Particle Physics and Research Logic

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People are said to be rational. Why, I wonder, do so few people make use of this gift? Instead, they believe they have to represent things that contradict their minds, just to make them equal to the majority.

Can particle physics be true beyond the limits of perception? The question came to me when I read the book by Alexander Unzicker "The Higgs Fake" [1]. Intuitively and emotionally, the results of particle physics are rejected there and the argumentation seems to me to be little justified. It remains too much to adhere to the phenomenon, without working out the basic problem, the necessary delimitation of physics from mathematics. However, physics is still an empirical science, even if the theorists would like to change this. As empirical science physics is bound to the current detection limits of the instruments. Jörg Bleck-Neuhaus, a representative of particle physics, admits that particle physics is a challenge to the mind because it has markedly bounded the boundaries of classical physics. But what Unzicker rightly criticizes, lies beyond the detection limits. This, however, is metaphysical in the philosophical sense.

Whether the claim is met, he makes in his book to address young people, I dare to doubt. They should have a very good education in physics, philosophy and logic in order to be able to form an independent judgment autonomously of the teaching. So the reader asks: How can highly qualified experts be so wrong in their statements? After all, one can not put them all under the general suspicion of imposture. But it is precisely the high degree of specialization of today 's disciplines that pose the risk of errors and misinterpretation, especially since the object of research itself completely escapes the sensory perception.

Here I will examine the question: **What are the results of particle physics, and how do they relate to research logic, and what are their claims to truth?** To this end, the book *"Elementary Particles - From the atoms over the standard model to the Higgs boson"*[2] seems to me to be most suitable, but here a representative of particle physics speaks who is really trying to make the results of his discipline understandable to the reader.

1. What is truth?

First, we must answer the question, What is truth? The truth is the evaluation of a statement with the value 'true'. This is nothing else than assigning an arbitrary numerical value to a variable, except that I have the real numbers available for the valuation in this case, while the logic has only the values ‘true’ and ‘false’. Because truth is a valuation, it is so controversial. The evaluation of statements is conditionally of interest. If you are looking for the truth, you should keep it in the back of your head. The stronger the interests, the lower the probability that a controversial statement is true.

The philosophers alone distinguish 8 theories for their evaluation. The correspondence theory, which goes back to Aristotle, according to which there must be a correspondence between thought and reality, is most original. Dialectical Marxism adds the idea of the image between thought and reality. In the next step, the logical structure of the sentence must coincide with the structure of the fact represented by it. Finally, in the correspondence theory, the contradiction-freeness of a derived statement to the system of accepted statements must exist. Habermas, on the other hand, pleads for a consensus which is brought about in a discourse in an ideal speech situation. As there can be no ideal speaking situations, the truth is subordinated to the power interests.

For the natural sciences and technical sciences as empirical science practice (eg experiment) as practical proof is the primary and sufficient criterion of truth. Both sciences, like the truth itself, have an objective character and are not negotiable. As far as the theory. However, the more elaborate an experiment becomes, the more difficult it becomes psychologically to recognize the failure of an experiment as truth and the more difficult it becomes to find independent judges on this question. In this situation, today's researchers are located. Today, no physics can be operated without the help of engineering sciences. Here, a conflict of interests develops between engineers and physicists. The aim of the engineers is to get something that can be exploited for society, while the physicists are satisfied with an idea that can be as badly rejected as possible. This brings us to the basic problem of cognitive logic.

2. The basic problem of cognitive logic

Every empirical science uses the inductive conclusion by generalizing a particular observation. If you have observed enough often that the sun is at midday in the south, it is concluded that it always does. However, if you travel south, you will find that this statement is no longer true. South of the equator is the sun at noon in the north. However, if you deductively deduce from the generality a special fact, you are spared the surprise that the statement can be wrong.

Karl Popper [2], who has dealt very intensively with the logic of research, now tries to circumvent the basic problem of cognitive logic, which Hume and Kant already occupied, by avoiding inductive conclusions, which ultimately can not succeed.

- This is the problem of induction: Special sentences are generalized. Such a conclusion can prove to be wrong. *The induction problem can also be formulated as the question of the validity of the empirical-scientific hypotheses and theories.* (Popper) One has to ask when the induction rate is permissible and when it is not. A very transparent example of an incorrect induction closure is given by the following example:

  No cat has two tails. One cat has a tail more than no cat. Induction: Cats have three tails.

