

THE WORLD

ical and cultural domains. The indicators is object domains, namely, participation in :em, and a position in the time order (171). we call real-typical; for all other estion whether they are real or not (172). ical as drawn by ordinary linguistic usage wavering course (173, 174).

Problem of Reality (175-178)

I reality, usually formulated as It is this concept which is meant by affirm or deny the reality of the outside of reality "metaphysical" since it cannot be concepts; the same holds for the 176). Any question which is answered by idealism, and phenomenalism is arngences between the three schools occur only he constructable, that is, the domain of concerned with epistemology, but with of the empirical sciences is "realistic" :aphysical sense. For the empirical sciences, it is to be replaced by an of Science (179-183)

n finding and ordering the true of the constructional second, through the ascertainment these concepts (179). In science, there in principle. For, each question consists in truth or falsity is to be ascertained. However, be translated into a statement about the basic :tit can in principle be verified through con. Faith and intuition in the nonrational (e.g., to do with the distinction between true and domain of theory and cognition (181). If, like

- s, we mean by metaphysics not the doctrine
- the highest, scientific insights (i.e., "basic a domain of pure intuition, then metaphysics the rational domain; between the two there r contradiction (182). The indicated position
- , it demands rationality only for science. For d importance of the remaining,

Pseudoproblems in Philosophy
THE HETEROPSYCHOLOGICAL AND THE
REALISM CONTROVERSY

I. THE AIM OF EPISTEMOLOGY

A

THE MEANING OF EPISTEMOLOGICAL ANALYSIS

1. The Problem

The aim of epistemology is the formulation of a method for the justification of cognitions.¹ Epistemology must specify how an ostensible piece of knowledge can be justified, that is, how it can be shown that it is authentic knowledge. Such a justification, however, is not absolute but relative; the content of a certain cognition is justified by relating it to the contents of other cognitions which are presumed to be valid. Hence, one content is "reduced" to another, or "epistemologically analyzed". Logic, too, teaches the derivation of the validity of certain propositions² (expressed by sentences) from the presupposed validity of others ("inference"). The difference is that logical derivation takes place through reorganization of concepts; in the derived proposition no new concept may occur. On the other hand, it is characteristic of an epistemological derivation that the cognition to be analyzed, that is, the sentence that is to be justified and derived, contains a concept which does not occur in the premises.³ In order to analyze the contents of cognitions, epistemology must in-

1 Erkenntnisse

2 Setzungen

3 Voraussetzungen

investigate the objects (concepts) of (empirical) science in its various subdivisions (natural and cultural sciences). It must ascertain to which other objects the cognition of any given object may be "reduced". Hence, "an analysis" of objects is undertaken where the "higher" objects are reduced to "lower" ones. Those objects which can not to be reduced are called "(epistemologically) fundamental" objects.

But what is actually meant by this epistemological analysis? Does it mean to say that object *a* "is (epistemologically) reducible" to object *b*? Only when this question is answered is the task of epistemology clearly formulated and only then is it clear what is to be meant by "fundamental" objects.

It has frequently been emphasized that the epistemological quest for the justification or reduction of a cognition to others must be differentiated from the psychological question concerning the origin of a cognition. But this is only a negative determination. For those who are not satisfied with the expressions "given", "reducible", "fundamental" those who want to eschew using these concepts in their philosophy, the aim of epistemology has not been formulated at all. In the following investigations we propose to give a precise formulation of this aim. It will turn out that we can formulate the purpose of epistemological analysis without having to use these expressions of traditional philosophy. We only have to go back to the concept of implication (as it is expressed in if-then-sentences). This is a fundamental concept of logic which cannot be criticized or even avoided by anyone: it is indispensable in any philosophy, nay, in any branch of science.

In the course of the development of a science it frequently happens that answers, indeed correct answers, to a question are found even before that question has been given a precise conceptual formulation. What happens in these cases is that a certain trend of concept formation is intuitively projected and maintained, but there is no recognition what the thus formed concepts actually mean. When finally a conceptual formulation for the intuitively posed question is found, the previously found answers are released from their state of suspension and are placed on the solid foundation of the scientific system.

EXAMPLE. The inventors of the infinitesimal calculus (Leibniz and Newton) were able to answer questions concerning the derivative (the differential quotient) of common mathematical functions; for example, the derivative of the function x^3 is the function $3x^2$. However, they could not say to what question this expression is an answer, that is, what actually is to be understood by the "derivative" of a function. They could

indicate various applications (for example the direction of the tangent) but they could not give a precise definition of the concept "derivative". To be sure, they believed that they knew what they meant by this expression, but they only had an intuitive notion, not a conceptual definition. They thought that they had a definition which allowed them to have a conceptual understanding of "derivative". However, their formulations for this definition used such expressions as "infinitesimally small magnitude" and quotients of such, which, upon more precise analysis, turn out to be pseudo concepts (empty words). It took more than a century before an unobjectionable definition of the general concept of a limit and thus of a derivative was given. Only then all those mathematical results which had long since been used in mathematics were given their actual meaning.

In epistemological analysis the situation is very similar. Science has long been in the possession of a great number of results of epistemological analysis. She had the answers without being in the possession of the questions, that is to say, without being able to indicate the precise sense of these answers. Such already known answers are, for example, that the cognition of processes of consciousness of another person is "based upon" the perception of his motions and linguistic utterances; that the cognition of a physical object "goes back" to perceptions; that a given experience "consists of" the visual perception of a bell, the auditory perception of a sound and an emotional component;⁴ the perception of a given sound "consists of" individual perceptions of such and such tones. One may be inclined to call the last two examples pieces of "psychological" analysis rather than epistemological analysis. It is indeed the case that analyses of this kind are a fundamental part of psychological procedure. For it is only through this procedure of concept formation that psychology determines its objects. However, we shall see later that this procedure is nothing but the epistemological analysis with whose meaning we are here concerned.

In science (and to some extent even in daily life) we are in the possession of the answers which are indicated in the above examples; but the actual meaning of these answers we do not know. It would be an error to interpret the "consists of . . ." as "is synthesized of . . . in the course of experience". Psychology, in this case especially Gestalt psychology, tells us that the total perception is experienced before the individual sensation out of which it is "synthesized". We become conscious of the latter only through a subsequent process of abstraction. Similar considerations hold for the other examples.

⁴ Gefühlskomplex

Now it becomes apparent how important it is to give a clear formulation of the meaning of epistemological analysis. Initially, such a formulation will not produce an increase in knowledge, but only increased purity of knowledge: the results of already performed epistemological analyses can be clearly formulated. Moreover it will be seen that epistemological analysis, after a more precise definition of the concepts has been given, will become applicable in cases where the former, predominantly intuitive procedure did not succeed, though the failure of the intuitive procedure was not inevitable in these cases; perhaps there was only a lack of courage to see it through. If we use epistemological analysis in a conscious and clearly conceptualized way, we shall be able to reduce objects (contents of cognitions, concepts) to one another to a sufficiently large extent so that the possibility of a general reductional system ("constructional system") can be demonstrated: it is in principle possible to place all concepts of all the areas of science into this system, that is to say, they are reducible to one another and ultimately to a few basic concepts. (The proof for this thesis of a constructional system can only be indicated in this paper, § 6).

2. *Logical Analysis*

a. SUFFICIENT AND DISPENSABLE CONSTITUENT

Epistemological analysis is an analysis of the contents of experiences, more precisely the analysis of the theoretical content of experiences are concerned only with the theoretical content of the experience. We are concerned only with the theoretical content of the experience, that is, with the possible knowledge that is contained in the experience. (The analysis is not an actual division: the experience remains what it is: the analysis takes place in the course of a subsequent consideration of the already past and hence no longer alterable experience; hence only an "abstractive", conceptual analysis.)

In the following we shall try to describe briefly a method which lead to results that are generally acknowledged to belong to epistemology (like the examples mentioned earlier). This method of analysis is which is meant (or which ought to be meant), if one speaks of "epistemological analysis".

