

# Psychism, Free Will, and Chance: Interrelationships and Problems

By Mario Zatti

## Emergence and soul

In an essay published in 1967, dealing with science and faith, the theologian Karl Rahner had this to say about the problem of the appearance of the soul in the course of evolution:

"If effectively the process of becoming is really one of self-transcendence which, depending on the circumstances, can go so far as to yield a new essence [...] and if matter and spirit are not simply disparate entities, but matter is somehow a frozen spirit ("frigorifié"), the only meaning of which is to make the spirit proper possible, and if, lastly, created spirituality always remains spirituality in matter up to its absolute realisation, then the evolution of matter into spirit is not an unrealisable concept, provided only that the concept of evolution is understood in the sense of this essential self-transcendence subject to the dynamism of the absolute being."

This opinion, which is shared by others, opens up a vast horizon in natural philosophy, which today addresses the study of evolutionary processes, including biological and psychological ones, with new conceptual instruments, such as the theories of complex systems, self-organisation and emergent properties. Animated beings distinguish themselves particularly in that they are capable of autonomous activity (self-movement) and, in the case of human beings, in their consciousness, power of abstraction, of constructing forms and grasping universals, in their freedom to choose and cause effects which cannot be explained solely on the basis of neuronal behaviour.

The emergent properties in the course of cosmic evolution, particularly life and consciousness, as such (i.e. qua emergent) would appear to come from nothing. When Rahner talks about the evolution of matter towards spirit and indicates the way this comes about, i.e. self-transcendence, what he means is that the emergence does not come from nothing but comes into being as the production of form contained potentially in things and actuated in adequate causal conditions; and that other forms may be those that are known philosophically as degrees of being. These include the human soul, the only full ontological emergence of the "image and likeness" (Gen, 1, 26), the last rung of a ladder whereby the psychic potentials of nature gradually manifest themselves. It can therefore be admitted that the soul is an emergent property, i.e. potentially present from the very beginning of cosmic evolution, but one which according to Paolo Musso (1997)

"...is actuated, triggered, as Searle puts it (1992), only in the presence of certain conditions, i.e. of a certain level of organisation [...]; that is to say, a real leap forward in ontological level - well, in this case it is possible that such an event may occur several times in the course of evolution, at different levels and also with different outcomes, with a gradual growth of its own powers and its own independence from the material substrate that produced it: this therefore paves the way for a truly non-reductionist explanation of unconscious life, as well as of those intentional behaviours we might well encounter, albeit in attenuated form, in species other than our own [...]."

The indeterministic aspects of matter, which are also present in neurones, are those that justify the

possibility of a causal action of the mind on the brain (without violating the laws of physics). Such an action presupposes that this is a genuine emergence, involving what in the anti-reductionist view of systems theory is defined as top-down or downward causation, which is the exact opposite of reductionism, given that it means that the behaviour of the parts involved is determined by the behaviour of the properties of the whole, i.e. irreducible properties (Achim Stephan, 2002).

### **Life, freedom and pain**

According to Roger Penrose (1989), our qualities are rooted in some strange, marvelous aspect of those physical laws that effectively govern the world we are part of, leaving scope for non-algorithmicity and indeterminacy (instability), that is to say that we, as sentient beings, have to live in a quantum world - because this is the only way we can relate to the rest of nature, perceive and respond to stimuli, and pay the price of this relationship with our environment and our own unstable inner being, which is not always so simple or easy and also entails the suffering of pain.

In our world, on the other hand, apparently close to de Laplace's description, there are events that elude deterministic behaviour, both at the level of the elementary components of matter (in quantum mechanics, in fact, the probabilistic description of effects has long made it necessary to distinguish between the notions of causality and determinism) and at the level of complex systems (the non-linear dynamics of which presents bifurcation points where the choice of the prospective future path is characterised by equiprobability).

Well then, if this indeterminism makes matter compatible with freedom of the spirit and the brain compatible with the activity of the intellect, it should be considered that on the basis of the same principle - i.e. eluding stability and the fixed rules of the deterministic laws of physics - it is possible that deviations and errors are produced in matter (living organisms and the biosphere) which express themselves in terms of the reign of chance, disaster, natural calamities and pain (Mario Zatti, 1993-2002). As we pointed out in previous papers, it must be recalled that the creative choice has proved doubly limiting in relation to original omnipotence because 1) it contemplates the existence of free subjects, and 2) it allows a measure of chance that introduces contingency and the unpredicted, thereby limiting the action of fixed mathematical laws. Man's freedom is permitted by the "freedom" of nature. The introduction of stochasticity at a fundamental level (the intrinsically statistical character of atomic events) may imply, albeit within a limited framework, a kind of attenuation of the principle of sufficient reason, given that "each individual quantistic event can be genuinely unpredictable", although a collection of such events conforms to the statistical predictions of quantum mechanics (Paul Davies, 1992).