  In this example, the first sentence contains a negation. The second sentence combines this negation with a positive statement. This is obviously not allowed during induction.

Another example of induction is the following: We have a set of measured values and approach the measured values by a polynomial. We can either guess the polynomial from the course of the curve, or construct it according to the method of statistical design of experiments, a method widely used in technology. Then, within the measured interval, we can fairly safely make true predictions about the expected values in this interval. But the further we move away from the measured range, the more unreliable the value calculated from the polynomial will be. Physical laws without validity indicate this uncertainty. These are then probability statements, which most people are not even aware of. The problem of induction seems insuperable.

- This results in the problem of delineation: From the two examples, it immediately becomes clear that the validity range of inductive statements must be delimited from the range of their false statements. Both examples, however, have completely different delineation criteria. From this it can be seen that the inductive method of reasoning does not have a general criterion of the distinction between its admissibility and its inadmissibility. Still more generally formulated, there is no universal criterion for the empirical science of the distinction between mathematics and metaphysical systems, such as those of fantasy. Popper, therefore, generally rejected induction logic. *"The criterion of induction logic does not lead to a delimitation, but to an equilibrium of the natural sciences and metaphysical theoric systems, not to an exclusion but to a penetration of metaphysics in empirical science."* Are inductive conclusions no longer permissible? That would be fatal. But the risk of misuse remains.
- If we take this consideration logically sharply, we can distinguish two demands which we must place on the "empirical" theoric system: It must be a non-contradictory, "possible" world and must satisfy a **delimitation criterion,** must not be metaphysical (it must be a possible "world of experience"). This criterion of delimitation is known a priori, since it arises from experience and thus from sensory perception, but not universally.

This makes the matter so problematic. A hypothesis can not be falsified according to its structure because the knowledge is not enough. Popper therefore laid down two methodological rules, according to which the scientific propositions must be examined.

1. The game of science has no end in principle: Anyone who one day decides not to further examine the scientific propositions, but considers them to be finally verified, emerges from the game of science. (as the supporters of the standard models of the particle physics and cosmology)

2. Once established and proven hypotheses can not be dropped "without reason"; "Reasons" include: replacement by other, more verifiable hypotheses; Falsification of the consequences.

In order to test the above statement, we will find the criterion of separation of physics with respect to the space statement. Are there limits of spatial dimensions within which physics can be operated?

As is generally known, the theory of relativity and other theories, like string theory, extend the space of intuition by further dimensions.

Here one can use very well the deductive approach. **The general metric space is distinguished by the fact that its dimensions are independent of each other,** for if they were dependent, then it would be a function and the distinction between space and function would be superfluous. (This definition of space was unknown to Einstein.) This is expressed by the fact that all spatial dimensions are perpendicular to one another. However, if dimensions are interdependent, they do not contribute to space, but they form functions. It must now be decided whether the Einstein space-time is a special four-dimensional space. We must check whether the time is independent of any path, or in other words, whether the time is perpendicular to the path. In physics, however, the time is measured as the path length that a body travels at a constant velocity. Consequently, the time can not be independent of the way. The functional relationship between path, time, and velocity limits classical physics from the metaphysical theory of relativity, without inductive conclusions being necessary, simply by *unproblematic tautological transformations of the deduction logic*. Of course, experiments were always conducted, which should be based on the theory of relativity. However, it quickly became apparent that the experiments were all a classic explanation. Popper was also unaware of the above room definition, so he believed in Einstein.

Besides the two rules of Popper, there are still some symptoms which point to a pathological science or metaphysics. These were compiled by Irving Langmuir in 1953 in Knoll's Atomic Power Laboratory (KAPL) in a lecture and provide guidance.

- The maximum observable effect is caused by a cause of hardly observable intensity; The size of the effect is generally independent of the size of the cause.
- The effect has an order of magnitude that is at the limit of observability; Due to the low statistical significance of the results, very many measurements are necessary.
- A claim to very high experimental accuracy is obtained.
- Fantastic theories, which often contradict the experience, are set up.
- Criticism is returned with ad-hoc declarations. *Today criticism is generally no longer reacted at all. It is exposed. (look at Popper's Rule 1)*
- The ratio of adherents to critics increases initially, then gradually go to zero again. *This criterion is also not reliable, because the supporters are favored and the critics are disadvantaged.*

3. Particle Physics and Cognitive Logic

Can the principle of falsification also be applied to particle physics, although it is made impossible for the outside world to comprehend the experiments and, for example, state delineation criteria too?