The first step in our procedure consists in the "logical division" of the theoretical content of an experience into two parts: one of the call the "(epistemologically) *sufficient constituent*", the remainder call (relative to that first constituent) the "(epistemologically) *dispens-*

able constituent". Let us consider an example. I touch a certain key which I have often seen; I recognize it by touching it, even though I do not see it at the moment. In touching the key I experience not only the representation⁵ of the tactile shape of the key, but simultaneously (and not just subsequently by way of inference) the representation of its visual shape, even if I keep my eyes closed. I can make an "epistemic evaluation" of any experience I have had by stating to what extent this experience has added to my (theoretical) knowledge. This addition consists not only of the theoretical content of the experience itself, but also of whatever I can infer from this content with the aid of my earlier knowledge. The epistemic evaluation of the indicated experience with the key has the following result: "this thing has such and such a shape; this thing is the key to my house; this thing has the color of steel.." The experience contains united in it the representation of a tactile shape and that of a visual shape, but when the experience is evaluated, I can actually discount the second constituent, namely the visual shape, since the first constituent already suffices, together with my previous knowledge, to let me conclude that it is a key, indeed the familiar key to my house. Hence I am in a position to infer its visual shape, its color, etc. Hence in the epistemic evaluation I do not have to draw this information out of the experience itself. For this reason we want to call the tactile shape a "sufficient constituent" of the experience, the visual shape (relative to the tactile shape) a "dispensable constituent". However, this constituent is dispensable only if we are concerned with adding to our knowledge, and it is only in this sense that the other constituent is sufficient. On the other hand, so far as the experience itself is concerned, the former constituent is not dispensable and the latter is not sufficient; for if the dispensable constituent were removed from the experience it would be an entirely different experience.

A simple consideration shows that this logical analysis is frequently ambiguous, that is, that one and the same experience can be analyzed in different ways. In our example one could very well forego the epistemic evaluation of the tactile shape. The epistemic evaluation of the visual shape would already suffice to draw out of the experience all that can be known. In this case it is particularly clear that the "dispensable" constituent can be given this name only in an epistemological sense: since the key has only been touched and not seen, we cannot, in this experience, dispense with the tactile shape without at the same time removing the experience itself; on the other hand we could dispense with the

⁵ Vorstellung

epistemic *evaluation* of this constituent without thereby diminishing the extent of our knowledge.

b. THE CRITERION: RATIONAL RECONSTRUCTION

We must now define a method which allows us to decide in any give case whether a certain constituent of an experience is sufficient, that is whether the rest of the experience is dispensable relative to it. For the facts are not always as simple as in the indicated example where we could easily see that a certain constituent is dispensable.

To say that a constituent *b* of an experience (e.g., the visual appearance of the key) is dispensable relative to constituent *a* (the tactile shape) is to say that *b* does not give me any information that is not already contained in *a* together with my prior knowledge. It is not necessary in such a case that I should be expressly conscious of the theoretic content of *b*; it is merely required that *a*, together with my prior knowledge, should logically contain *b*. If the theoretical content of *b* is logically contained in *a* and my prior knowledge, then it must be possible to derive it from them through inference. In our example, this derivation would look something like this: from the tactile shape (constituent *a*) together with my prior tactile perceptions I can infer that the touched object is the key to my house. And I know from prior visual perceptions that this key has a certain visual appearance: it has such and such shape and color, both relatively permanent. From this I infer that the touched object has this visual appearance (constituent *b*). This inference of constituent *b* from constituent *a* together with my prior knowledge we call "rational reconstruction" of *b*.

It is clear that our conception of "rational reconstruction" does not claim that in the actual experience the constituent *b* is inferred from *a*. There can be no question that both constituents are simply experienced as an intuitive unit: there is not a trace of inference in such an experience. We also prefer not to use the locution "unconscious inference". But even if in the experience itself generally no rational construction is present we can still afterwards carry out a rational reconstruction—an inferential procedure whose purpose it is to investigate whether or not there is a certain logical dependency between certain constituents of the experience.

In order to gain a clearer understanding of the meaning of the rational reconstruction of a dispensable constituent of an experience, let us consider the following fiction: we imagine that the experience has, to begin with, only one constituent, namely the sufficient constituent (in the

example the tactile shape of the key), and we then try to add to it through rational construction the second constituent (in the example the visual shape). If we succeed, then the latter is shown to be a dispensable constituent. It must be noted, however, that this fictional mode of expression is by no means necessary: the more precise and proper mode of expression is that which has been given earlier; using only constituent *a* (and my prior knowledge) rational reconstruction will arrive at the same knowledge that could have been gained by evaluating constituent *b*.

c. THE OVERDETERMINATENESS OF THE EXPERIENTIAL CONTENT

The logical character of the theoretical content of our experiences, due to which certain constituents are dispensable relative to others, is to be called their *overdeterminateness*. In mathematics we frequently call a problem overdetermined if more data are given than are necessary to solve the problem, so that at least one of the data is dispensable relative to the rest and can be derived constructively (either by calculation or drawing) from them. In this sense our experience is (epistemologically) overdetermined. We experience more than is necessary in order to gain the knowledge that can be obtained. This is to say, we can leave certain constituents of experiences unevaluated (fictional expression: these constituents could disappear from our experience) and our knowledge would not be diminished.

Overdeterminateness of the theoretical content of our experience leads to a problem which must here be briefly indicated. It is well known that an overdetermined problem does not permit a solution for an arbitrarily chosen set of data. It is solvable only if the data are not arbitrary but if a certain special condition is fulfilled which could be called the consistency of the data. Is it the case that the experiential contents fulfill such special conditions or is the aim of cognition unattainable? Neither of these is the case. There is a certain difference between the aim of cognition and a mathematical problem. The experiential contents do not fulfill a special condition of consistency (the fact that they fulfill the general condition of being orderable in some way or another has nothing to do with this point); if we think of a certain experience as being of a nature somewhat different than it in fact is, while the rest of them remains unchanged, then with respect to the changed course of experience the aim of cognition is by no means unobtainable; under certain circumstances it may become somewhat more difficult, since we would have to give a different form to certain laws of nature. By contrast, an overdetermined but solvable mathematical problem does not remain solvable if one

of the given data is allowed to change arbitrarily. This difference between the aim of cognition and the mathematical problem rests upon the essential difference that in the case of the mathematical problem the laws according to which the solution is to be derived from the data is already determined before the problem is posed; on the other hand, in the case of the aim of cognition these laws (namely the regularities which hold among real objects, that is to say, the natural laws in the widest sense) follow from the data, the material of cognition, itself. This is the reason why, if the data are varied at a given point, the derived laws themselves suffer corresponding changes in such a way that there is no inconsistency between the altered material and the changed laws.

EXAMPLE. Let a sequence of experiences have the following content: a brown rod, apparently made of copper, is balanced on a pivot; then a flame is held to one end of the rod, and that end tilts downward; this result is to be interpreted as an elongation of the rod. Now think of this content as being changed in this way: the rod tilts upward on the side where the flame is, while all the other constituents and the rest of my experiences remain the same. I am then forced to discredit something that I would otherwise have believed. However I have considerable freedom of choice. For example, I can assume that the staff is not made of copper; or that copper does not expand when it is heated; or that the yellow object is not a flame (combustion process); or that the flame does not heat; or that an upward tilt of the rod does not indicate shortening; or that I have hallucinated: in this latter case I have again several choices for declaring as invalid the criteria which made me believe in the first place that I had a conscious perception. I would then make that assumption which in the total system of natural laws would produce the smallest amount of change.

Since all natural laws have been derived inductively, that is to say through a comparison of experiential contents, a variation of the material at a given point can very well change the content of the laws and thus the content of reality as it is known, but cannot prevent the recognition of laws in general and hence of reality. Strictly speaking, contents of experiences cannot contradict one another; they are independent of one another in the strict logical sense. Strictly speaking there is no overdeterminateness of the total content of the experiences: they are overdetermined only in relation to the empirical-inductive regularities.

