

# *Philipp Frank on relativity in science and morality*

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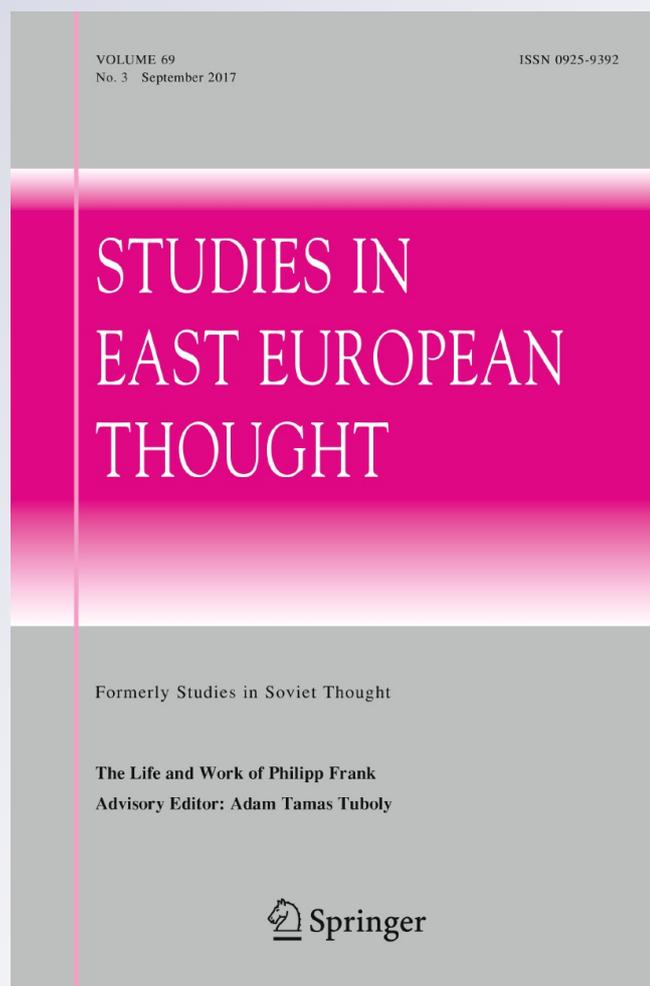
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# Philipp Frank on relativity in science and morality

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**Abstract** As Einstein’s successor in Prague and the author of a biography on Einstein, the physicist and philosopher Philipp Frank made relativity a central aspect of his thoughts on morality. He published his views on this topic mainly in the year 1950 in a small book entitled *Relativity—A Richer Truth*. As far as morality as a part of social and political life is concerned, Frank’s primary interest is to show that as in science, relativity in morality does not preclude objectivity. The paper deals with the question of which conceptions of relativity and relativism Frank refers to in the context of modern science and examines the implications for objectivity and absolute values in morality.

**Keywords** Philipp Frank · Vienna Circle · Relativity · Science · Morality

## Introduction

The physicist Philipp Frank became interested in philosophical and political questions very early in his career (see e.g. Frank 1917). He was a member of the first Vienna Circle, as it is known today (Haller 1991), and, around 1907, began to meet with Otto Neurath and Hans Hahn, among others, to discuss fundamental questions in mathematics, science, philosophy, politics, history, and religion (Frank 1949: 1; Holton 2006: 297). This wide area of interest is reflected in a general feature of Frank’s philosophy of science. Elisabeth Nemeth, Thomas Uebel and others have made clear that Frank held a strong belief that science and philosophy of science could make major contributions to building more democratic and liberal societies

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(e.g. Uebel 1998; Nemeth 2003). In Frank's view, science and philosophy of science have to play a social and political role, and accordingly, a moral one. Nemeth points out that Frank was not only the first to stress this cultural side of the philosophy of science, but that Frank was the last member of the Circle after Edgar Zilsel's and Neurath's deaths to promote this view of Logical Empiricism. He wanted to lay out the social, political, and cultural effects of modern science and philosophy of science.<sup>1</sup> He regarded modern science as part of an enlightened culture and thought of himself as a public intellectual (Nemeth 2010: 220–221) who does not retire to the ivory tower, but is concerned about and engaged in public debates. Frank himself lets us know that he understands philosophy of science itself as a discipline which has to study science not only from the perspective of logic, but also psychology and sociology (Frank 1950: 86; see also Reisch 2005: 229–233).<sup>2</sup>

