

SAVA PETROV[†]

THE DANGER OF CATCHING NATURE IN CONTRADICTION

I say “danger”, taking into account the common attitude towards contradictions and antinomies, but at the same time, as an old-fashioned dialectician and even more in tune with paraconsistent logicians, I make the implicit assumption that it would give a chance to the cause of Heraclitus – Hegel. This far-reaching philosophical hypothesis assumes that some of the contradictory and antinomic propositions we come across in rather immature scientific theories, are likely to be relatively objective truths. The concerned claims are very few indeed and mostly connected with self-reference or an intuitive expression of a state of change, but their interpretations in the sense of Heraclitus – Hegel would restrict the law of non-contradiction and would supply grounds for a “dialectics of the impossible”.

It is relatively easy to come to the conclusion that the centuries-old dream of contradictory truths has become a fact on an abstract level, say in a set theory based on paraconsistent logic (Arruda, Priest) but as long as no empirical science is accustomed to paradoxes, Hegel’s thesis still oscillates between Meinong’s jungle and the world of sheer hypotheses. For the scientists, with few exceptions, there is not the slightest suspicion in the older than the classical logic axiom: what is real cannot contain contradictions (Plato). Strangely enough, the widespread “syndrome of Pygmalion”, when one takes models for reality, cannot infect contradictions and paradoxes. The common attitude has made no progress since the ancient rejection of Protagoras’ projection of contradictory properties onto reality. The easier it is to identify mathematical existence with consistency, the more difficult it is to understand a contradictory truth. What could that mean at all?

Both intuitive and logical notions of negation have left no place for “contradictory truth” except, maybe, in the case of sheer antinomy where the logic seems driven into a corner and intuitively things become even worse. Epistemologically, a contradiction cannot be thought of as a truth; ontologically it cannot exist as reality. Nevertheless, the boldest dreamers among dialecticians assume that every change and even mechanical motion do contain objective contradictions more or less similar to counterparts of logical contradictions and hence the perfect knowledge of motion and change should use contradictory truths, whatever that means. For some minds the understanding of becoming includes the truthfulness of “to be and not to be”, though it seems irrational for the time being. A further step tries to restore the balance with the assumption that such a temporary

irrationality will evaporate in due time like the antipodes as an argument against the spherical form of the Earth.

A criticism of the alleged idea of Routley-Petrov that “micro-objects are inconsistent” (Smith, 110) provides grounds for reflection on this line of thought. The reference to a possible inconsistency of (or between) future theories that will represent the now unobservable and theoretically unknowable by quantum mechanics objective motions of micro-objects in the paper of R. Routley, (1979), is much more cautious than the startling phrase “micro-objects are inconsistent”.

In principle, I find it impossible for a philosopher, staying on his own level, to assert or to negate any empirical claim in a conclusive way. By the way, Locke grasped this impossibility somewhere in 1687!

My point has been, and still is, that some peculiarities of quantum-mechanical description of the micro-world could be used as modest suggestive considerations for the plausibility of the old hypothesis that in exceptional situations, say, in a state of motion, along with consistent truths, there could also be valid contradictory ones. Obviously, such a heuristic suggestion could not be verified by contemporary macro-experiments and macro-phenomenological theories. J. Smith’s conclusion that the Routley – Petrov claim is “empirically false” shows a misunderstanding. Such hypotheses are unverifiable at present. Only micro-micro-experiments, unthinkable for the time being, could go as far as to prove or disprove a hypothesis about the objective motions of micro-objects.

As a matter of fact, we have only one straightforward, and hence improbable idea of a possible objective counterpart of a logical contradiction. It comes to a direct objectivization of the logical characteristics of a contradictory claim in the form of “to be and not to be” as Graham Priest has put it. However, the ontological referents of logical laws are not bound to be as simple and straightforward as that. The diversity of the possible objective counterparts of logical inconsistency of formal systems and empirical theories should be rather relatively comparable with the diversity of ontological referents for the logical consistency of our claims and theories. Now we have to use phrases like “it is and it isn’t” more or less as definitions of a state of change or, if you want, as a sign of intuitive protest against the idealizations in use.