3. *Epistemological Analysis*

a. NUCLEUS AND SECONDARY PART

We make a distinction between the logical analysis of the cognitive content of an experience (into a sufficient constituent and a constituent that is dispensable relative to it) and the epistemological analysis into "nucleus" and "secondary part". The latter is a special case of the former: if the constituents a and b are to be called "(epistemological) nucleus" and "secondary part", then, to begin with, b must be a dispensable constituent relative to a . In addition—and this is why we here speak of "epistemological" division— b must epistemically "reduce" to a , that is, the cognition of b must "rest upon" the cognition of a , a must be "epistemically primary". The given expressions should give a rough idea of what is meant here; a more precise formulation of the concept of epistemological analysis can be given only through the indication of certain criteria. Before we consider these, let us go back to the earlier example. Let us designate as **S** the experience in which the key was merely felt but not seen, but in which the visual shape of the key is nevertheless contained as a representation; its constituents are called a (tactile shape) and b (visual appearance). If the experience is of such a nature that the key is felt and at the same time seen, then we call it **S'** and the new constituents a' and b' . From the preceding considerations it can easily be seen (and can be demonstrated through the method of rational reconstruction) that b is a dispensable constituent relative to a and conversely a relative to b : likewise b' is dispensable relative to a' and a' relative to b' . Hence there is a logical dependency in both cases which holds in both directions. However, things are different with the relation of epistemic dependency: it holds only in the first case, and there only in one direction. In experience **S** our knowledge of b (visual appearance) rests upon that of a (tactile shape) but not vice versa, while in experience **S'** both constituents are epistemically independent: knowledge of neither of them rests upon knowledge of the other.

b. FIRST CRITERION: JUSTIFICATION

In order to find the criterion for epistemological analysis, all we have to do is to make it clear why, in the simple example given above, we have decided that the epistemological relation between nucleus and the secondary part in experience **S** obtains between a and b but not between b and a , and why this relation does not hold at all between the constitu-

ents of experience *S*'. We asked ourselves "on what does our knowledge of *b* rest?", more precisely, "if I have had experience *S*, what reasons can I give for my (alleged) knowledge of the content of *b*; how can I justify it against doubts?". It is not necessary that these doubts should actually have been expressed by myself or others; it is sufficient to raise a "methodological doubt", the point of which is not a refusal to believe, but a quest for justification. The criterion for the epistemological relation between secondary part and nucleus lies in the possibility of justifying a cognition against which (real or methodological doubt) has been raised through another cognition whose validity has been admitted or hypothetically assumed.

In order to perform epistemological analysis in a concrete case, that is, in order to answer the question whether two given constituents of an experience, *a* and *b*, are nucleus and secondary part of that experience we will, as a rule, turn to the special science which is concerned the field in question. We will investigate whether, according to the methods customary in that field, an assertion which is based upon the content of *b* is considered demonstrated if for its justification we can refer cognition based on the content of *a*. In this way the epistemological decision is made dependent upon the procedure of a special science, that is to say, this procedure is presupposed as epistemologically unobjectionable; on the other hand, epistemology will gradually construct a system from which the procedures of the individual sciences will be critically surveyed. This is not a vicious circle, for this mode of approach corresponds to an essential feature of science, whose system does not arise in clearly determined steps from the given material; rather, initially the methodological principles are practically employed in the synthesis⁶ of the material of cognition, and are only later on clearly recognized and made explicit; this makes it possible to standardize⁷ the principles and to approach the material again with these standardized principles. In this way the interplay between the particular scientific and the epistemological investigation will lead to an integrated system of unified science.

By going back to the method of a special science in order to decide a given epistemological question, we do not introduce this special science as a presupposition for a valid system of knowledge (as in Kant's transcendental method). For we are not yet concerned with the question whether the (alleged) cognitions of the particular special science are to be considered correct or not, but with the question whether or not the

6 Bearbeitung

7 vereinheitlichen

epistemological dependency relation (nucleus-secondary part) holds between given objects of the field.

c. SECOND CRITERION: THE POSSIBILITY OF ERROR

That two constituents of an experience, *a* and *b*, stand in the relation of nucleus and secondary part becomes especially obvious when constituent *b* rests upon "an error"; that is to say, when it turns out later that the theoretical content of *b* is erroneous, that the state of affairs which is reflected in *b* does not actually hold. It is not necessary that we should actually be in error about the experience we wish to test: for epistemological analysis it will suffice if we know, on the basis of other experiences, that with experiences of this sort such an error can arise.

Let us again turn to our examples, namely the touching of the key with accompanying visual representation (**S**) and the simultaneous seeing and touching of the key (**S'**). Now consider the following case: I touch the key and think that I recognize it as my own; I believe it to be steel colored but it turns out afterward that the object that I have touched has the color of brass. Even if this case does not actually take place, I know on the basis of other experiences that it can take place in a case like **S**. This shows that the constituent *b* in **S** (visual shape) is a secondary part to *a* (tactile shape). On the other hand in an experience like **S'** such an error cannot occur: hence between *b'* and *a'* the relation secondary part-nucleus does not hold. For our problem it is of no concern what the experiential difference between **S** and **S'** actually consists in. One can assume either that in the phenomenal sphere itself there is a difference of a qualitative, experiential sort between an actual perception and a mere representation, or one may assume that it is possible, on the basis of other experiential contents (namely so far as they allow us to recognize the physical relation between the object and the sense or, an in question), to decide whether or not an actual perception has taken place. For epistemological analysis it suffices that one can decide the question whether a given constituent is to be considered an actual perception or a mere representation; (i.e., the question whether an experience of type **S** or an experience of type **S'** is present).

B

APPLICATION: KNOWLEDGE OF THE HETEROPSYCHOLOGICAL

4. *Logical Analysis of the Cognition of Heteropsychological Occurrences*

The indicated relations, namely the logical relation between sufficient and dispensable constituent, and the epistemological relation between nucleus and secondary part are---especially in the case of our example---very simple and might appear trivial. However, these concepts can also be applied to cases with which conflicting philosophical theses and antitheses are connected, for example, to the problem of the cognition of the heteropsychological. It is a more and more widely accepted fact that the autopsychological and the heteropsychological have an entirely different epistemological character; at the present time this fact can be denied, only if one holds to certain metaphysical persuasions. The epistemological difference between the heteropsychological and the autopsychological will become particularly clear through the investigation of the epistemological relationship between the heteropsychological and the physical.

The subsequent considerations are to demonstrate the following thesis: *the epistemological nucleus of every concrete cognition of heteropsychological logical occurrences consists of a perception of physical phenomena, to put it otherwise, the heteropsychological occurs only as an (epistemologically) secondary part of the physical.* For the purpose of this demonstration we will first undertake a logical, and then an epistemological, analysis.

Any knowledge I might have of a concrete heteropsychological fact, that is, of certain conscious (or unconscious) occurrences of another subject A, I can have acquired in different ways. Heteropsychological occurrences are discovered if A reports processes of his consciousness to me (in this case let my experience be called E_1); secondly, such facts are discovered without any report if I observe expressive motions (facial expressions, gestures), or acts of A (E_2); occasionally I can surmise the conscious processes of A if I know his character and know, in addition, that he is now subject to certain external conditions (E_3). There is no other way to gain knowledge of the heteropsychological. (We will not concern ourselves here with telepathy since at least in science it is not used as a means of gathering information about tile heteropsychological.)

In each of the cases, E_1, E_2, E_3 , the cognition of the heteropsychological is connected with the perception of physical facts. To begin with let us carry out a logical analysis and let us show that in all cases the perceptions of the physical occurrences (constituents a_1, a_2, a_3 , respectively) are sufficient constituents, i.e., that the representations of heteropsychological occurrences (constituents b_1, b_2, b_3 , respectively) occur only as dispensable constituents (in the sense of our earlier definitions).