As Einstein's successor in Prague and the author of a biography on Einstein (Frank 1947), Frank made relativity a central aspect of his thoughts on morality (he often uses the term "ethics" as a synonym). He published his views on this topic mainly in the year 1950 in a small book entitled *Relativity—A Richer Truth*. As far as morality as a part of social and political life is concerned, Frank's primary interest is to show that as in science, relativity in morality does not preclude objectivity. This is one of the main theses in *Relativity—A Richer Truth*, and the one which I will discuss in this paper.

In the first section, I will provide information about the historical context of Frank's publication. The second section will deal with the question of which conceptions of relativity and relativism Frank refers to in the context of modern science. The third section will examine the implications for objectivity and absolute values in morality. A short section on meaningful moral systems and morality as practice will round off the paper.

## Conference on science, philosophy and religion: decline of values and democracy

*Relativity—A Richer Truth* with a foreword by Einstein was the result of debates at the *Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life (CSPR)*, which took place in New York every year between 1940 and 1951. Frank was a regular participant in these conferences, while Morris, Hempel und Carnap participated only briefly (Reisch 2005: 219). Though dedicated to science, philosophy, and religion, the conference was mainly

<sup>1</sup> Frank holds that the humanities are important in this respect, too. They should study "the values which are intrinsic in science itself. [...] [I]nterest in humanities is the natural result of a thorough interest in science" (Frank 1949: 261, emphasis in original).

<sup>2</sup> Frank was a more pragmatic and empirical scientific philosopher than other members of the Vienna Circle who had emigrated to the United States. He disliked their forays into formalism and new scholasticism, as he let Neurath know in a letter: "Speaking about this movement [logical empiricism], I am afraid to say that it has led into a certain impasse. This impasse comes from the lack of any real cooperation. Some people get more and more into pure logical formalism which means almost into a new scholasticism". (Frank to Neurath, 10th December 1943, Otto Neurath Papers, Rijksarchief in Noord-Holland, Haarlem, The Netherlands, Inv.-No. 237) Neurath shared this opinion.

a forum for churchmen, theologians, educators, social workers, historians, and philosophers (for the participants see e.g. Frank 1950: xiv). Frank himself remarks that he was one of the few scientists who participated in these meetings (Frank 1950: xiv). Nevertheless, Frank valued the opportunity for the kinds of debates which the conferences opened up. He regarded it as a great personal benefit “to be brought into such close personal and intellectual contact with those representatives of groups who consider science *a means towards* shaping a desirable way of human life” (Frank 1950: xiv). Frank and other members of the Vienna Circle shared this view of science as a means to a valuable way of living. One principle of the moral position of scientific humanism many members adhered to is the conviction that science is one of the most valuable instruments for the improvement of human living conditions and life (Carnap 1963: 83; see also Siegetslleitner 2014: 138–139).

In general, the conferences served a political purpose. The aim was “to establish a common understanding of democratic principles that would help to overcome the high pressure propaganda of totalitarian values” (Frank 1950: xiii). The destruction of the belief in objective values was regarded as a central threat to democracy. Moreover, modern science with its purported relativism was thought to undermine precisely such a belief (Frank 1950: 3–4). Frank considered this belief to be deeply flawed and therefore wanted to counteract this way of analyzing the political and cultural situation. In *Relativity—A Richer Truth*, he tries to show that the accusations against scientific relativism were not justified because “*it is in no way hostile to the belief in ethical or democratic values*” (Frank 1950: xv, emphasis in original)—objective values, that is.