Both theory of relativity and quantum theory have arisen in the period of positivism. Positivism involves the observer in the experiment, but without taking into account the imaging laws. While the theory of relativity regards observers and objects equally, without considering the energy balance during their movement with one another, the quantum theory does not distinguish between a single event and a multiplicity of events, which manifests itself in the contradiction of the wave-particle dualism and is contrary to the laws of perception. Already Immanuel Kant warned against concepts without perception in his *Criticism of Pure Reason*. They are empty, which means as much as arbitrary.

The difficulty in particle physics is also here in the discovery of one or more suitable criteria of limitation, which constitutionally must be different from the theory of relativity, and there is a need for a set of sentences to be investigated, which particle physics calls for. The inductively developed ones must be filtered out therefrom and these must then be contradicted by other already acknowledged sentences. Jörn Bleck-Neuhaus [3], a professor at the University of Bremen, summarizes the current state of knowledge of elementary particle physics in 12 sentences:

1. An elementary particle reveals neither a finite spatial extent nor an internal structure.
2. There are only a few basic types of elementary particles. These are 2 varieties of fermions and 3 varieties of bosons.
3. Elementary particles can have angular momentum without rotating and are magnetic without current flowing.
4. Elementary particles can be generated and destroyed.
5. Particles have antiparticles.
6. Elementary particles of the same variety are indistinguishable.
7. The elementary act of the electromagnetic interaction is the emission or absorption of a photon. The electrostatic potential also arises.
8. Elementary particles also expose measurable effects from "unphysical" states in which they are unobservable (virtual states)
9. Each of the four basic forces of nature comes about by the exchange of elementary particles in virtual states.
10. For the interaction processes there is an exact picture language
11. The four conservation laws of classical physics apply; however, the mirror symmetries of classical physics are broken.
12. The particles can carry other types of charge which can be converted to one another. This makes it unclear how many types of particles must be counted as different.

We will now examine these propositions in order to find delineation criteria. However, before we can deal with the individual sentences, some general remarks must be made beforehand. First, the initial situation must be considered and the experimental situation of particle physics discussed.

3.1. The initial situation and the development of quantum mechanics

The interpretation of the spectral lines was not possible with classical physics, as it was around 1900. Neither photoeffect nor thermal radiation could be explained. The introduction of quantum mechanics was a huge developmental impulse. It was however bound to the observations by means of a spectrograph. A spectrograph can not observe particles. So you have to imagine the way a particle travels as a wave.

Imagine, we would have to cross a place with many people, who seem to run randomly through each other. In order not to collide with the people, we would be forced to steer this right and left. We would not cover a straight path, but rather describe a more or less wavy curve with a random amplitude. The same would happen if we wanted to cross the square perpendicular to our first path. We would not have to cross ourselves the square at all, even a message that would be transmitted from mouth to mouth would take such a path.

Now we can transform this idea to the plane of the atoms and call this route probability amplitude. The square of the absolute value of both functions is called probability density. However, the inventors of quantum mechanics now declare that the movement of a free particle would accomplish this movement. In truth, however, the particle isn't at all free, but moves because there are enough other particles to evade. We can therefore assume that a particle with a certain probability is in the intersection of two mutually perpendicular wave functions. But this does not say anything about the individual particle itself. In addition, one can assume that the probability amplitude depends on the energy at which the square is crossed. If someone crosses the field with the motorcycle, they will give way as soon as they recognize the motorcycle, if they do not want to run the risk of being injured. In the range of atoms the injury means ionization. It does not appear to be useful to quantum mechanics in the field of high-energy particle physics. Here, the concept of quantum mechanics is perverted. Obviously, there is a delimitation criterion for quantum mechanics in energy. While quantum mechanics describes the probable behavior of particles, high-energy physics looks for exceptions in behavior and believes that every exception is a new particle, and then it becomes the rule.

