Kai Sørlander

The structure of pure reason

Philosophy's view of our situation in the world

Apr. 26, 2023: 15:10

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Danish publisher: Ellekær, Copenhagen, Denmark

Danish publication date: 23 August 2022

Translation period: January 30, 2023 – Apr. 26, 2023: 15:10

Image on the front cover:

Vassily Kandinsky: "Im Blau", 1925, Kunstsammlung North Rhine-Westphalia

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Georg Henrik von Wright's 1994 foreword to [7]

In the summer of 1978, I received a letter from a young Danish philosopher, previously unknown to me, Kai Sørlander. He asked me to read and comment on a philosophical treatise that he had written. He had obviously not succeeded in finding a reader for his work in the academic – philosophical milieu in Denmark. With some hesitation I agreed. It was clear to me that I was taking on a demanding job in a case that I was not obligated to get involved in. After an initial correspondence, I received a copy of the thesis. I read it slowly and during the reading became convinced that here was a work of a genuine philosophical gift. After approx. half a year I was able to communicate my critical views on the thesis to the author. This was the prelude to a philosophical correspondence which has now lasted for 15 years and which includes several hundred pages of letters. In the past time, I have received two more substantial theses by Sørlander: one on "Time and Space"; from the years 1981 – 83 and one from 1992 with the title The Inevitable. Apart from a number of changes and additions, the latter is identical to the work that is hereby published. Moreover, during the years we have corresponded, I have received a large number of separate philosophical inquiries.

Reading Sørlander's work and exchanging letters with him has been both educational and stimulating for me. I have gradually been strengthened in my perception of his analytical rigor and argumentative ability, as well as of the seriousness and depth of his efforts. We have never met in person.

Sørlander's work is dominated by a pervasive problem: What is such that it cannot be denied without contradiction? Or put another way: What is it that we must accept as necessarily true within various areas of cognition? The title The Inevitable indicates the objective of his entire philosophical writing.

Where should Sørlander be placed in the traditional philosophical landscape? Which tradition or trend in modern philosophy does he belong to? The question is not easy to answer, partly because Sørlander's work is characterized by great independence, partly because he rarely takes a direct position on the views of other philosophers. Most likely,

I will assign him to the logical – analytical trend. One could perhaps also describe his thinking as a "post-Wittgensteinian Kantianism". Like the term he himself uses for his method, "transcendental deduction", Sørlander's basic question has a characteristic Kantian "sound". It is a given that Sørlander has extensive knowledge of modern philosophical logic, scientific theory, cognitive research as well as ethics and political philosophy. The lesson does not weigh down his presentation, but is present behind it.

The most striking feature of Sørlander's philosophy is the broad register. He penetrates with the same conceptual instruments ("methods") all the problem areas of philosophy. I will briefly try to characterize the most important steps.

The basic idea – which is then varied in numerous ways – is the idea of an interdependence of the meanings of designations and consistency relations between propositions. What the words of a proposition mean is shown in the propositions which it implies and which it contradicts; but conversely, the relation of consequence and contradiction between propositions gives meaning to the words or terms included in the propositions.

From the idea of this interdependence, one can easily generate an arsenal of concepts that are fundamental to the further analysis (the deduction): the structuring of the propositions into subject and predicate, the concept of thing, the identity and difference of things, the modal logical concepts of possibility, necessity and impossibility etc. Using the instruments of this arsenal, the author then proceeds to carry out his "transcendental deductions". Things must be in space and time, and they are in contingent states, between which there are contingent (non – logical) implications, i.e. causality. As far as physics is concerned, the transcendental deduction is already carried out with particular thoroughness in the mentioned treatise, "Time and Space". Elementary particle physics rests conceptually on the basis of "classical" Newtonian physics – a plausible, if debatable, position. From physics, Sørlander moves on to biology; the concept of 'living being' is introduced and the prerequisites for purposeful behavior (teleology) are deduced. The transcendental conditions of consciousness are discussed in a very interesting chapter of The Inevitable. Via the concept of need, a natural transition is then created from the

concepts of life to the philosophy of moral and political (also aesthetic) concepts.

As can be seen, this is an almost complete review of all the traditional problem areas of philosophy. But it does not take place "in leaps", from one area to another, but in the form of a continuous application of the idea and basic conceptual apparatus of the transcendental deduction.

Here I would like to mention two issues in particular where Sørlander's ideas have influenced my own thinking.

One question concerns the concept of 'need'. There is an extensive psychological literature on the subject, and it also plays a major role in economic and sociological science. But it is striking that it has hardly been systematically studied at all in modern, analytically oriented philosophy. Here, Sørlander has made an original effort, which I believe will also find fruitful use in psychology and social science. The starting point is very simple: a distinction between needs and wants. Everything we need we don't want – and we want a lot that we don't need. These distinctions then become the starting point for an intrusion into the conceptual world of ethics and values. A bridge is built between undesired needs and the notion of what a person ought to do.

The second thought, which has particularly impressed me, concerns the difference between animate and inanimate material systems and the former's capacity for purposeful behavior. The idea that Sørlander develops here is, as far as I know, completely original. According to this, the "key" to said ability is that a living being has a cellular structure, while its genetic code is contained in all cells.