## Relativity in science

First, allow me to address the question of relativity in science. Frank makes clear that modern science is misunderstood when it is claimed to be responsible for a kind of relativism, which in turn leads to agnosticism or skepticism (Frank 1950: xv). His position on relativism in science is not epistemological. In its most basic form, relativism in science only means to relativize a scientific statement by qualifying (i.e. clarifying or completing) either the statement itself or the concepts used in it, as we will see in the next paragraph. Doing so in no way undermines the claim to objectivity. Although Frank does not explicitly state anywhere what he means by “objectivity”, and it is an area of big philosophical controversy, we can take it as an epistemological claim about a statement, namely the claim that the truth value of such a statement does not depend on characteristics of the epistemic subject (the one who knows).

Frank himself explains his point with the famous example of the terms “above” and “below”. After the discovery of the antipodes, the meaning of these terms had to be complemented by further qualifications in order to avoid superficial disagreements. Finally, this qualification became “relative to the gravity at a specifically described place” (Frank 1950: 9). Through this relativization, Frank stresses, no subjective whim was introduced to statements of location (Frank 1950:

9); rather, without such qualifications, sentences using the terms “above” or “below” will simply be incomplete and unclear (Frank 1950: 11).

We are faced by the same situation as if we would be asked to decide whether the statement ‘this table is gr...’ is true, in which ‘gr...’ may mean ‘green’ or ‘greasy’ or ‘great’. If I refuse to pass a definite judgment about the correctness of such a statement I do not evade the decision but I ask for a clarification or completion of the statement itself. When the statement is completed, [...], I shall give the very definite answer [...]. (Frank 1950: 9–10.)

This kind of relativism “means the introduction of a richer language which allows us to meet adequately the requirements of an enriched experience” (Frank 1950: 18). In the same way, Einstein’s Theory of Relativity only introduced a richer language (Frank 1950: 16–18).

What kind of relativism is Frank referring to in this context? Is it the idea of relativism as a hidden parameter, as Maria Baghramian and Adam Carter characterize this understanding of relativism? Their outline of relativism as a hidden parameter starts with this general formulation: “What [...] binds various forms of relativism is an underlying idea that claims to truth, knowledge or justification have an implicit, maybe even unnoticed, relationship to a parameter or domain” (Baghramian and Carter 2016). At first glance, it might seem as if Frank’s examples use this idea of relativism. To give a full qualification of “above” or “below,” we have to add some parameter to this predicate, namely “relative to the gravity at a specifically described place” which is hidden as long as we do not mention it. This does not threaten objectivity in Frank’s sense. The truth of a sentence containing “above” is only relative insofar as the truth value of the sentence cannot be determined as long as the necessary qualifications are lacking. When the definition of relativism as a hidden parameter refers to a claim to truth, however, something else is involved. Formulated in linguistic terms, the claim is

that predicates such as ‘is true’ [...] etc. in a natural language have the apparent logical form of one-place predicates, but their surface grammatical form is misleading, because upon further investigation they prove to be elliptical for two-place predicates such as ‘is true relative to...’ [...]. Relativism, according to this approach, is the claim that a statement of the form ‘ $A$  is  $P$ ’ within a given domain (e.g., science, ethics, metaphysics, etc.) is elliptical for the statement ‘ $A$  is  $P$  in relation to  $C$ ’, where  $A$  stands for an assertion, belief, judgment or action,  $P$  stands for a predicate such as ‘true’, ‘beautiful’, ‘right’, ‘rational’, ‘logical’, ‘known’ etc., and  $C$  stands for a specific culture, epistemic framework, language, belief-system, etc. (Baghramian and Carter 2016)

But what is relativized (i.e. qualified) in Frank’s example is not an epistemic predicate like the ones mentioned in the definition of relativism as a hidden parameter but predicates of physical theory, like “above” or “below”. It is descriptions of the world which are relativized and made more accurate, as Frank would say, not epistemological claims about these descriptions. If we were to use a truth operator, the relativization would occur within its scope.