In classical physics the particle has concrete coordinates, a direction, a mass and a velocity, and thus a stability. The quantum mechanics says about a particle only that at the crossing of two ways there is a probability that there is a particle there and if I integrate over the paths over an infinite value range, I get the certainty that at the crossroads is a particle , But where the cross is, the definition says nothing. I can not get certainty because this integration is practically impossible. At the level of quantum mechanics, the term particle is therefore completely undetermined, which is why one is mistaken about the wave character of a particle. No particle can be represented by a wave packet, since it would not be stable. This has nothing to do with the individual fate of the particle itself, but with the nature of the description. It is like photographing the particle with a long exposure time. The image is then blurred accordingly. This has nothing to do with the particle itself, but with the kind of observation. Now, for each dynamic variable from classical mechanics in quantum mechanics, a certain linear operator is assigned which acts on the wave function, assuming that the same operators exist between the linear operators as between the quantities in the classical mechanics. For example, the impulse is represented by the operator $-i\hbar \nabla$, which acts on the wave function ... It is an imaginary operator on a spatial direction. Well, mathematically this is still to be comprehended. But what does this mean physically? I chop quite blind in the space element and therefore can not make any statement for a single particle at all. When I have done this many times, there is the possibility that I have hit some particles. The hit rate remains unknown.

A model is used that gives good results for general statements, where many particles are involved in the effect, but where statements are needed for an individual particle fails completely. **This contradiction is cultivated in quantum mechanics by talking about wave-particle dualism.** In addition, quantum mechanics can only be applied to low-energy particles, ie. when the energy of the particle being observed is comparable to the energy of the neighboring particles. This changes as soon as we look at high-energy particles. In this case, the particle will be traversed in a straight line and the adjacent particles will suffer injuries (ionisation) if they do not give way in time. The corresponding cloud chamber images are then obtained.

Unfortunately, the mathematical model is always confused with reality. Especially if you can not measure reality anymore. In the classical electron radius and the proton radius, we are in the order of 10^{-15} m. This is hundreds of a million times smaller than the wavelength of the visible light. It is the measuring limit, which can be achieved with a Mössbauer spectrometer. How to measure such small distances is astonishingly nowhere described as if this were the simplest thing in the world, but this is a big challenge.

3.2. The experiments of particle physics

The experiments of particle physics are so complex today that they can not be comprehended independently. Not even their extensive documentation is accessible to the public, as is the case with the *Sloan Digital Sky Survey* project. Thus, Popper's demand is: "*Objective justifications must in principle be able to be examined and viewed by everyone,*" when observed in heaven. The objectivity of scientific sentences consists in their intersubjective verifiability (the criterion of reproducibility, for example, belongs here).

Not so in particle physics. Although the LHC technology is extensively reported, the results of the experiments are not available to the public. The thesis that there are non-repeatable, unique processes in nature can not be verified in science and is thus metaphysical. It is precisely the demand for reproducibility that is increasingly no longer fulfilled in the field of particle physics, thus giving legitimate doubts as to its seriosity.

3.3. The discussion of the sentences about particles

Now we will comment on the details of Bleck-Neuhaus conclusions and find delineation criteria that separate physics from metaphysics. As Bleck-Neuhaus emphasizes, the theorems of particle physics are based on the contradictory duality principle of wave and particle.

3.3.1 Problems of particle definition:

An elementary particle reveals neither a finite spatial extent nor an internal structure.

A particle is a spatially delimited piece of matter in ordinary usage. A particle therefore has a clearly recognizable boundary as well as a mass, a charge and a force field. In everyday life the mass is still traced back to a reference mass, the primary kilogram. All we know about the mass is provided by the mass spectrometer and this is operated electrically. We obtain the mass as the ratio of the product of charge and magnetic field strength to the ion cyclotron frequency. This particle definition has been very successful. After all, it brought the explanation for the entire spectrum of the elements with their isotopes by means of the particles electron, proton, and neutron. The radioactivity of the atoms showed, however, that at least the neutron is not elementary since it is converted into a hydrogen atom outside the atomic nucleus with a half-life of 12 minutes. A specific ratio of protons to neutrons must also be present within the atomic nucleus for an atom to be stable. Perhaps, however, the neutron does not exist in the nucleus at all. In the case of the imaginary neutron excess, the conversion to protons takes place by electron emission until a new charge equilibrium state is reached. In the case of neutron deficiencies, electrons are captured from the core until the equilibrium state is reached. However, if one considers the half-times between the individual nuclear transformations, one finds times between seconds and centuries without a tendency to be derived. We have no explanation for this. If we understood the interior of the atom, we could undoubtedly answer this question.

