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On integrity, objectivity, and impartiality in scientific research

The purpose of all scientific research is truth. Anyone proclaiming something as scientific is simultaneously stating whether they are presenting it as an axiom, a proved truth, or merely a conjecture of varying degrees of probability; and if, as may happen, no arguments can be found to sufficiently justify any of the conflicting assumptions, the choice between them is made in such a way that one of them is considered a provisional hypothesis, constituting a starting point for further research. Undoubtedly, therefore, consciously presenting statements that are not true as true in science deserves the accusation of lying. Thus, the principle of presenting as true only those statements whose truth can be guaranteed according to the current state of affairs is a principle, not only of methodology, but also of scientific ethics. I call it the principle of integrity.

However, no guarantees can rule out the possibility of error. The principle of integrity requires that this possibility be taken into account and that one be prepared to revise one's position if it proves to be erroneous or if the reasons on which it is based are insufficient. In keeping with the principle of integrity, only a well-founded scientific conviction, and no other considerations, should determine which scientific claims a person defends.

Scientific integrity in science requires freedom in a twofold sense: internal freedom, i.e. the strength to resist any temptation to compromise integrity for the sake of success, fame, or other benefits; external freedom, i.e. freedom of research and scientific criticism, regardless of

political, economic, religious, or any other interests. The scholar should find internal freedom within himself, while external freedom should be guaranteed by the society and state in which he lives. Internal freedom manifests itself in the scholar's objectivity in his research, while external freedom allows him to be impartial.

By objectivity, we understand not yielding to preconceived prejudices and sympathies, choosing premises in accordance with the requirements of science, taking into account all arguments pro and contra when justifying claims, provided they have scientific value – in short, applying only the principles of scientific criticism in scientific research. Conversely, anyone who places other considerations above these and departs from the principles of scientific criticism will not be objective.

One who does not take sides in a dispute remains impartial. Such impartiality on the part of an observer is not the same as objectivity; one can remain objective and still side with the disputing party that one considers to be right according to one's objective position. For example, Galileo was not an impartial observer in the dispute over Copernicus's science when, in accordance with scientific objectivity, he stood on its side. But impartiality is also understood in a narrower sense as the impartiality of an arbitrator who, *sine ira et studio*, decides the case in favour of one of the disputing parties. Galileo, while not impartial in the first sense, was undoubtedly impartial in the narrower sense on account of his competence when he sided with Copernicus's theory, relying solely on scientific arguments. When referring to scientific impartiality, we mean impartiality in the narrower sense, which scholars are not allowed to exceed. However, scholars not only have the right, but in many cases also the duty, to act as arbitrators in disputes they witness and to side with the party that represents a scientifically valid position within their competence. At the same time, we cannot ignore the danger that it is extremely easy to overstep the bounds of one's competence and imperceptibly stray from scientific objectivity, especially when the dispute has a broader social context. Thus, the question of when a scholar has a duty to intervene in a dispute he witnesses and take the position of an arbitrator must be decided again from the point of view of scientific integrity: intervention is necessary where a lack of it could be understood as an endorsement of an erroneous position, i.e. as a lack of objectivity.

Scientific integrity, scientific objectivity, and scientific impartiality are so closely related that anyone who is scientifically honest must be scientifically objective and impartial in the narrower sense, and impartial in the broader sense only where this does not conflict with objectivity.

It is said, however, that the freedom of scientific research, which we mentioned above in connection with scientific objectivity and impartiality, is an illusion. A scientist inevitably has to be subjective and biased. Therefore, it is not personal integrity in the above sense that should be required in scientific research, but rather submission to the most progressive direction, with progressiveness being determined by practical criteria, i.e. political and economic ones. Scientific objectivity is an illusion, they say, as all researchers are a product of the social conditions in which their personality was formed, and the point of view determined by those conditions determines their views. The supposed elevation or overcoming of this point of view only leads to its replacement by another, which is again biased and limited, just like the previous one. These inherently limited points of view, and not objective arguments, determine scientific views, like all others. There is also no such thing as impartiality, because every person is entangled in the sphere of interests of a social group and acts in the interests of that group in their scientific work, as in any other work. If someone opposes the social group in which they grew up, he becomes a defender of the interests of another group, since it is impossible to escape the circle of conflicting interests and the struggle between them.