What science can teach us with regard to the use of “above” etc. or in the more sophisticated case of Einstein’s Theory of Relativity is certainly that in order to have a sentence with a definite meaning, the necessary qualifications have to be added. Ultimately, in Frank’s holistic view of meaning, a sentence is only meaningful when it is part of a meaningful system, which also provides methods and special conditions of application. These conditions and qualifications may vary between scientific fields and areas of life, as this passage shows: “According to the Logical Empiricists ‘meaningfulness’ is a property of a system of statements or principles. We may also say that the ‘meaningfulness’ is a property of a doctrine. An isolated word or even an isolated statement has meaning only indirectly. We call it ‘meaningful’ if it is fit to be a part of a meaningful system or doctrine” (Frank 1950: 31). Moreover, Frank thinks that this formulation is particularly important for judging the meaning of words and statements used in fields like ethics, politics or religion (Frank 1950: 31). A good practice of science and a good philosophy of science encourage asking for these clarifications before agreeing or disagreeing with an appeal to truth, rationality, logic, and the like. People should be ready to ask: “What exactly does it mean?”

Nevertheless, in Frank’s opinion—with which I agree—this is not so much a problem for democracies but rather for totalitarian systems. Frank even endorses the view that it is precisely this kind of relativism which counteracts totalitarianism and strengthens democracy by encouraging people to be critical of grandiose slogans. At the same time, Frank is aware that science will only fulfill this enlightening function through a concurrent training in critical thinking and a good philosophy of science. As far as the variation of conditions and qualifications in scientific fields and further areas of life are concerned, a central passage is the following:

If a student’s mind keeps strictly within the department of science and his language sticks strictly to the vernacular of his field, he will be an easy victim of dangerous slogans arising from other fields. You may easily tell a specialist in physics or chemistry: The expert in psychology has proved that mankind needs a certain form of government or church for his happiness. You can tell him that the experts in economics have proved that there must be starving people in order to keep the economic wheels running. You can tell an expert in a special science that the specialists in ethics have proved that everyone has to obey a certain type of authority, whatever crime this authority may order.

However, if a student understands what it means in his own field that a statement is ‘proved,’ he will easily learn to distinguish in general what can be and what cannot be proved. He will judge justly the claimed rights of self-appointed leaders to give orders. He will be critical when he hears that these orders are proved by well-established doctrines, like those of ethics or economics or theology. (Frank 1950: 101.)

Although the predicate “to prove” has to be specified and understood on an operational level in this example, it is no qualification that opens a door to skepticism or subjectivity. It was this kind of teaching and research that Frank as the founder and leader of the *Institute for the Unity of Science* aimed at promoting.

George Reisch points out that Frank wanted “to make students better citizens who are able to exercise democratic freedoms, to evaluate critically their leaders, policy, and the claims they make [...]” (Reisch 2005: 226). Modern science does mean relativism as qualification and clarification, but relativism in this sense does not mean epistemic subjectivity or skepticism in science. This is one of Frank’s main theses in *Relativity—A Richer Truth*, a convincing one.

## Relativity in morality, objectivity and absolute values

Is it possible to apply these conclusions to morality, too? In the last section, the passage I quoted from Reisch continues as follows: “... and to avoid being manipulated by unscientific appeals to ‘absolute’ values” (Reisch 2005: 226). “Absolutism” is Frank’s primary target or at least concern in morality, which will be discussed in the following.

One may apply the understanding of relativization involved in modern science to morality, as well, as Frank himself suggested. In fact, in his opinion, it is one of the most important lessons science can teach society. It is not only in the natural sciences but also in morality that concepts must be supplemented and clarified when they are used in a context of complex experience. In the world of a small child, it might suffice to understand “John is wicked” as “John is not obedient to his parents”. “Wicked”, by the way, is a term with many meanings, ranging from “disobedient” to “evil”, a fact which makes this sentence a difficult example. Nevertheless, I will follow Frank’s explanations. In the understanding of a school child, according to Frank, additional information is necessary in order for the statement to remain unambiguous. The language broadens to “John is wicked in relation to his parents”, “John is wicked in relation to his teachers” or “John is wicked in relation to his fellow pupils”. In the meaning of the statement “John is wicked in relation to a certain authority”, the term “wicked” is unambiguous. This kind of relativity does not, Frank asserts, make room for subjective or skeptical interpretations (Frank 1950: 13). Rather, it asks for clarification, in science as in morality.