If one asks for the boundaries of an elementary particle, the answer is not very reliable because the measurement methods are different. The electron radius is determined by the cross-section of the interaction at about 3 fm (1fm = 10^{-15}m), which corresponds well with the classical calculated electron radius of 2.8 fm. If the mass of the proton is entered into the formula for the classical electron radius, the value of the proton radius is smaller by 3 orders of magnitude. The proton radius, however, is only about three times less than the electron radius, namely 0.8 fm. The neutron radius should be about 1.1fm. Another source gives 5.8fm. A third calls 0.8 fm. The measurements are based on scattering experiments. The more energetic the scattered particles are, the smaller the scattering target appears, which is due to the effect of the force field.

Yet Descartes did not regard a particle as being independent of its field of force, which can always expand as a function of its neighbors.

For a long time the particle physicists thought that fragments from the atomic nucleus with a short lifetime were independent particles. In the meantime the particle zoo has been restricted to a few basic types.

Delimitation criterion: If one speaks of a particle, one must be able to distinguish it from its environment and it must have mass. It also has a load and a surrounding force field. But the assumption that an empty space exists between the particles can obviously not be sustained. Even if we can not see a force field, forces can be measured, which is why they are material.

3.3.2. The basic types of elementary particles

There are only a few basic types of elementary particles. These are 2 varieties of fermions and 3 varieties of bosons.

Particle physicists divide elementary particles by their spin. While fermions are assigned to spin ½ as the basic building blocks of matter, including the electron and the proton, the bosons, to which the photon is counted, bear the forces. They are assigned the spin 1. The fermions are divided into quarks and leptons. The quarks are theoretical constructs from which neutrons and protons are supposed to exist. It is strange that only the leptons of the fermions are observable, to which 6 species are counted, including the three neutrino species, the existence of which is doubtful. Only three observable energy states of the electron e, μ and τ remain.

Furthermore, it is also strange to describe the bosons as particles, since they are effects of forces that can be transmitted only in a force field. Even if they are quantized, effects do not leave mass collections. The spin one is assigned to the bosons.

> What is actually the spin?
> The magnetic field shows that the spectral lines have a fine structure. Each line splits into three or more lines under the effect of the field. There must therefore be a feature on the electron that only becomes visible under the influence of the magnetic field. While the odd-numbered splits from 1916 on Bohr's Atom Model could be explained by the directional quantification of the orbital momentum, the even-numbered splits in 1925 led to the discovery of the electron spin. This property was already discovered in 1921 in the Stern-Gerlach experiment[1] on electrons and then attributed to all other particle types. The electron has a magnetic moment and a spin pulse, the spin. Thus, the abnormal Zeemann effect is described. The spin of the electron is explained as a spin-pulse from the Stern-Gerlach experiment, in which thermally accelerated silver atoms accumulate in an inhomogeneous magnetic field at two separate sites, although the magnetic moments of all the valence electrons cancel one another. This is still clear. But it is said to have all the properties of a classical mechanical angular momentum, except that it is caused by the rotation of a mass. As long as electrons are regarded as small magnetic dipoles, this is incomprehensible. This changes, however, assuming that electrons do not have a dipole field but a vortex field. Then the spin is a vector perpendicular to the direction of rotation of the field and the vector takes two orientations in the magnetic field corresponding to a right-hand spin and a left-hand spin. The detection of the vortex field of the electron was recently made by J. de Climont [4] So what was not properly understood in the electron was transferred to the proton whose magnetic moment is about 660 times smaller. The spin is attributed to the proton 1/2 $\hbar$ since 1928, because an anomaly in the specific heat of hydrogen gas would not be explained

1 In 1921, Stern and Gerlach sent silver atoms through an inhomogeneous magnetic field. Since these themselves represent small magnets or magnetic dipoles, they experience a force in the inhomogeneous magnetic field and are deflected. In classical terms it is now expected that the axes of the small dipoles can point to any direction of the space, and the atoms fill a whole area on the screen (in the figure, between the curved lines). In reality, however, only two bands were observed, as if there were only two possibilities of adjustment. Since silver atoms have only a single valence electron in an s-subsale and therefore no orbital momentum, and thus no magnetic moment caused by it, only the possibility remains that the electrons themselves have an "intrinsic angular momentum" and an associated magnetic moment. In addition, there were obviously two possibilities of adjustment, which is only possible at all if the electrons have a half-integer "intrinsic angular momentum" in contrast to the orbital momentum pulse. It is called spin.

otherwise. [5] The proton spin will be shown for the first time in 2011 on a single proton. The original work is not freely available.