On the basis of the preceding considerations we ascertain that the relation "sufficient-dispensable constituent" holds between a and b by showing that a rational reconstruction of b on the basis of a and prior knowledge is possible. In case E_1 , the rational reconstruction of b_1 is possible in the following way: after having understood the report of A, we isolate from this perception, for the purpose of epistemic evaluation, only the physical sign (a_1), i.e., for example, the hearing of the spoken words (as sounds) or the seeing of the written words (as marks), but not the understanding of these signs (b_1) which is also contained in the experience; from this material a_1 we then infer the theoretical content of b_1 , utilizing our prior knowledge. This reconstruction presupposes, of course, that the words which occur are already known or that their meaning can be surmised. If this presupposition is not fulfilled, then no experience of kind E_1 is present; the constituent b_1 does not occur; if I get a letter in Chinese, I see nothing but black lines without finding out anything about heteropsychological occurrences. However, if the presupposition is fulfilled (i.e., if I know the word meanings), then I can infer from the perceived words (either the heard noises, or the seen figures) the meaning of the statement: and this is the content of b_1 , namely the heteropsychological occurrence which is cognized in E_1 .

In E_2 (perceptions of acts and expressive motions of A) the case is

quite similar. (This rests upon the fact that E_1 is actually a special case of E_2 .) If, for example, I see the beaming face of A (a_2) then the representation of the joy of A (b_2) is simultaneously contained in my experience without my having to infer it. However, in order to know that A is in a joyful mood, I do not have to utilize constituent b_2 since I can infer it from a_2 on the basis of prior experience concerning the meaning of facial expressions.

OBJECTION. ("baby--objection"). It is sometimes assumed that a small infant can react appropriately to the joyous or sad countenance of his mother even before he has had any experience concerning the meaning of these facial expressions. Child psychology has made no final decision concerning this assumption, and we do not have to decide its correctness. Our epistemological result would not be invalidated even if an adult, who could give a linguistic account of his experience, were able to recognize a heteropsychological occurrence without appropriate prior experience. Assume, for example, that such a person had an experience consisting of a visual perception of the knit brow of A together with fear of an outbreak of rage on the part of A. The epistemic evaluation should not be of the following sort: "A has a knit brow; A is in a rage" (or in physical language: "in a moment A will perceptively react in such and such a way"), because the second sentence cannot be considered knowledge of the wrath of A if only a representation of this wrath of A occurs in the experience. We can speak of knowledge only if there are prior experiences on the basis of which the perceiver knows that if the forehead of a person has such and such an appearance, then rage can be expected.

This case does not differ from a case where purely physical occurrences are recognized. Let us assume that a person who has never experienced, or heard about, the heat of a flame, sees one for the first time in his life (without being able to perceive its heat), and that he nevertheless has the idea that it is hot. Even such a (nativist) assumption would not contradict our empiricist conception that knowledge of the heat of the flame can be gained only through experience. For, in order to possess the content of representation that the flame is hot not merely as representational content, but as knowledge, one must have had perceptions (at least one) from which it can be inferred through induction that a thing which looks such and such generally feels hot.

In the third case, E_3 (surmise from the known character and the perceived or otherwise known present external circumstances of A) has no fundamental importance. In this case the experiencing person himself will generally be aware of the fact that this is not an original cognition but an inference or an inference-like intuitive procedure, since knowl-

edge of the character of A is presupposed. But even in this case the psychological occurrence in A (b_3) can be reconstructed from the known physical circumstances (a_3) if the knowledge of the character of A is taken into account. Occasionally, a psychological occurrence in A (b_3) is not immediately recognized at all in such an experience, but is literally inferred.

Let it be emphasized again that the indicated method of rational reconstruction does not imply that in the actual experience b (the heteropsychological) is inferred from a (the perceived physical occurrences); we only claim that a logical dependency holds between the theoretical content of the experiential constituents a and b ; this can be proved by the fact that b can be derived afterward by inference from a and prior knowledge.

5. Epistemological Analysis of the Cognition of Heteropsychological Occurrences

The logical analysis of experiences in which heteropsychological occurrences are recognized has shown that in all possible cases (E_1, E_2, E_3) constituent a (the perception of the physical) is epistemologically sufficient, while constituent b (the idea of the recognized heteropsychological occurrence) is dispensable relative to the former. Let us now undertake the epistemological analysis of these experiences. We shall arrive at the conclusion that in each case constituent a is the epistemological nucleus, while b is the secondary part. In order to show this we must now demonstrate that b is epistemologically, as well as logically, dependent upon a . To establish this we have previously formulated two different criteria: the justification of b on the basis of a , and the possibility of the erroneous assumption of b when a is given. Let us apply these criteria in turn to the recognition of heteropsychological occurrences.

The first method consists in ascertaining that, in order to support or justify a cognition of type b , scientific procedure demands, and is satisfied with, a reference to a corresponding experiential constituent of kind a . It is presupposed that the procedures of the particular special science can be considered epistemologically unobjectionable. In our case we have to go back to certain very general cognitional procedures of psychology, and we may suppose that our presupposition is fulfilled since the various epistemological persuasions (even those which do not agree with our thesis) have made no objection against these cognitional procedures.

If a psychologist is to justify or defend against doubt the assertion

that certain psychological events have taken place within subject A, then no one will be satisfied if he claims that he has simply experienced or clearly felt them. Rather, one demands of him that he should state in which of the three ways, E₁, E₂, E₃, his knowledge was obtained. Of course in case E₁ the psychologist does not have to be able to repeat word for word what he has heard or read, though this would be the safest justification and would in any case be regarded as sufficient. However, he must at least be able to report that he has heard or read some words which were of such a nature that from them the particular psychological events of A can be inferred. Similarly in case E₂: the most satisfactory justification consists in describing observed expressive motions or other acts of A, and it is indispensable for any justification that acts of A can be indicated from which the particular psychological events of A can be inferred. Finally, in case E₃ the justification is accomplished through a description of the perceived outward circumstances of A and his already known character. (The testing and justification of the [alleged] knowledge of the character of A does not belong here; it goes back to earlier cognitive experiences of the psychologist which in turn are of type E₁ or E₂.)

The second criterion that the relation nucleus-secondary part holds between *a* and *b* is satisfied if we have evidence that in experiences of this kind *b* may rest upon an error. We say that "*b* rests upon an error" if it turns out afterward that the epistemic content of *a*, but not that of *b*, was in fact present. This criterion is indeed fulfilled for experiences in which we recognize heteropsychological occurrences. We must realize that in an experience of type E₁ the report of A can be either a lie or an error. This is always possible, no matter how unlikely it may be in a particular case. This possibility would amount to the following: the epistemic content of constituent *a*, (our knowledge of the words which we have heard or read) corresponds with reality, but the content of *b*₁ (our alleged knowledge of the reported psychological event of A) does not. In an experience of type E₂, pretense is always a possibility (as in the case of intentional deception or in play-acting). The case is the same as before; the perceived facial expressions and actions are real, but the (allegedly) recognised psychological events are not. Case E₃ does not require any special discussion since here we were antecedently aware that the recognition of the psychological event of A was only surmised in spite of correctly perceived outward circumstances; that is to say we were antecedently aware of the possibility of error.

We have now demonstrated that in all cases where heteropsychological

occurrences are recognized, the epistemological nucleus of the experience in which the recognition takes place contains nothing but perceptions of physical events.

6. Result. Survey of the Genealogy of Concepts

Our considerations have led to the result that any recognition of heteropsychological occurrences goes back to a recognition of a physical event. That is to say any recognition of heteropsychological occurrences has as its epistemological nucleus the perception of physical events. We can also express this fact in the following way: heteropsychological objects are "epistemologically secondary" relative to physical objects; the latter "primary" relative to the former. ("objects" is here meant in the widest sense: entities, events, states, properties, etc.)

At this time we cannot give a detailed discussion of the philosophical consequences of this result; but let us have a quick look at the corresponding relations between the other object types. Considerations similar to the above would show that cultural objects (in the sense of cultural entities and processes) are epistemologically secondary relative to the heteropsychological and physical. It would even be easier to demonstrate this since there are hardly any emotional prejudices that would obscure this fact. One would only have to show that the recognition of cultural events (for example, of a religion) is based upon the recognition of psychological processes ("manifestations") in the bearers of that cultural process and upon the recognition of its physical "documentations".