When someone is confronted with several different and complex systems of authority—in the eyes of many people morality is one of these—many more qualifications and clarifications are needed. Within Frank’s understanding of meaning, if, for example, a claim to God’s will is involved, the statement “John is wicked” must furthermore contain the methods by which God’s will can be legitimately interpreted. Similarly, if the voice of someone’s conscience is taken as the supreme authority, it must contain the way to test the voice of this conscience. Frank emphasizes: “The language becomes now highly ‘relativized.’ A statement of the simple type ‘John is wicked’ no longer has a clear and definite meaning” (Frank 1950: 14). In a complex moral world, “is wicked” will not do in order to keep the language clear and unambiguous. If language is not clarified, problems will arise when we want a statement to give practical guidance.

In the following, I will examine in more detail what this means for relativity and objectivity in morality. Frank presupposes that “wicked” is relative to an authority,

which is certainly true when it is taken to mean “disobedient”. When we understand “wicked” as “disobedient”, we may easily recognize that it is short for a two-place predicate, namely “is disobedient to ...”. We understand that we have to fill the second place of this term in our characterization of John. Following this interpretation, we are concerned with the already familiar kind of relativity known as clarification in description. Clarification in description does not per se imperil objectivity.

How does our analysis change when we take “wicked” as a term better understood as “evil”? In this case, we inquire after the standard used in relation to the statement, for example, “evil in the light of which standard?” If the answer is “morality”—or, more specifically, “God’s will” or “scientific humanism”—then “wicked” is relativized to a moral standard in reference to God’s will or scientific humanism. Does this kind of moral relativism rule out objectivity? If we use “evil” as an evaluative term, morality is indeed relativized to a certain standard. If the standard is held by a certain group, it is also relativized to a certain group—for example, a cultural or religious group. Here, relativization adds the moral standards of said group, the relevant moral system, so to speak. We can call this kind of relativism “standard relativism”. Standard relativism does not imperil objectivity relative to shared standards, but objectivity in this case does not encompass criteria for the right standards. Although Frank does not endorse moral skepticism, standard relativism allows for the perspective that fundamental moral principles are unknowable.

Frank refers to another kind of “relativism” involving relativization as concretization, which will be important in regard to his criticism of absolute values. If someone thinks, Frank states, that clarification is to be avoided in the formulation of principles, the qualifications become indispensable in the interpretation. Therefore, the “relativism” one tried to be rid of here, comes back there (Frank 1950: 15). When we talk about values, Frank asks us to consider different meanings of “value”. In one sense of “value”, concrete institutions and ways of life are at stake; hence, values are a very concrete matter. They are accepted on the basis of “a general atmosphere of happiness, which for that large group of people is connected with those ‘values’” (Frank 1950: 40). People associate direct experiences of wellbeing with these concrete values. These experiences are valuable, because they make a positive difference in relation to wellbeing. Someone may doubt this but the important point is that these values operate on a very concrete practical level. This is not the case with the second meaning of “value”, which refers to general principles like “freedom” or “democracy”. Although both kinds of “values” belong to the category of preferences, we are confronted with a practical problem in the case of the second category of values, namely that it is not clear how specific decisions could be deduced from such general “values” (Frank 1950: 41). This is unclear not because these values are general, but because they are abstract and have to be made more concrete. Relativization here means concretization. Through the use of grandiose words like “freedom” or “democracy”, tyranny and cruelty might be defended. Today, we can see this in the “war on terror”. In this context, it is especially crucial that the people who use these terms are asked: “What is the meaning of these beautiful sounds?” Frank insists that we

should demand to talk sense. By doing so, we want “to know what these sentences containing these words imply in terms of human action, of human behavior and—frequently—in terms of human suffering.” (Frank 1950: 33). Frank is convinced that an audience educated in the “experimental” or “pragmatic” theory of meaning “will not easily become a victim of vicious propaganda” (Frank 1950: 33). In contrast, “idealistic” theories of meaning very often lead to a “worship of words and slogans that has little regard for the human misery it creates” (Frank 1950: 34).