A curious explanation for the spin, Stephen Hawking uses in his book *A Brief History of Time* [6] an arrow analogy illustrating the spin: "*A particle with the spin 0 is a point: it looks the same from all directions. A particle with spin 1, on the other hand, is like an arrow: it looks different from different directions. Only with a complete rotation (360 degrees) will the particle look the same again. A particle with spin 2 is like an arrow with a tip at each end. It looks the same again after half a turn (180 degrees). Correspondingly, particles with higher spin are the same again when rotations are effected by smaller fractions of a complete revolution. In addition, there are particles which do not look the same again after one revolution: Instead two complete rotations are necessary! The spin of such particles is given by ½.* "

Unlike the half-numbered spin of the leptons, the integral spin of the photon (light quantum) is said to arise from the long known existence of electromagnetic waves with circular polarization. According to Sommerfeld [7] one can produce circularly polarized light by double total reflection on glass prisms. Normally, light is not circularly polarized. The Maxwell equations also do not form circular polarization. The operator red has a different function, it is a circular integral. The rotational movement of a wave is, however, something quite different from the rotation of a particle, since a wave always consists of many coupled particles that carry an effect. If it is claimed that direct experimental evidence was obtained in 1936 by the rotation of a macroscopic object after the interaction with photons [8], it can be countered that a mill wheel also rotates without the water flowing beneath it forming a vortex. There are a lot of technical applications where a linear motion is translated into a rotary motion. Moreover, this argument is in direct contradiction to the above statement by Stephen Hawking on Spin 1. This division of the elementary particles thus consists of an incomprehensible

3.3.3 The angular momentum of elementary particles

Elementary particles can have a rotational pulse without rotating and being magnetic without current flowing.

At the beginning, we had discussed delineation criteria for the distinction between physics and metaphysics. Here, it is actually claimed that elementary particles have an impulse without movement. The impulse is the product of mass and speed. The angular momentum is defined as the cross product of radius and applied force. The force is defined as the product of mass and acceleration. A pulse can only emanate from a mass. The effect of the impulse itself, however, has no mass. It is the effect of a moving mass on a still mass. Anyone who had knocked on a finger with the hammer could do this. The effect is visible without the finger having increased with the mass of the hammer, even though the swelling may subsequently be considerable. The hammer also remains the same when performing a second stroke without doubling. Photons are like hammer-hits, they are not particles, but they produce effects. Consequently, the use of a quantum of action is justified, for its characterization. Photons like all bosons are like hammerstrikes, but to call them particles, is a bullying[2] and why they should have a spin, is incomprehensible. The quantum of action is defined as the product of energy and time and not as a rotational momentum.

Units of measure of the efficiency quantum: erg s → cm^2 g/s → v g cm

In any case, particles must have a mass to rotate. If they have a mass, they also have a charge and a magnetic moment, and they have a thermal energy which contradicts the above assertion.

Delimitation criterion: light quanta have no double character. They are effects, not particles. Quantum mechanics is misinterpreted; it does not apply to individual particles. It can only make statistical statements.

3.3.4 Production and Destruction

Elementary particles can be generated and destroyed.
According to the theorem of the conservation of mass and energy, the above theorem is contradictory. Mass and energy can neither be generated nor destroyed in our experience. But they can be transformed into other forms of matter which can escape our immediate observation. In fact, sometimes it appears as if individual particles disappear, or arise again. However, since we can not observe these particles ourselves, but only their effect on the environment, we can only say that the effects can be generated and destroyed, which is evident also macroscopic. Because particles can be either positively or negatively charged, the abandoned, originally neutral environment of the particle will always show the opposite charge and appear as a positively or negatively charged hole. If a particle is torn out of its original place, it creates a hole, which makes it seem as if it could be produced. If it returns to such a hole, the impression is created that it would be destroyed. Holes are basically instabil.