It can furthermore be shown that physical objects are epistemologically secondary relative to autopsychological objects, since the recognition of physical objects depends upon perception. If the investigations whose results are here sketched are actually carried out (this is the task of construction theory), one is led to the following stratified epistemological system of the four most important object types (to be read from bottom to top):

4. Cultural objects
3. Heteropsychological objects
2. Physical objects
1. Autopsychological objects

The objects within each of these levels can in turn also be organized according to their epistemological reducibility. The final result is a system of scientific objects or concepts which, from a few "basic con-

cepts", leads in step-by-step construction to all the remaining concepts. In this system each concept which can become the object of a scientific statement has a definite place. The organization of concepts in this system has a twofold significance. To begin with, each concept is epistemologically secondary relative to the concept which stands below it (as we have indicated for the four main levels). Furthermore, each concept can be defined, that is, a definite description of it can be given by referring only to concepts which stand below it. Hence the system is also a derivational system, that is, a "genealogy of concepts". We will not consider this any further at this point.

II. ELIMINATION OF PSEUDOPROBLEMS FROM THE THEORY OF KNOWLEDGE

A

THE MEANING CRITERION

7. Factual Content as a Criterion for the Meaningfulness of Statements

The meaning of a statement lies in the fact that it expresses a (conceivable, not necessarily existing) state of affairs. If an (ostensible) statement does not express a (conceivable) state of affairs, then it has no meaning; it is only apparently a statement. If the statement expresses a state of affairs then it is in any event meaningful; it is true if this state of affairs exists, false if it does not exist. One can know that a statement is meaningful even before one knows whether it is true or false.

If a statement contains only concepts which are already known and recognized, then its meaning results from them. On the other hand, if a statement contains a new concept or a concept whose legitimacy (scientific applicability) is in question, then its meaning must be indicated. For this purpose it is necessary and sufficient to point out what experiential conditions must be supposed to obtain in order for the statement to be called true (not "to be true"), and under what conditions it is to be called false. To begin with, this indication is sufficient; it is not necessarily to indicate, in addition, the "meaning of the concept".

EXAMPLE. The concept "Jupiter" can be introduced by the following stipulation: the statement "Jupiter rumbles in place p at time f" is to be called true if in place p at time t a thunder can be experienced; otherwise

it is to be called false. Through this convention the *statement* has been given a meaning even though nothing has been said about the meaning of the concept "Jupiter"; for if I now tell somebody: "Jupiter is going to rumble here at 12 o'clock" he knows what he can expect. If he satisfies proper conditions (i.e., if he goes to the described place), he can have an experience which either confirms or refutes my statement.

However, the demanded indication is also *necessary*. For if it were considered permissible in science to make a statement whose correctness can be neither definitely confirmed nor refuted by experience, then the intrusion of obviously meaningless (pseudo) statements could not possibly be prevented.

EXAMPLE. Let us consider the following sequence of sign complexes which become progressively more pointless. If the first expression of this sequence is to be considered meaningful (even if false), then it would be difficult to introduce, without being arbitrary, a criterion which allows us to divide the sequence into meaningful and meaningless expressions.

1. "Jupiter sits in this cloud (but the appearance of the cloud does not indicate his presence, nor is there any other perceptual method through which his presence can be recognized.)"; 2. "This rock is sad"; 3. "This triangle is virtuous"; 4. "Berlin horse blue"; 5. "And or of which"; 6. "bu ba bi"; 7. "-" (* _____ *". It will be admitted that (6) is just as meaningless as (7). For even though (6) consists of signs (namely letters) which otherwise occur in meaningful sentences, the way in which they are put together makes the entire expression meaningless. The relation between (4) and (6) is not fundamentally different; (4) is just as meaningless as (6) even though it is put together out of larger sign complexes which otherwise occur in meaningful sentences. So much is generally admitted. Now we must become clear that (3) and also (2) are just as meaningless as (4); (2) and (3) consists of words which (in contrast to (4)) are conjoined as their grammatical characters require but not as their meaning does. It might seem at first sight that there is an essential difference between (3) and (4), but such an error would be caused by a shortcoming of our ordinary language which allows the construction of grammatically unobjectionable but meaningless sentences. Consequently it can easily happen that a pseudo sentence is mistaken for a meaningful one. In some cases this has been very detrimental for philosophy; we shall see this later when we consider the theses of realism and idealism. (The logistical language does not have this shortcoming. We can decide for any given sentence stated in this language, including extralogical sentences, whether or not it is meaningful, even if only the kind (not also the meaning) of the occurring signs is

known. As a consequence, the logistical language has great importance for the testing of philosophical statements, but this feature is very little known and utilized.)

In order to give a more precise formulation to our thesis, let us first introduce some definitions. If a statement p expresses the content of an experience E , and if the statement q is either the same as p or can be derived from p and prior experiences, either through deductive or inductive arguments, then we say that q is "supported by" the experience E . A statement p is said to be "testable" if conditions can be indicated under which an experience E would occur which supports p or the contradictory of p . A statement p is said to have "factual content", if experiences which would support p or the contradictory of p are at least conceivable, and if their characteristics can be indicated. It follows from these definitions that if a statement is testable, then it has always factual content, but the converse does not generally hold. If it is impossible, not only for the moment, but in principle, to find an experience which will support a given statement then that statement does not have factual content.

EXAMPLES. The statement "in the next room is a three-legged table" is testable; for one can indicate under what circumstances (going there and looking) a perceptual experience of a certain kind would occur which would support the statement. Hence this statement has factual content. The statement "there is a certain red color whose sight causes terror" is not testable, for we do not know how to find an experience which would support this statement. Nevertheless, this statement has factual content, for we can think and describe the characteristics of an experience through which this statement would be supported. Such an experience would have to contain the visual perception of a red color and at the same time the feeling of terror about this color. The pseudo statements (1), (2), (3) of the preceding example do not have factual content.

If a statement is supported only through past experiences and can no longer be tested, then we do not place the same confidence in it as in a testable statement. In history, geography, anthropology, one frequently must be satisfied with statements of this kind; in physics it is generally required that a statement be testable. But if we neglect the degree of certainty of a statement and concentrate only on the question of its meaningfulness, then there is no difference between those statements that have been supported earlier and can no longer be tested, and those

that can be tested at any given time; both kinds of statement are certainly meaningful, hence, either true or false. On the other hand there can be a difference of opinion about those statements which are neither testable nor have so far been supported. No decisive objection can be made if someone wants to be so strict as to ban all such statements from science. However it must be mentioned that the customary method of the empirical sciences, including physics, does not consider statements of this kind as meaningless, but admits them either as hypotheses, preliminary conjectures, or at least as statements that permit the formulation of certain problems. Hence we shall not adopt this strict rule and shall acknowledge statements of this kind as meaningful (but by no means as true); statements which have factual content are meaningful since it is at least conceivable that they will at one time or another be recognized as true or false. However, expressions that are not included among statements with factual content must under no circumstances be considered meaningful. A (pseudo) statement which cannot in principle be supported by an experience, and which therefore does not have any factual content would not express any conceivable state of affairs and therefore would not be a statement, but only a conglomeration of meaningless marks or noises.

All empirical sciences (natural sciences, psychology, cultural sciences) acknowledge and carry out in practice the requirement that every statement must have factual content. It makes no difference whether we are concerned with mineralogy, biology, or the science of religion: each statement which is to be considered meaningful in any one of these fields (i.e., which is either considered true or false or which is posed as a question) either goes directly back to experience, that is, the content of experiences, or it is at least indirectly connected with experience in such a way that it can be indicated which possible experience would confirm or refute it; that is to say, it is itself supported by experiences, or it is testable, or it has at least factual content. Only in the fields of philosophy (and theology) ostensible statements occur which do not have factual content; as we shall see later, the theses of realism and idealism are examples. We have not taken the strict viewpoint which requires of each statement that it should be supported or testable; rather, we consider statements meaningful even if they merely have factual content, but are neither supported nor testable. Hence we are using as liberal a criterion of meaningfulness as the most liberal-minded physicist or historian would use within his own science; therefore our refutation of the theses of realism and idealism will become all the more compelling.