### **Where does chance come from**

The question now is where does chance come from? The easiest answer is to deny its existence, adducing our inability to make accurate forecasts owing to our ignorance (in respect of an event such as the tossing of a coin) and inadequacy of the level of observations of initial conditions (many deterministic systems present extreme sensitivity to initial conditions). There is, however, a second answer, as Ivar Ekeland observes (1992),

"...which consists in saying that chance is the result of independent causal sets. This answer seemed idiotic to me when I was a child, and it seems even more idiotic now, inasmuch as there are no independent casual sets in the universe ..."

In fact, in the only isolated system which is the universe, if we view it as deterministic the meeting of causal sets within the framework of natural laws can never be, by definition, such a thing as a fortuitous case, even if it might appear so. At the root of any real physical contingency, of the creativity of evolution, or of the existence of free, sentient beings, there must be a certain framework of a lack of necessitating causal constrictions: there would be nothing truly fortuitous, or new, if this root of intrinsic indeterminacy

were lacking. It exists at least in the submicroscopic quantum world, as well as in the bifurcation points of chaotic systems, which are amplifiers even of only minimal accidental variations. Chaos is said to be deterministic but it is able to contribute unpredictability and indeterminacy because in the bifurcations there are moments of indeterminacy that truly accidental external actions can randomly orient (but which are such only if there exists somewhere a root of indeterminacy intrinsic to matter).

If it were not so, then despite everything the world would be entirely Laplacian, because the chain of causes would not admit anything indeterministic and thus anything really accidental and therefore would give rise to a sole, necessary evolution, however multiform and complex it might be. In this context any external disturbance could unbalance a bifurcation, forcing the path and overcoming the theoretical indeterminacy. It would obviously be illusory to talk about contingency of causes in a Laplacian universe where there is a semblance of chance but chance does not exist, and the entire process is necessary and univocal. Despite the fact that the contribution of various causes may seem accidental, if every individual cause were necessary, then also the result would be necessary.

If, on the other hand, the hypothesis holds that there are moments, events and forms in which an indeterministic causality applies, then there will also be room for the exercise of human freedom and responsibility. And this, in fact, is what we have supposed, but, in the end we need to attempt a more precise definition of the concept of indeterministic causality, at least in order to verify whether and in what way it really corresponds to the only ontological root capable of constituting a justification of freedom and of the relationship between freedom and pain.

Some claim the acausality (absolute chance) of events of the submicroscopic quantum world. It is fairly obvious that we are talking about a minority, who have to regard as acceptable the hypothesis of events arising from nothing. Yet they have a number of arguments to support their claim. For example, there should be a perfect symmetry in the unity of the universe (which, in reality, there is not) if it did not exist with an indeterminate, acausal component. Others propound the view that the interactions (forces) between particles are transferred by other particles: if motions can exist only as a result of the actions of external forces on the particles, one of these would not be able to move without the action (cause) of a force, but, on the other hand, the force cannot exist if there are no moving particles to transfer it: either everything is immobile or there exist uncaused, spontaneous motions (Gao Shan, 2001). The literature on this problem is enormous and includes the hypothesis of panpsychism, of synchronistic acausal events, and decades-old debates and studies on probabilistic causality which, though failing to achieve sufficient formalisation (Wesley C. Salmon, 1980; 1994), amongst other things owing to the difficulty of combining "probabilistic processes" and "physical processes", appears to offer the prospect of making room for the concept of chance as descending from objective experience. Probabilistic causation can also be interpreted as deterministic causation of probability (Friedel Weinert, 2000).

When the efficient cause does not univocally determine its effect, the formal cause can be distinguished and, in the specific case, one therefore cannot speak of an absolute acausality (Mario Zatti, 2002).

### **Psychism and chance**

Nevertheless, it is always difficult to justify the ambiguous concept of indeterministic causality, as it is, in general, to admit the existence of truly contingent causes, without coherently reaching the point of accepting some framework of objective physical acausality in nature governed by laws, so much so, indeed, that most of the examples regarding chance, from Aristotle onwards, have always been related to human acts, implying the existence of a psychic cause at the origin of the contingent causal set to which a fortuitous event is due. According to Alfred North Whitehead (1929; 1933), some psychic quality pervades the whole of nature, even though high-level psychic qualities manifest themselves only in complexes of favourable conditions produced by evolution:

"The capacity for a system to actualize potentialities, thereby modifying the linear dynamics of quantum mechanics, may be pervasive in nature, but non-negligible only in systems with high-level mentality."

It might be suggestive to compare the macroscopic unpredictability due to causal sets of psychic origin, as in the habitual examples of the type recalled here above, with that of the submicroscopic world where it may also be possible to postulate a psychic cause - instead of a lack of causes - of fortuitous events (Gao Shan, 2002):

"...just like the other properties of matter such as mass and charge etc, consciousness is also a fundamental property which can be described in mathematics to some extent."