3.3.5 Antiparticle

To Particles are Antiparticles

There are many things that can not really be explained by the physical detection limit. For inexplicable phenomena empty concepts such as black hole, dark matter or antimatter were introduced. Antiparticle is derived from antimatter. Antimatter came from the belief in mirror symmetry of the world. Matter as a philosophical category is defined as all that exists outside of our consciousness, hence our consciousness must consist of antimatter, would be a conclusion. Matter, therefore, has no plurality, like the universe, infinite, etc. Consequently, the antiparticle derived from antimatter has no demonstrable relevance. Immanuel Kant would call it an empty concept. As with all empty concepts, contradictory meanings are interpreted.

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2 It is said of the wise men of gothem that they had forgotten the windows when they built their town hall. As they were now sitting in the dark at their council meetings, a clever fellow-citizen came up with the idea, on the light-flooded street, to take the photons and carry them into the town hall in sacks. If I remember correctly, the idea came from a certain Albert.

3..3.6 Distinguishability of particles

Elementary particles of the same variety are not distinguishable.

If elementary particles are indistinguishable, then they are not countable. In oter words, quantum mechanics have no way of describing a single particle.

3.3.7 Electromagnetic interaction

The elementary act of the electromagnetic interaction is the emission or absorption of a photon. The electrostatic potential also arises in that way.

We repeat that photons are effects of the electromagnetic force field, not particles. Since they have no mass, they can not have a charge. If they have no charge, they can not have an electrostatic potential. However, because they can act on particles, photons are capable of solving particles from their structures, which is particularly impressively demonstrated in the material evaporation by means of lasers. The thermoeffect shows that energy-absorbed thermal radiation is already able to generate a current flow. The electrostatic potential is the result of materials of different conductivity of the current. This means that there must be resistance to the current. This causes the conductor to be heated until finally it emits light. But this does not explain without a resulting force field why this is so.

3.3.8 "Unphysical" states

Elementary particles also reveal measurable effects from "unphysical" states in which they are unobservable (virtual states)

It is unclear what a non-physical state should be. On closer inspection, we find that a quantum mechanical operator is physically interpreted for a single particle, which inevitably leads to irritation, because quantum mechanics can not make statements for individual particles. Because physics is an empirical measuring science, it can not make any statements about unobservable states. This separates it from metaphysics.

3.3.9 The basic forces of nature

Each of the four basic forces of nature comes about by the exchange of elementary particles in virtual states.

Mainstream physics distinguishes two core forces with short range only within the atom and the electric force and the gravitation outside the atomic nucleus with infinite range. However,c it has been shown that the electrical force can be combined with the core forces in a common theory. Only the gravitation seems not to be inserted.

In fact, gravitation is the cause of the dipole structure of the atomic shells, which assures the cohesion of all matter without having to be ionized. Since, however, the displacement of the atomic shell and atomic nuclei cause a different electric charge distribution on atoms, gravitation can only be produced by the electric forces.

The cohesion of the nuclear core is to be carried out by the core forces, which are interpreted as exchange bosons for strong and weak interaction. The bosons are regarded as "force particles". The concepts of particle and field are blurred. In this explanation, however, it remains completely incomprehensible why each atom is surrounded by an electron envelope and an ionized atom appears positive. Also, the explanation of virtual states of elementary particles and color charges is quite adventurous because it is not demonstrable. It is much easier to explain that all the forces have one and the same cause, namely the bipolarity of the elementary charge, the effect of which is only shielded by the distribution geometry within the different atoms. Ultimately, there is only the electromagnetic force, which splits into electrostatic and Lorentz force according to the basic property of the mass.

From the statistical analysis of the isotope masses of atomic nuclei, C. Johnson [10] concludes that nuclear physics must be fairly simple, and that atoms can only consist of electrons and protons arranged in a very regular structure. He writes: *“Most nuclei are meta-stable due to only the Protons and Electrons in there. This reasoning does have a consequence, where the radial location of each Proton inside the Nucleus "radially vibrates" very rapidly, and I believe that at least some nuclei seem to show evidence of these super-fast vibrations“*. In fact, only electron capture and electron emission are observed as radioactive nuclear transformation on atomic nuclei, and the emission of helium nuclei occurs in large nuclei. The bottom line is that only electrons and protons remain as elementary particles. The neutrinos conceived by Pauli in order to explain the conservation of the electron spin in β-decay prove to be a mistake, since they would have to be taken into account in the mass balance. Moreover, neutrinos are not likely to be elementary since particles as mass must have a charge and a magnetic moment.