Frank is convinced that every single step towards more liberalism in society, politics, and religion is connected to the advance of semantics insofar as traditional slogans are scrutinized concerning their effect on human behavior, human happiness and human suffering. Words are increasingly interpreted in a pragmatic or operationalist conception of meaning (Frank 1950: 35–36).

Frank tries to show this close connection of the pragmatic theory of meaning and liberalism by using the example of religious language (perhaps in order to address the many theologians in the audience at the conference). If the commandments of Christianity are not given an operational meaning, they will be accepted by the worst criminals, too: “Then the creeds were deprived of any influence upon human behavior and could not harm anybody, not even the ‘Devil’” (Frank 1950: 37). General principles can only be used as meaningful principles of human behavior if they are interpreted on a practical level. Without doing so, no conclusion “can be drawn which would be pertinent to an actual life situation” (Frank 1950: 43). Only further abstract principles would be derived, and one would never address an actual human problem.

Frank takes the general rule “you must not kill” and the definition of “killing” as an example. A person who believes in the absolute obligation to follow this rule will soon realize that she needs further qualifications as concretization in order to know how to react in a specific situation. Is killing in self-defense “killing”? Is the bombing of an enemy city “killing”? Is the killing of a tyrant “killing”? “Under which conditions is a tyrant enough of a tyrant to make the job of ‘liquidating’ him different from ‘killing’ him?” Frank (1950: 44) asks. Even someone who starts with an abstract formulation must finally come up with an operational definition of “killing” if she wants to make a specific practical decision. Frank concludes that for practical purposes, the attitude of an ethical “absolutist” does not differ from that of an “ethical relativist” (Frank 1950: 44). What someone tries to avoid via the formulation of an “absolute” rule once again slips back in during the necessary interpretations (Frank 1950: 44, 97). Therefore, relativity as concretization does not endanger objectivity but makes it easier. Moreover, this kind of relativity does not endorse skepticism.

Referring to Einstein’s theory Frank thus holds: “The most ardent advocates of ‘absolute truth’ avail themselves of the doctrine of the ‘relativists’ whenever they have to face a real human issue. They are in the situation of the physicist who has to avail himself practically of the Theory of Relativity, no matter what his philosophical creed and however much he may dislike the language of Einstein’s system” (Frank 1950: 46).

The choice between “absolute” and “relative” goals or values is, in Frank’s view, a choice between languages. You may either retain the “absolutist’s”

language in principle and shift the “relativized” language into the “operational definition”, or you “relativize” the very formulation of the principle (Frank 1950: 47). On the practical level, it is impossible to circumvent relativization for specification and concretization.

What does this mean for Frank’s stance towards “absolutism” in morality or politics? It is unproblematic to regard general principles as absolute as long as an operational definition of the contained abstract terms can be provided. Therefore, not all kinds of absolutism are bad in Frank’s analysis. Without such concretization, however, absolutism might present dangers in practice. Frank warns that the belief in the “absolute truth” of general principles may imperil a person’s goals or convictions: “If we believed in a statement containing the word ‘freedom’ as though the word were an ‘absolute truth’ with no operational definition, we could join the fight on the side of a party we actually dislike.” (Frank 1950: 49). Principles might become a mere banner, then. Totalitarian authorities like the Nazi regime use this misconceived appeal to absolutism in order to preserve the integrity of the banner while arbitrarily changing the content of the practical objectives in order to gather the troops and supplies for war. That its use of the distinction of “Aryans” and “Non-Aryans” was inconsistent did not matter at all (Frank 1950: 113; see also Uebel 2003: 103–106).

