thief will nearly always lose. Her "chances" to enter your house or to have access to your bank account are so remote that you can sleep in a very relax way, voluptuously dreaming of all you will buy if you win at the lottery...

But let's come back to the key question. Determinism is absurd: the mechanic trail takes you straight to death. If everything is played in advance, what is the meaning of the game? We are in the reign of fatality, as absurd as pure chance. Is there no middle way to zigzag between Hazardous Scylla and Fatal Charybdis without trespassing? Hopefully leading us to Ithaca or - why not? - Heaven ...



5. Falling in Love and Miracles

There is something in human life which is against or upside all kinds of mechanisms, physical, emotional, sociological. This is love. It is interesting to note that the expression “falling in love” is rooted in the same idea as “chance”: to fall - cf. the etymology of chance and its symbolization through Dice throwing.



Falling is something out of control, unless we give the credit to gravity, symbolically manifested by an apple, which for some reason, or by pure coincidence, became also the symbol of sin. The gravity of love, which in Portuguese leads to “gravidez”, i.e. pregnancy. This is not automatic, but you have better chance than at the lottery. You can also pray for God. This is what Fañçoise de Sionnaz did and the result was the birth of Saint François de Sales, August 21, 1567, source of miracles.



What is the difference between love and miracle, if any? It seems that love is higher than miracle, because a miracle makes sense within some determined circumstances. A paralytic starts to walk: without paralysis there would be no miracle.

Love is from scratch. It is in some sense completely absurd, but this absurdity is not like pointless determinism or the aleatoric nonsense of chance. Love makes sense. By itself. Without a goal to achieve. Life may look really absurd and uninteresting and love opens or awakes the meaning. It is the key to life.

Is love dangerous, hazardous? Love is not back luck, but illusion can always show up. Mirage, smoke screen, phantasm. On the one side there is the *femme fatale*, on the other side there is wedding, both anchored in material determinism, not to say dialectical materialism.



Is falling in love like Dice throwing? No, because Dice throwing in itself has no sense. You throw two Dice and then get a “result”, say 45. What is the problem? There is no problem! And also this is not a solution. You may “interpret” this as a solution but in itself it has no meaning. When you fall in love everything just starts to be full of meaning. Out of nothing. Love is not the result of throwing Dice or another mechanism. It is something completely undetermined. And it is not a game, children don’t fall in love.

6. Warum the Rose ?

The rose is customizely associated with love. But can we really consider that this flower is a good symbol for love?



*Die Rose ist ohne Warum.
Sie blühet, weil sie blühet.
Sie achtet nicht ihrer selbst,
fragt nicht, ob man sie siehet.*

*The rose is without 'why';
it blooms simply because it blooms.
It pays no attention to itself,
nor does it ask whether anyone sees it.*

The above poem is due to Angelus Silesius. Heidegger quotes it in his book *The principle of reason* opposing it to the favorite axiom of Leibniz, *Nihil est sine ratione*.

However a rose is a flower, which emerges, grows and dies. The rose has been tragically staged in a song by Cécile Caulier, entitled *Mon amie la rose*, originally interpreted by Françoise Hardy (1964, both in French and English), having a second life with Natacha Atlas' interpretation in 1999.



*On est bien peu de chose
Et mon amie la rose
Me l'a dit ce matin
À l'aurore je suis née
Baptisée de rosée
Je me suis épanouie
Heureuse et amoureuse
Aux rayons du soleil
Me suis fermée la nuit
Me suis réveillée vieille
Pourtant j'étais très belle
Oui j'étais la plus belle
Des fleurs de ton jardin
On est bien peu de chose
Et mon amie la rose
Me l'a dit ce matin
Vois le dieu qui m'a faite
Me fait courber la tête
Et je sens que je tombe
Et je sens que je tombe
Mon cœur est presque nu
J'ai le pied dans la tombe
Déjà je ne suis plus
Tu m'admirais hier
Et je serai poussière
Pour toujours demain
On est bien peu de chose
Et mon amie la rose
Est morte ce matin
La lune cette nuit
A veillé mon amie
Moi en rêve j'ai vu
Éblouissante et nue
Son âme qui dansait
Bien au-delà des nues
Et qui me souriait
Crois celui qui peut croire
Moi, j'ai besoin d'espoir
Sinon je ne suis rien
Ou bien si peu de chose
C'est mon amie la rose
Qui l'a dit hier matin*

*A lifetime comes and goes
And as my friend the rose
said only yesterday
This morning I was born
and baptized in the dawn
I flowered in the dew
and life was fresh and new
The sun shone through the cold
And through the day I grew,
by night-time I was old
At least there's never been
No, you have never seen,
a rose more bright and gay
A lifetime comes and goes
And as my friend the rose
said only yesterday
The good lord smiled on me,
so why then should it be
I feel I'm falling now,
oh yes, I'm falling now
My heart no-one can save
My head begins to bow,
my feet are in the grave
The rose God smiled upon
Tomorrow will be gone
forever gone away
A lifetime comes and goes
And so my friend the rose
was dead at break of day
The moon is shining bright
and in my dreams tonight
Beneath the starlit sky,
my friend the rose goes by
He has seen my dreams I see
A soul that wouldn't die,
still watching over me
Whatever fortune brings
I'll hope for better things
or life will just be grey
A lifetime comes and goes
That's what my friend the rose
said only yesterday.*