3.3.10 Clearness

For the interaction processes there is an exact picture language

Although quantum mechanics, with its dualism of wave and particle, deliberately violates the laws of intuition and builds the "insights" discussed here, it breaks with the pictorial language with this principle by using the Feynmann graphs to illustrate believed physical processes.

3.3.11 Conservation laws

The four conservation laws of classical physics apply; however, the mirror symmetries of classical physics are broken.

The four conservation sentences are energy, mass, momentum, and charge. Symmetry has already been broken with the second main line of thermodynamics, which is still one of classical physics. It is, however, strange to wish to deduce these conservation laws from symmetries, since symmetry results from the consideration.

On the other hand, the conservation rates are basic assumptions of physics based on experience. Another ancient assumption is that of the unity of opposites, which is expressed physically by the oppositeness of charges, which neutralizes itself.

Reflections in space and time and are virtual. Real nature is self-similar, symmetry is part of it. This means that similar structures can repeat themselves on different scales. For example, a negative charge is found to be a positive equivalent of a thousand and eight hundredfold. This is not a load symmetry, but the starting point for the diversity of the surrounding nature.

The fact that movies can be viewed backwards does not mean that time is symmetrical. Our time refers to the clocked flow of energy from the sun to the earth, even when measured in vibrations of a Cs line today. The energy flow has only one direction. Who would repent this? However, these findings do not require a wave-particle dualism.

3.3.12 New types of charges

The particles may carry other types of charge which can be partially converted into one another. This makes it unclear how many types of particles must be counted as different.

When new types of charges are invented in elementary particle physics, only the imagination sets limits. These statements prove that the transition to metaphysics is completed and further commentaries are superfluous.

4. Conclussion

If we look at all of Bleck-Neuhaus's essential statements on particle physics, we must note that they are supported on the one hand by the idea of the duality of wave and particle and, on the other, beyond the limits of the measurable, of faith in the symmetry of the world.

Both ideas, however, are not stable on closer inspection and physics must be differentiated again this ideas. The former are images of reality. On the one hand, I can design a wave image of nature and, on the other hand, a particle image, but I can not claim that these images are the nature. It is completely misleading to use the images and to draw inductive conclusions from them for an **unobservable** reality. Who can really judge whether something is real, that is not observable? The attempt must inevitably lead to contradictions.

In the second case, the symmetry, we need a definite point of observation in order to recognize symmetry. From a different perspective, however, no symmetries are found. Symmetry is therefore dependent on the viewing point, with the exception of spherical symmetry. Here, the philosophy of an Arthur Schopenhauer, which declares the principle of relativity between the observer and the observed object, to which the Copenhagen school of a Heisenberg[9] as well as Albert Einstein have been exposed, has not been investigated, since they have not questioned the laws of images which affect the observed picture. None of our senses is easier to deceive than our facial sense. The ancient Indians had their own goddess for this effect named Maya, the power of illusion.

The concept of quantum mechanics, however successful for the description of certain processes, still has its limits as soon as it is transferred to individual particles, since it is clearly a statistical concept and has no statements for a single particle. Since one dispenses of a transmission medium, a force field, which belongs to every charge in the transmission of effects, such as the effect of a hammer stroke, a medium which moves the hammer, one can not distinguish between the mass and the effect of a mass, Mystical explanations of the exchange of elementary particles whose truth values are based not on physical knowledge but on authority.

One can not deal with the problem of knowledge at the limits of recognizability with mathematics, since the fantasy of mathematics transcends these boundaries into metaphysics, but our physical knowledge is denied this step. This is ultimately the result of the inductive errors of particle physics, which they have plunged into the current crisis.

To come back to our delimitation problem: It has been shown that there is no general delineation criterion, and no criterion for the truth can exist without perception. As already said Kant? "Concepts without perception are empty!" Without doubt, our perception is different from that of Kant's times by means of modern equipment. But beyond the limits of the separation of useful signal and noise, we are blind. To this extent, the theory must be at the end of the research process and the experiment is not proof of the correctness of a theory, but it can disprove a theory at most.

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