The author cited explains in a previous work (Gao Shan, 2001) that the logical basis of indeterminism is provided by the demonstration that the motion of elementary particles is discontinuous, random and spontaneous. As mentioned in the first paragraph, self-movement is a typical immanent property of animated beings. And going back to what was said in the same section about the powers of the soul and its gradual emergence (causal powers other than physical power) it is useful to recall the clear statement made by Paolo Musso (1997a), referring to the human soul but also of general value:

"If, in fact, it is the very laws of nature that oblige us to admit the existence of phenomena that they cannot explain, and consequently to postulate that they are grounded in a different, non-material "type of reality", it would be simply contradictory to claim that the related causal powers cannot be attributed to them for the reason - or rather the tautological argument - that they cannot be explained in material terms."

This, quite apart from the particular issue addressed by the author, might also hold good for the intrinsic root of indeterminacy, which then becomes that of freedom, and may remind us of Pierre Teilhard de Chardin's great insight (1938):

"We are logically forced to assume in rudimentary form the existence of some sort of psyche in every corpuscle [...] ..."

On a more technical plane, we should mention David Bohm's theory (1980), which invokes "hidden variables" and postulates that the wave function should be understood as an objectively real field, in a state of rapid random fluctuation deriving from a deeper subquantum level, much in the same way as the fluctuations of the Brownian motion of a droplet of liquid derive from the underlying atomic level. The behaviour of the field appears to be indeterminate, but the precise dynamics of the fluctuations is caused by a hypothetical "implicate order", which may also be understood as the primary reality of the substance of consciousness.

In conclusion, the existence of chance as we have outlined it can be traced to an intrinsic indeterminacy of matter, for which two hypotheses can be propounded:

1. that at the elementary level the relationships correspond to an indeterministic physical causality, as was first claimed by Sommerfeld, de Broglie and Born, which requires the separation of the notion of causality from that of determinism (Max Born, 1949), and the use of the concept of probabilistic causality. In actual fact, one cannot free oneself in this way from a determinate causal moment, which is merely shifted to the various options among the possible effects; the latter, in fact, also require a cause, which, in turn, proves problematical;

2. that a psychic causal power operates at the elementary level, which is already present, albeit without any claim to awareness, in the subatomic world, capable of blindly altering the probabilities of quantum events, inducing random effects.

To conclude, then, chance as we know it in physics and by common sense must in any event be referred to a fundamental, though very limited framework of physical acausality. It is, in any case, very important to note that the inherent stochasticity of quantum mechanics, a condition of total randomness - the equity of the quantum game of dice - is itself a fairly restrictive law of nature (Paul Davies, 1992a).

As for the accusation of vitalism that could be brought against some of the possibilities described, it may be useful to consult the article entitled "Quantum Vitalism" by Stuart Hameroff (1997):

"...functional descriptions fail to capture an essential self-organizing "unitary oneness" present in living systems. To nineteenth-century biologists this quality was ascribed to a "life force", "élan vital", or energy field. Then, as molecular and cell biology began to reveal the biochemical and physical processes involved in cellular activities, the apparent need for a life force waned, and "vitalists" (or "animists") were vilified. In modern reductionist science the notion of life force, energy or information field has remained almost taboo. However, a new wrinkle has recently appeared. Whereas nineteenth-century vitalism was based either completely on electromagnetics or on forces outside the realm of science, a "vitalist" perspective has emerged in which life derives by direct extension from the most fundamental level of reality. In "quantum vitalism", life is intimately linked to self-organizing processes at the most basic level of the universe."

The appearance of life is therefore programmed in the elementary particles of the universe, and this implies a set of laws using chance (Aristotle: "Υστερον αρα το αυτοματον φυσεος"; Phys. II, 6, 198a5) and they put it into effect in the only possible way, comprising an immaterial, psychic field. In the course of evolution this also acts by constructing itself in complexity and freedom; and this, we recall, is perfectly in tune with Karl Rahner's idea which we cited at the start of this article, namely that matter is a sort of frozen spirit ("...si la matière est en quelque sorte un esprit "frigorifié"..."). In this hypothesis it is worth noting that all evil would be due directly or indirectly to psychic causes, both at the level of the blind calamity produced in the action of the more or less rudimentary psyche and at the higher level of the free action of consciousness.

Be that as it may, we must realise that when we appeal to chance in nature, we cannot help identifying it with a framework of physical acausality, within which alone we can find creativity, novelty, and freedom, and, along with these, calamity. Chance, as Jacques Maritain once said (1932), is something we cannot do without:

"Everything which exists has its own nature or essence, but the existential position of things is not implicit in their nature [...] Existing reality is thus composed of nature and the unexpected (chance); for this reason, it makes sense over time and therefore, with this enduring quality, constitutes history (irreversible). History needs these two elements: a world of pure natures would not move in time; there is no history for Platonic archetypes; a world consisting purely of the unpredictable would have no orientation; there is no history for a thermodynamic equilibrium."

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