Between the extreme of Silesius' No Reason Rose and the tragic destiny of Caulier's Friendly Rose there is something at the middle that the rose better symbolizes. It is something to which we can give a paradoxical name: *free determinism*. A caricature of it are games, not gambling games, but less hazardous games, like soccer or tennis, on the physical side, or chess and poker, on the intellectual side. These games are not completely undetermined. There are some rules and these rules make sense of the game, determine the game, what you can do or not. But upon these rules you can freely act, exercising and showing your ability.

This does not restrict to organized games. Riding a horse, surfing the wave, or proving a theorem is also something like that as many things in human life. And also in nature, like the rose. Rules permit to create and new rules can also be created. Evolution is a middle term between absolute determinism and pure creation. This is where the rose stands. *Cada macaco no seu galho*.

7. Squaring Chance

Let's now figure the whole of our inquiry. By investigating the symbolization of chance as Dice throwing we have delineated three other notions which are opposed or/and different.



Dice throwing is a good symbol for chance for inner reasons, as we have explained in section 3, but also for outer reasons because it characterizes the similarities and differences with three siblings. At the upper level we see the contrast between an inexorable mechanism and aleatory rambling, both are absurd because they are precisely defined but they don't make sense by themselves. On the lower slice we have side by side, the rose as the

expression of the beautiful creativity of nature, and falling in love, not the expression of free will, but nor the manifestation of an absurd fatality.

These four aspects of reality most of the time don't clearly show up because it's all mix up:



What we have done in this paper can be called *conceptual clarification* and is connected with the methodology preached by Alfred Tarski, when he was titillating truth:

I hope nothing which is said here will be interpreted as a claim that the semantic conception of truth is the “right” or indeed the “only possible” one. I do not have the slightest intention to contribute in any way to those endless, often violent discussions on the subject: “What is the right conception of truth?” Disputes of this type are by no means restricted to the notion of truth. They occur in all domains where – instead of an exact, scientific terminology – common language with its vagueness and ambiguity is used; and they are always meaningless, and therefore in vain. It seems to me obvious that the only rational approach to such problems would be the following: We should reconcile ourselves with the fact that we are confronted, not with one concept, but with several different concepts which are denoted by one word; we should try to make these concepts as clear as possible (by means of definition, or of an axiomatic procedure, or in some other way); to avoid further confusions, we should agree to use different terms for different concepts; and then we may proceed to a quiet and systematic study of all concepts involved, which will exhibit their main properties and mutual relations.

We could say something similar about what we done here with chance. But we are not a blind follower of the Polish King of Logic. We think that besides, or better, upstream *definition* and *axiomatic procedure*, we can clarify our thinking with symbol, imagination and structure (SIS-mic methodology). And we don't necessarily want to fix things with words or/and fix the meaning of the words. We prefer fixing ideas. We can maybe define philosophy in this way, a philosopher as an idea fixer. And we hope we succeeded to fix chance pretty well.

8. Dedication and Personal Recollections

I met Tarcísio for the first time in Rio de Janeiro in 1996 for the defense of the PhD of Arthur Buchsbaum. Then Tarcísio invited me to develop projects with his Artificial Intelligence Logic (LIA) team in Fortaleza, Ceará.

My first visit to Fortaleza was in 1997 and the latest one in 2015. In between I have been there numerous times for short or long visits, being in particular a visiting professor/researcher for 2 years (2008/2010) of FUNCAP/CNPq at the Federal University of Ceará (UFC). I have extensively visited Ceará from North to South, East to West, Mountain to Sea. Thanks to Tarcísio I discovered the amazing land of Ceará and its creatures. Tarcísio introduced me to several princesses: Iracema, Ypioca, Guaraminga ... and a most beautiful one I will not reveal the name here.



Tarcísio and Jean-Yves close to Guaraminga 2004

I had many discussions with Tarcísio about a great variety of topics, ranging from Asclepius to Astrologius through Autobus. I don't remember all of them. And anyway, more important than the Topics themselves is the logico-philosophical way to deal with them. Tarcísio has a real philosophical spirit. And also a philosophical way of behaving.

The topic of the present paper is directly related to another topic I much discussed with Tarcísio, the notion of game, leading to our joint paper "The

rules of the games”. Under the title “Dice: a hazardous symbol for chance?” I gave a talk, first draft of the present paper, at the *III Latin American Analytic Philosophy Conference* that took place, May 27-30, 2014, in Fortaleza, Brazil. For this Festschrift I decided therefore to go on sculpting this topic, to offer a beautiful logico-philosophical piece to Tarcisio.¹



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