8. *Theoretical Content of a Statement and Accompanying Representations*

Generally speaking, if we utter a statement or merely think one, our train of ideas⁸ goes beyond the bare content of this statement. For example, if I say "that bench is small", my mental representation may depict the bench as being green, while the statement does not mention this fact. It is well known that in deductions from given premises errors frequently arise because in addition to the facts which form the content of the premises, other facts, which are mentally associated with them, are unawares used in the deduction.

Let us now distinguish two types of representations (or complexes or sequences of representations; it is not necessary to distinguish these). We call a representation "factual" if its content is meant to be a fact, that is, something which either takes place or does not take place, so that one can say either yes or no to the content of such a representation; all other representations are called "object representations." For example, if I have a representation of a certain person in a certain environment, and if I believe that this person is now in this environment, then the representation is factual; it is either true or false. On the other hand if I merely think of that person in that environment but hold no belief concerning place or time, then I have an object representation. However, a simple representation of a person without any determination of place or time can be factual if a certain property is claimed to be present, for example, that this person has hair of such and such a color. Hence it depends essentially upon a person's intention whether a representation is a factual or a mere object representation; in the first case the experience contains an act of judgment which either affirms or denies that the particular fact exists. From the indicated difference between the two types of representations the following distinction, which is important for our investigation, results: a factual representation can form the content of a statement, while an object representation cannot. The linguistic expression for the content of an object expression is a noun (which may be accompanied by an adjective, apposition, etc.). (In the terminology of Meinong's theory of objects: the content of an object representation is an "object", a content of a factual representation is an "objective".)

EXAMPLES. 1. Expression for object representations: "my son", "a person who looks such and such". 2. Expression for factual repre-

8 Vorstellungsablauf

sentations: "my son looks so and so", "there exists a person who look such and such".

We must divide the representations which one experiences as one utters or thinks a statement into stated and accompanying representations. Among the accompanying representations there may in turn occur factual representations as well as mere object representations. In the case of the statement "that bench is small" the representation of the smallness of the bench is the stated representation. The representation of the greenness of the bench is an accompanying representation; since it is a factual representation one could add it to the content of the statement by making the additional statement "that bench is green". Assume now that the utterance of the statement "that bench is small" causes in me the representation of a certain musical tone and perhaps also that of a happy mood. These representations are then mere object representations; they do not belong to the facts about the bench; hence they cannot be admitted into any statement about the bench: we cannot attribute the sound or the happy mood to the bench. If we nevertheless try (perhaps misled by a, in this case, pointless inclination to judge), then we obtain pseudo statements, meaningless collections of signs. The accompanying object representations, since they cannot become the content of statements, are beyond truth and falsity. While the theoretical content of a statement must be justified by reference to some criterion, for example the indicated criterion of factual content, the object representations which accompany a statement are not subject to any theoretical control; they are theoretically irrelevant but frequently of great practical importance. To imagine certain configurations of numbers, or the sounds of number words or point configurations when we speak or think of, e.g., the statement "2 plus 2 equals 4" facilitates greatly the learning and deductive manipulation of such statements. Diagrams in geometry play a similar role. The formalization of geometry which has been carried out during the last decade has shown that the graphic properties of the diagrams are a valuable practical aid for research or learning, but that they must not play any role in geometrical deduction.

Occasionally we do not want to leave the occurrence of accompanying object representations to chance but, because of their practical value, want to evoke them systematically in ourselves or others. This can be achieved by choosing appropriate names for the concepts or by choosing an appropriate linguistic form for the entire statement (in the case of an oral statement also through intonation, melody, accompanying gestures, etc.). After all, the choice of a name is independent of the theoretical

content of a statement: it is purely conventional. This allows us to express the accompanying object representations, which are also independent of the theoretical content, in any way we deem appropriate.

EXAMPLES. Formalized geometry (cf. for example Hilbert, *Foundations of Geometry*) does not speak of spatial entities, but of indeterminate objects which are related in a certain way. However we do not customarily designate the basic objects of first, second, and third type with this neutral expression but with the words "point", "straight line", "surface", since we wish that the reader should connect representations of little black spots, of straight lines, and of thin flat slices with the statements about the basic objects. (This is done only to facilitate matters and has nothing to do with questions of theoretical validity.)

When an Indian calls his child "Black Buffalo", then whoever uses this name has the awe-inspiring or respect-evoking accompanying representation of that animal. Here an accompanying representation is expressed which cannot be expressed through a statement, since it does not reflect any fact. The Indian however thinks that, by giving this name, a certain (hoped for) fact is expressed; philosophers, as we shall see, have hoped to accomplish the same by giving suitable names to heteropsychological objects.

B

APPLICATION TO THE REALISM CONTROVERSY

9. The Theses of Realism and Idealism

By the thesis of realism we shall understand the following two subtheses: 1. the perceived physical things which surround me are not only the content of my perception, but, in addition, they exist in themselves ("reality of the external world"); 2. the bodies of other persons not only exhibit perceivable reactions similar to those of my body, but, in addition, these other persons have consciousness ("reality of the heteropsychological"). The thesis of idealism is identified with the corresponding denials (the second of them however is maintained only by a certain radical idealistic position, namely solipsism): 1. the external world is not itself real, but only the perceptions or representations of it are ("nonreality of the external world"); 2. only my own processes of consciousness are real; the so-called conscious processes of others are merely constructions or even fictions ("nonreality of the heteropsychological"). It is not our intention here to ask which of the two theses is correct. (If we wanted to do this we would have to investigate the validity of the subtheses separately.) Rather, we shall raise the more fundamental question whether the indicated theses have any scientific meaning, whether they have any content to which science can take either an affirmative or a negative stand. This more fundamental question must

first be affirmatively answered before the question of the validity or invalidity of the theses can even be raised. According to our previous results, to ask whether they are meaningful is to ask: do these theses express a fact (no matter whether an existent or nonexistent one) or are they merely pseudo statements, made with the vain intention of expressing accompanying object representation in the form of statements, as if they were factual representations? We shall find that the latter is indeed the case, so that these theses have no content; they are not statements at all. Hence the question about the correctness of these theses cannot be raised. In the realism controversy, science can take neither an affirmative nor a negative position since the question has no meaning. We want to show this in the sequel.

10. *The Reality of the External World*

Two geographers, a realist and an idealist, who are sent out in order to find out if a mountain that is supposed to be somewhere in Africa is only legendary or if it really exists, will come to the same (positive or negative) result. In physics as well as geography there are certain criteria for the concept of reality in this sense—we want to call it "empirical reality"—which always lead to definite results no matter what the philosophical persuasion of the researcher. The two geographers will come to the same result not only about the existence of the mountain, but also about its other characteristics, namely position, shape, height, etc. In all empirical questions there is unanimity. Hence the choice of a philosophical viewpoint has no influence upon the content of natural science; (this does not mean that it could not have some practical influence upon the activity of the scientist).

There is disagreement between the two scientists only when they no longer speak as geographers but as philosophers, when they give a philosophical interpretation of the empirical results about which they agree. Then the realist says: "this mountain, which the two of us have found, not only has the ascertained geographical properties, but is, in addition, also real," and the "phenomenalist" (subvariety of realism) says: "the mountain which we have found is supported by something real which we cannot itself know." The idealist on the other hand says: "on the contrary, the mountain itself is not real, only our (or in the case of the "solipsist" variety of idealism: "only my") perceptions and conscious processes are real." This divergence between the two scientists does not occur in the empirical domain, for there is complete unanimity so far

as the empirical facts are concerned. These two theses which are here in opposition to one another go beyond experience and have no factual content. Neither of the disputants suggests that his thesis should be tested through some joint decisive experiment, nor does any one of them give an indication of the design of an experiment through which his thesis could be supported.

Our example can easily be generalized. What is true for the mountain is true for the external world in general. Since we consider only factual content as the criterion for the meaningfulness of statements, *neither the thesis of realism that the external world is real, nor that of idealism that the external world is not real can be considered scientifically meaningful*. This does not mean that the two theses are false; rather, they have no meaning at all so that the question of their truth and falsity cannot even be posed.