Frank’s pragmatic account of morality does not rule out all kinds of absolutism. However, Frank is concerned about absolutism in the form of the claim that abstract moral principles will never have to be relativized and are meaningful without operational definitions. When relativized, objectivity is not necessarily threatened.

## Meaningful moral systems and morality as practice

For Frank, meaningful moral systems are possible—what is important is the practical interpretation of such a system. People do not have to agree on abstract principles in order to agree on practical goals. However, if there is no agreement on this level, a joint practice is impossible (Frank 1950: 92).

There must be a group of men who know what actual way of life they want established on earth. And this way of life must be described by operational definitions – that is, in terms of observable conditions. Then one can attempt to set up a system of formulated principles from which to derive this description of a way of life. (Frank 1950: 95.)

This has been the very method of all successful moral systems. The Bible is a good example, as it provides many “detailed prescriptions on how to behave under certain circumstances” (Frank 1950: 95). Even the Ten Commandments were originally descriptions of human behavior under ordinary conditions of daily life. They simply condemned the behavior of a citizen who robs his neighbor or ravishes his neighbor’s wife. The Commandments were never meant as principles of a deductive system. Therefore, it is pointless “to draw conclusions by a sophisticated scrutiny” (Frank 1950: 96).

The practical level is even of prime importance in regard to the development of moral theory: “If we can set up a coherent system of such principles, we certainly shall contribute to the enjoyment of logically minded people and to an easier acceptance of these principles” (Frank 1950: 93). Nonetheless, the importance of rigorous ethical or moral principles must not be exaggerated. In this regard, Frank holds the same opinion as Karl Menger, who also does not want to discuss abstract principles (Menger 1994).

Frank summarizes his arguments about a relativized morality as follows: “Every ethical system consists of the principles and the operational definitions of the terms. [...] Only if the principle is accompanied by operational definitions does it specify a definite way of life” (Frank 1950: 97). An agreement about a desirable way of life leads to the formulation of general principles, not the other way round. “The starting point in ethics is an agreement within a group of people about the desirability of a certain way of life that can be described in everyday language” (Frank 1950: 99). If this group is the whole of mankind, Frank presupposes, “the factual content of the agreement will become small. We always have a choice between a slight agreement in a large group and a large domain of agreement in a small group” (Frank 1950: 99). Principles are never ends in themselves. Therefore, it is necessary to check again and again whether the conclusions drawn from the principles are still desirable to these people (Frank 1950: 100). If we do not do so, we may head towards tyranny: “The well-being of men would be sacrificed to the pet slogans of some political system” (Frank 1950: 100).

Nevertheless, Frank presupposes substantive criteria for morality. In his view, morality is about the consequences for the happiness and suffering of human beings. He even agrees with Ralph Barton Perry in stating that a principle which brings unnecessary suffering to humanity must be false, and its falsity may be recognized through the suffering it causes (Frank 1950: 121). In relation to the aim of human morality, such a principle is wrong.

## Closing remarks

Frank was convinced that science did not imperil morality:

We notice from all these considerations that very frequently the leading ideas of contemporary science have been misunderstood and misinterpreted in their application to ethical and religious problems – briefly, to problems of human behavior. Today the prestige of science is so great that no position in any domain of thought seems to be tenable that is in disagreement with its teachings. It would be a sad fact, indeed, if the principles of contemporary science, like the ‘relativity of truth’ or the ‘pragmatic conception of meaning,’ should really have a detrimental effect upon the behavior of men. (Frank 1950: 51.)

In his view, modern science is pragmatic but not relativistic in the sense of subjectivism or skepticism. Relativization in the sense of qualification and concretization does not imperil objectivism in science. When it comes to morality,

relativization as qualification and concretization is similarly unproblematic and even helpful in many cases. Teaching this lesson, philosophy of science “could and should intervene for general intellectual benefit in popular debates more often than it does” (Uebel 2003: 106). However, relativization in morality may also mean a relativism of standards, and where there is no agreement on shared standards, the door is left open for subjectivism and skepticism. In light of this, we have to admit that modern science is not responsible for moral subjectivism and skepticism, but it is no protection against it, either.

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