The above reasoning is evidently related to the argument aimed at demonstrating the relativity of all knowledge, since each piece of knowledge is conditioned by the circumstances in which it arises. However, its further assumptions lead to the overcoming of this relativism in favour of a worldview considered to be the expression of the highest form of evolution, free from the one-sidedness of previous studies.

Let us take a closer look at the summarized argument, distinguishing between the terms objectivity and impartiality, as we previously did. Undoubtedly, the premise that individuals embracing certain scientific views are intellectually dependent on the historical and cultural conditions of the environment in which they live is correct; it is also correct to assume that every scientific position can be genetically explained by tracing its origins to the environmental conditions in which it emerged. But this inevitable genetic dependence does not yet constitute a lack of objectivity. A researcher would only cease to be objective if he were to rest on these acquired beliefs without questioning their veracity. For it is not a matter of where beliefs come from, but whether they are true. A researcher is objective if, in the course of his research, he takes into account, not only his own beliefs, but also all existing beliefs on a given subject (this is referred to as taking into account the state of research), and if

he is able to evaluate them all, including his own (without assuming in advance their superiority over others), properly evaluate them from the point of view of scientific correctness in order to choose the one that is most justified, even if it means rejecting one's own original position. This is what is required of a conscientious researcher; those who are unable to do so are not practising science, but only propagating their own position. Shortly put, every claim or position is subjective in the sense that it belongs to someone and was formed under their life circumstances, but such subjectivity is not the opposite of scientific objectivity, which consists in justifying one's claims in accordance with the requirements of the scientific method.

As with objectivity, the same applies to impartiality. When any scientific claim is considered from the point of view of a particular social position that is in conflict with another social position, it may be used to support that position, but it may also be used to oppose it; however, anyone who, on this basis, claims that the person making the claim is biased – in the first case in favour of a given position, in the second case against it – would understand partiality and impartiality differently from what we have previously established. Namely, we have distinguished between impartiality in a narrower and broader sense, the impartiality of an arbitrator and the impartiality of an observer. A researcher who publishes the results of his scientific work remains an impartial observer, even if these results can be used to support a certain controversial position, as long as the researcher adheres strictly to a scientific stance and does not use his findings to draw practical conclusions that are the subject of the dispute. Responsibility for these consequences rests solely with the person who draws them. The researcher remains an impartial arbiter even when, based on his findings, he enters into a dispute, but in doing so he does not go beyond the limits of his scientific competence.

This understanding of impartiality is linked to the postulate of scientific autonomy and defends against the subordination of science to political considerations and all other considerations, its right to be guided solely by the directives of logic and scientific methodology. This right stems from the assumption that what is true is also right. Righteous political and other pursuits in life do not need to restrict science in its pursuit of truth by appropriate means, because they do not need to fear the truth; on the contrary, the imposition of restrictions on science by those in power suggests that these forces do not have the truth on their side and do not pursue righteous goals.

The claim that science is not objective and impartial cannot therefore be upheld with the understanding of objectivity and impartiality as adopted above. However, there are other aspects to it. One of these insinuates that researchers who proclaim certain views have intentions that are directly contrary to scientific objectivity. For such an accusation to be justified, it would have to be based on a thorough analysis of the criticized author's arguments and on demonstrating that these arguments do not meet the conditions of scientific integrity. If no such analysis exists, it must be considered unacceptable.

Finally, we must consider the formulation expressed in the form of a slogan or methodological postulate about the partisanship of science. The postulate of partisanship is certainly different from the postulate of truth, which we assumed at the beginning of these considerations, and may or may not be consistent with it. It is consistent when the postulate of partisanship requires us to side with a view that meets the requirements of scientific criticism and as long as it meets them: in this case, partisanship is synonymous with the impartiality of an arbitrator. If, on the other hand, the principle of partisanship is applied unconditionally and on credit, as it were, to views that are insufficiently justified (whereby it is necessary to demand not a general justification for the worldview as a whole, but a detailed justification for each component of the whole separately), then it is nothing more than a weapon of militant dogmatism.