In the case of the second part of the realist thesis, which concerns the heteropsychological, we shall see that the formulation of this theoretically meaningless thesis must be considered the result of a wish to express an accompanying object representation. Perhaps the same is true for the first part of this thesis. Conceivably the realist thesis is due to certain emotional accompaniments, for example, the feeling of unfamiliarity with the mountain, the feeling that in many ways it is not subject to, or even resists, my will, and similar feelings. This problem can be only suggested at this time.

11. *The Reality of the Heteropsychological*

We have seen earlier (§ 5) that in each particular case the recognition of the heteropsychological goes back to the recognition of physical occurrences. And not only in the sense that in each case simultaneously with the recognition of a heteropsychological occurrence somehow the recognition of a physical occurrence takes place, but in such a way that the heteropsychological with all its characteristics depends upon the recognition of the corresponding physical occurrence. Hence one could translate any statement about a given heteropsychological occurrence, for example "A is now joyful", into a statement which mentions only physical occurrences, namely expressive motions, acts, words, etc. This statement could mention either those physical occurrences (expressive motions, etc.) which have led to the recognition of the joy of A, that is, it could speak of the content of perceptions that have already been experienced; or it could indicate ways of testing A's joy. In the latter case it is a con-

ditional statement of the form: if A is now subject to such and such conditions, then such and such (physical, perceivable) reaction will take place.

Hence we are here confronted with two different languages, one of them psychological and one physical; we maintain that they both express the same theoretical content. It will be objected that in the statement "A is joyful" we express more than in the corresponding physical statement. This is indeed the case. Aside from having the advantage of much greater simplicity, the psychological language also expresses more than the physical language, but this more does not consist of additional theoretical content; it expresses only accompanying representations; these are merely object representations, that is, representations which do not stand for any fact, and hence which cannot form the content of a statement. They are expressed by choosing a certain language (while other accompanying features, which also do not belong to the theoretical content, are expressed, e.g., by the intonation, gestures, etc.). For by saying "A is joyful" and not merely "A shows facial expressions of such and such a form", I express that I have a representation of a feeling of joy, although a feeling of joy in the autopsychological sense, since I cannot know any other. However, to assume that by using the psychological instead of the physical language, that is to say, by using the expression "joy" instead of "facial expressions of such and such a form", we express a fact which goes beyond the physical state of affairs, is to confuse the theoretical content of the statement with an accompanying representation.

With this confusion one would commit an error even more serious than that of the Indian (§ 8); for the accompanying representation of the Indian led him, even if erroneously, to the factual representation which, roughly speaking, could be expressed by the statement: "my son is as strong as a buffalo." In the present case however, we are not merely induced to make an erroneous statement, but a pseudo statement. For no fact is even conceivable or stateable which could connect the representation "feeling of joy" (in the autopsychological sense) with the behavior of A.

Let us again think of two scientists, this time psychologists; let one of them be a solipsist, the other a nonsolipsistic idealist or realist. (The dividing line runs here a somewhat different course than before, but this is not important to our discussion, since we do not want to find out which of the two opposing parties is correct; we only wish to show that the entire controversy is scientifically meaningless.) Our two scientists decide

on the basis of empirical criteria of psychology whether A's joy is real or only simulated (empirical concept of reality), and thus come to an agreement (just as the above-mentioned two geographers did when the reality of the mountain was in question). However, if they then move from psychology to philosophy, a controversy arises. The solipsist claims that only the observed physical behavior of A (including his words) is real; he adds that he wants to describe this behavior with the expression "A is joyful", since the psychological language, in contrast with the physical language, not only has the advantage of brevity, but also that of stimulating a more appropriate accompanying representation; but the solipsist does not hold the consciousness of A to be real. His opponent on the other hand, claims that A shows not only the given physical behavior, through which the statement "A is joyful" is supported (witness the common findings of the two psychologists), but that, in addition, A really has consciousness.

As concerns the physical and observable, hence the only testable, both psychologists agree. There is no psychological question to which, after sufficiently extensive investigations, the two would not give the same answer. This shows that the choice of the philosophical standpoint has no influence upon the content of psychology (just as it has no influence upon natural science). (Here again the possibility of practical influence is not denied.) The divergence between the two standpoints occurs beyond the factual, in a domain where in principle no experience is possible; hence, according to our criterion, they have no scientific significance.

One could perhaps make the following objection: the two psychologists do in fact make the same utterance within psychology but they mean something different; when both of them say: "A is now joyful," the solipsist does not mean anything but: "A shows such and such reactions," while his opponent means, in addition, the presence of a certain feeling of joy. In order to show more clearly how things lie, let us refer to an analogous situation which has occurred several times in the development of mathematics and was caused by the critical investigations of the last century. We previously mentioned the concept of a differential quotient; now we want to use the concept of the irrational numbers as an example. Logical investigations (by Dedekind, Frege, Russell) have shown that it is not the case that, in addition to rational numbers, there are others that can be inserted into the sequence of rational numbers, but that every statement about an irrational number (for example, about $\sqrt{2}$) is an abbreviation for a statement about a class (or property) of rational

numbers that produces a cut in the sequence of rational numbers. The following objection was frequently made: "but the mathematicians mean something different than a class of rational numbers when they speak of the irrational number $\sqrt{2}$; and similarly in the case of geometry (cf. the example in § 8) : "but the mathematician, when they speak of points and straight lines, in geometry, mean something other than the indeterminate objects which are merely related in a certain way." These objections, and similarly the analogous objections about what the psychologists mean, are correct if by "meaning" we mean the train of representation which accompanies the conception of the statement in question. For this process can indeed be different, depending upon which mode of speech is adopted: the mode of speech involving "rational number" or that using "irrational numbers", the mode of speech which employs "basic objects of first, second, and third kind" or that using "points, straight lines, surfaces", the physical or the psychological language. However, the decisive factor is that in each of these cases the difference lies only in the accompanying object representation, not in the theoretical content of the statements. If somebody denies this, he has the obligation of formulating the meaningful, that is factual, substatements which he claims to be contained in a statement of the psychological language, but not in the corresponding statement of the physical language; that there is some information which is not contained in the statement of the physical language must be demonstrated by showing that the substatement to be formulated can be false in cases in which the physical statement is true.

Another objection ("worm-objection") points to the differences in the practical effect of the two statements. It runs something like this: the statement "this animal has consciousness" must contain more than the mere report that this animal shows certain observable reactions to given stimuli; for this statement influences my actions; for if I know that the worm feels pain, I do not step on it, while the mere observation that it writhes does not necessarily prevent me from doing so. This objection, too, is correct; from the viewpoint of practical inference the first statement contains more than the second; but again this additional content is only an object representation, namely that of the sensation of pain; hence this is a case of empathy. Empathy is not cognition; it does not produce any theoretical content or anything that can be stated; it is doing, not cognizing; it is a doing which establishes contact with the other and thus leads to a different practical orientation and consequently to different external actions. But all this is a practical, not a theoretical matter. Ethical values come into play, but there is no connection with

truth and falsity. The theses "A merely behaves as if he had consciousness, while in reality he has none" and "A really has consciousness" are therefore only pseudo theses; they are not statements (in the theoretical sense); one can not judge them to be either "true" or "false". However one can respond affirmatively or negatively depending on whether or not one takes these words to express a practical position which one wants to adopt. (However, it is still questionable if a statement, that is to say a form of words which normally has theoretical content, is the most appropriate way of expressing such a practical orientation.)