We should be very careful not to turn such a priori general phrases into specific proposals for premature conclusions of current scientific problems!

Another warning concerns the expected wider use in micro-physics of purely theoretical terms and claims that have no objective referents and that are practically unavoidable in a theory possessing objective validity. Imperceptibly we liberalize the use of the notion of truth for claims built out of pure theoretical concepts. These claims, however, are not truths in the strict sense of the correspondence theory of truth. Speaking of contradictory truths one suddenly forgets about this liberalization and starts looking everywhere for strictly objective referents. We should discard such restrictions by definition. We have to be as liberal to contradictory truths as we are to consistent truths, when asking ourselves about objective referents. Maybe the complementarity principle is only the first swallow for a future series of mutually inconsistent descriptions of micro- and mega-worlds, too complicated for our crude

brains. If our correspondence theory of truth were dialectical enough, we should have no ideological problems either with consistent descriptions of inconsistent reality, or with inconsistent descriptions of consistent reality. However, one ought to find specific explanations of these unusual relations in every concrete instance. The inconsistent descriptions of inconsistent objects appear to be a forbidden land of unlimited impossibilities. For rare romantics, however, it is attractive because of its mystery.

According to Folse, N. Bohr himself, understanding matrix mechanics in classical manner, supposed in 1925-1926 that "nature commits a contradiction" (Folse, 63-64), or rather expected that nature would be caught in a contradiction, so impressive were the experiments showing the wave properties of electrons. But quantum mechanics with its probabilistic interpretation (1927) found a fantastically simple way out of the paradoxes of wave-particle duality and physicists had been calmed because they were reduced to complementarity and not to contradictions. However, some bitterness remained: why can't we understand the deeper laws of objective micro-reality without falling into contradictions concerning trajectories (Dirac); why is there no final escape from the logical opposites of "either – or" (classical mechanics) and "and – and" (wave mechanics) and must we constantly balance between them (Schrödinger)? These problems are still with us. In 1786 the Academy of Science in Berlin announced: the Academy desires an explanation of how it is possible that so many correct theorems have been deduced from contradictory suppositions. In a sense, Cauchy and Weierstrass have solved this problem by finding consistent presuppositions of mathematical analysis. Nowadays the wide-spread implicit question sounds like: why is it forbidden by so many theorems under the threat of contradiction to say anything about the objective motion of micro-particles?

Philosophers are not easily at peace with their realistic conscience according to the "tranquilizing philosophy" (Einstein) of the Copenhagen interpretation. Even the exceptionally convincing validation of quantum mechanics by a routine experiment did not dispel any doubts concerning the strange rationality of the really real unobserved motion of micro-objects, which evades any consistent description. Apparently quantum mechanics is not non-classical enough for it.

We explain everything by interference of amplitudes of probabilities of future experimental results but the now supposed objective or half-objective counterparts of these strange amplitudes are potential possibilities that "cannot kick or be kicked". Well then, what is it and how does it interfere with itself and with slits in experimental devices stretched out a hundred times the electron's size?

Loui de Broglie's "double solution" with real particle and/or real wave and many other concepts have been on the scientific stage for 60 years with big promises and no success. After two generations of unsuccessful efforts to reconcile quantum mechanics with scientific realism, maybe the time has come for more exotic attempts, and the ancient dialectical hypothesis that the state of change should contain objective contradictions is ready for a risky methodological prediction like this: a description of the now unobserved objective motions of micro-objects "could be obtained in the future either by simultaneous utilization of two theories,

Bulgarian Studies in the Philosophy of Science

Ginev, D. (Ed.)

2003, XII, 221 p., Hardcover

ISBN: 978-1-4020-1496-3