Even though empathy is not cognition, it has great practical, that is heuristic, value for science (especially for psychology, the cultural sciences, and biology but occasionally also for physics). For the psychologist it is practically a necessity. There is as little chance of finding a psychologist who works without using empathy, as there is of finding a mathematician who works without the heuristic aid of perception. (Even the solipsistic psychologist employs empathy.) In spite of its extraordinary heuristic value, empathy is not, in principle, a necessity for psychology. Imagine a psychologist who does not use empathy but merely subjects the observed behavior of his subjects to rational analysis, and describes it in psychological language. He nevertheless ought to reach any result which can be obtained through empathy (even though perhaps much later); a psychologist who employs empathy must still give a rational justification, that is, a justification that does not depend upon empathy, for all the results which are obtained through empathy (cf. § 5)

Matters are different with historical accounts: frequently such an account would fail in its main purpose if one were to eschew the use of empathy altogether. For such an account is not generally scientifically oriented; its purpose is not predominantly theoretical, that is, with an aim for knowledge, but practical: it is to enrich life through participation, or is to direct actions in a certain way. To the extent to which this is so, history is not science, but practical activity which uses science as an aid; in this case the demand for the rational justification of empathy holds only for the scientific component.

It would be worth some effort to investigate the importance of the confusion of accompanying object representations with factual representations for the history of ideas; more precisely, the importance of the attempt, arising from this confusion, of expressing accompanying object representation through (pseudo) statements. Perhaps the origin of magic (as theory), mythology (including theology), and metaphysics, is to be explained in this way; not as if we could explain the content of such

doctrines in this way, but some light would be shed on the strange circumstance that this content was not expressed through artistic media or through the practical conduct of life, but was given the form of a theory which has no theoretical content.

SUMMARY

1. THE AIM OF EPISTEMOLOGY

A. The Meaning of Epistemological Analysis

- § 1. Aim of epistemology: justification, "reduction" of one cognition to another, analysis of the contents of experiences. Results of analyses are available, but their meaning is not exactly known. Problem: what is the meaning of the epistemological analysis of the content of an experience, if it is to be different from genetic-psychological analysis?
- § 2. The first step of epistemological analysis consists in the logical analysis of the content of an experience into two parts: a "sufficient" and a "dispensable" constituent. The second constituent does not give any new knowledge over and above the first one; its theoretical content can be found in a "rational reconstruction" through inference from the first.
- § 3. The epistemological analysis divides the content of an experience into "nucleus" (*a*) and "secondary part" (*b*). This division is characterized by the fact that *b* is a dispensable part relative to *a* and, secondly, that *b* is epistemically secondary to *a*. Criteria for this are: 1. A (scientific) justification of the cognition of the content of *b* can be given only by referring to *a*; 2. the theoretical content of *b* can rest upon an error even though *a* has been correctly recognized.

B. Application: Knowledge of the Heteropsychological

- § 4. The recognition, in experience, of a heteropsychological occurrence always contains a constituent (*a*) which is connected with physical occurrences, and a constituent (*b*) which represents the heteropsychological. In such a case *b* is always dispensable relative to *a*, which can be shown through the method of rational reconstruction.
- § 5. Furthermore, *a* is always the nucleus of the experience. For, the scientific justification of the recognition of content *b* always refers to *a*; moreover, on the basis of *a* we can always be deceived about *b*.
- § 6. Result: only perceptions of physical events belong to the nucleus of experiences in which we recognize heteropsychological occurrences. The heteropsychological is "epistemically secondary" to the physical. An analysis of epistemic primacy (which is not here carried out) would show the following rank order: autopsychological, physical,

heteropsychological, cultural; in addition, this analysis would lead to a complete genealogy of concepts.

II. ELIMINATION OF PSEUDOPROBLEMS FROM THE THEORY OF KNOWLEDGE

Theses:

1. Only statements with factual content are theoretically meaningful; (ostensible) statements which cannot, in principle, be supported by experience are meaningless.
2. The empirical sciences use only the empirical concept of reality.
3. Philosophy uses a nonempirical (metaphysical) concept of reality:
 - a. the theses of realism and idealism concerning the external world have no factual content;
 - b. the same holds for the theses of realism and solipsism about the heteropsychological.
4. The theses of realism and idealism can neither be supported nor refuted within a science; they have no scientific meaning.
5. The pseudo theses of realism and idealism express, not the theoretical content of a scientifically permissible statement, but only accompanying object representation; conceivably they express a certain practical orientation toward life.

CLASSIFICATION OF POSSIBLE OPPOSING VIEWPOINTS | 341

CLASSIFICATION OF POSSIBLE OPPOSING VIEWPOINTS

Whoever wishes to contradict the indicated position, especially if he wants to claim scientific status for a thesis of realism or idealism, must take one of the following viewpoints; our reply ("Rpl.") is given in each case.

1. It is claimed that factual content is not a criterion for scientifically meaningful statements. Hence, a certain nontautological statement (which we shall call p), for example one of the theses of realism or idealism, is taken to be meaningful, even though it does not have factual content. Then it is necessary to find a new criterion for the meaningfulness of statement which is more extensive than the criterion of factual content.

This can be done in various ways; let us first classify the different conceptions of p:

 1. p does not designate any fact. Rpl.: then p is meaningless; for what else but a fact can a statement express? In what sense could something be called "true" or "false" if it does not designate an existing or nonexisting fact?
 2. p does designate a fact.
 - a. This fact is in principle unrecognizable. Rpl.: then p is meaningless, for how can p be distinguished from a meaningless combination of signs, if the alleged content of p is something that cannot become the content of any experience?
 - b. The fact, though recognizable, is not empirically recognizable (for otherwise p would have factual content). Rpl.: All knowledge rests upon experience ("experience" is taken in the widest sense, as the theoretical content of experiences of any kind).

The following classification cuts across the division 1-2:

- 1'. A new, expanded criterion for the meaningfulness of statements is narrow enough so that it just admits p (and certain other desired statements); on the other hand, obviously meaningless statements which are not to be given scientific status (for example, the abovementioned statement of Jupiter hidden in a cloud, § 7), do not fulfill the criterion.

Here we can again distinguish two possibilities, not relative to the content of the criterion, but relative to the status it would have in its present form:

- a. The new criterion is already formulated. Rpl.: it must be demonstrated that obviously meaningless statements do not fulfill it.

- b. It is assumed that a criterion of the indicated kind must exist, but it cannot yet be stated. Rpl.: in this case no actual position is maintained, there is only an intention to look in a certain direction for an as yet undetermined position.
 - 2'. The new criterion is not narrowly limited in the indicated way but has a wide compass (for example: "any utterance of any person which has influence upon my actions will be considered scientifically meaningful" or something like this). Rpl.: then expressions such as a bang with the fist on the table, a cry of joy, a lyric poem must all be considered scientifically meaningful statements.
- II. Factual content is taken to be a criterion. However, it is held that one of the two theses, namely realism or idealism, has factual content. We distinguish two cases depending upon the field to which the supposedly factual thesis relates:
 - 1. The thesis relates to the heteropsychological alone. Question: Is the (alleged or denied) "reality of the heteropsychological" understood in such a way that the theoretical content of the statement "A is joyful" exceeds the theoretical content of the corresponding physical statement?
 - a. Yes. Rpl.: Then there exists an obligation to indicate the constituent which goes beyond this physical statement, and to show that it can be supported (i.e., the characteristics of the experiential content which would confirm or disprove it must be indicated). If the theoretical content, and not only the accompanying object representation, of a statement p exceeds that of statement q , then there is a statement r (which we call "the constituent in which p exceeds q ") of the following kind: r is independent of q ; the content of p includes the content of r and q (conjunction). In our case p is the statement "A is joyful," q the corresponding physical statement; now we ought to be able to find an r of the following sort: r is always true whenever p is true; r may be false when q is true; r has factual content. (For a precise formulation, the statements p , q , and r must be replaced by propositional functions with time variables.)
 - b. No. Rpl.: Then there is no conflict with our viewpoint. There only remains the terminological question whether in this case, one should still speak of "realism", "idealism", or "solipsism".
 - 2. The thesis relates (in addition or exclusively) to the external world. Question: "does reality of the external world" mean that the theoretical content of the statement "Mont Blanc really exists" has a constituent in which it exceeds the theoretical content of the corresponding statements about perceptions?

- a. Yes. Rpl.: then there exists an obligation to identify that constituent and show how it can be supported (cf. 1, a).
- b. No. Rpl.: see 1, b.

For the sake of clarity, all critics are requested to admit explicitly to one of these viewpoints.