This highly fascinating thought also sheds light on the questions about the nature of consciousness and the difference between "humans and machines" that are debated in modern "philosophy of mind" and cognitive research.

A critical reader of Sørlander's work might wonder at the amount of a priori truths that can be deduced transcendentally from the narrow conceptual basis that Sørlander uses. In our previous correspondence I have also expressed the presumption that this basis must be expanded to ensure the full validity of the deductions. I believe that the author's far-

reaching apriorism, especially regarding the basic truths of physics and biology, must best be understood as something I myself would call "aposteoretical apriorism" or as a conceptual post-construction on the basis of the empirical material available to modern science. Understood in this way, it looks plausible. Otherwise, on the basis of pure deductions, one should have been able to foresee several of the most important results of elementary particle physics and genetics – something that seems improbable.

There are also details in Sørlander's reasoning that I have doubted, e.g. the derivation of the universal causal law as a prerequisite for being able to talk about different properties of the same thing at different times. Our disagreement on this issue seems to be related to different perceptions of the concept of identity and the validity of the so – called identitas indiscernibilium principle.

Another question, where I have not been able to fully share Sørlander's position, concerns the possibility of being able to universalize the basic ethical norm, which states that the individual should act in a manner consistent with that he can continue to exist as a person. The universalization implies that the individual should also act in consistence with the fact that other persons can act according to the same principle of consistency. Intuitively, such a generalization seems to be a cornerstone of a secularized ethics, but whether it can be derived solely on the basis of a consideration of the individual's ethical obligations seems uncertain to me.

Over the years, a number of Sørlander's separate studies have been published in Norwegian, Swedish and Finnish journals. An article entitled 'Necessity, Identity and Universality' was printed in English a few years ago in the Finnish Science Society's Commentationes. It contains, in my opinion, a rather astute criticism of, among other things, Saul Kripke's famous theories of essential identity. In Sørlander's production, it can be said to stand on its own in relation to the otherwise pervasive ideas of transcendental deduction.

A translation into English of the herewith presented synthesis of Sørlander's earlier works would also be well motivated. Even so, I believe that the full strength of his argumentation best comes into its own in Sørlander's concise and personally marked treatment

of the Danish language.

A book like The Inevitable will not become a bestseller. But it has the prerequisites to one day be considered a classic in Danish philosophy from this century.

Helsingfors, November 1993

Georg Henrik von Wright

Author's preface

Philosophy asks for the deepest truth about the world and our situation in the world: that which under no circumstances could be otherwise. Throughout history philosophers have tried to answer this question. They have set up different philosophical systems, but none has won general acceptance; and it is today a widespread view that the time of philosophical systems is over. Instead, one has assumed that there is no ultimate truth, but that there are only particular and local truths.

However, this position is contradictory. One cannot consistently deny that we can arrive at a definitive and universal truth about our situation in the world, because in that case this denial itself must be given the status of a final and absolute truth about our situation in the world.

Therefore, our culture lives on a fundamental misunderstanding of our situation in the world. And therefore, it is important to get this misunderstanding cleared out of the way. This means that we have to start all over again and ask the philosophical question from the ground up – and with the understanding that we cannot rule out the possibility of a valid answer because a such exclusion will be self-contradictory.

This is what is done in this book. It is explicitly shown how to proceed uncovering the system of mutually defined basic concepts which must be presupposed by any possible description of reality and any possible description of our situation as persons. And thus, in principle, a definitive answer to the philosophical question is given.

Dines Bjørner, second translator's foreword

I am a computer scientist, studies methods (principles, procedures, techniques and tools) for how trustworthy computer programs can be constructed.

In the early days of programming, that is, as from the late 1940s, emphasis was on transcribing algorithms (and data) into programs. It was then called 'software engineering'. Around the early 1970s that emphasis was widened to include 'requirements engineering'. It was not till 40 years later that the term 'domain engineering' entered the software (systems) design area. The adage was proposed: *Before software can be designed one must understand its requirements; and before requirements can be prescribed one must understand the [application] domain.*. In order to analyze and describe natural and human-made, i.e., artifactual, domains one must understand what is analyzable and describable. Here Kai Sørlander's Philosophy, as outlined in five of his books enters the picture. Each of these five books tackle the issue of what can rationally be described about the world and our situation in to – as holding in any universe.

I came across Kai Sørlander's work around 2014. It has never left my mind since.

I devoted a full chapter to a 'synopsis' of an essence of Kai Sørlander's metaphysics work in my most recent book.

Since Kai Sørlander's books are all, and only, in Danish, I eventually decided to have his latest book translated. So I did. Starting in January 2023, I produced this translation in close collaboration with Kai Sørlander. His work eventually entailed more work than my work. Chapter-by-chapter I translated the present book. Each such translated chapter was then sent to Kai Sørlander for his remarks. I received Kai Sørlander's very extensive and careful remarks. After a few more smaller rounds of review the book was released.

Introduction: The task of philosophy

This book is philosophical. This means that it is defined by the question of what is thus necessary that it could not under any conceivable circumstances be otherwise. Such a necessity must be purely conceptual. It must purely conceptually could be conceived from the fact that the question can be asked. Otherwise, it cannot be justified as being absolutely necessary. There can't be any alternative absolute necessity; for where there can be an alternative, the absolute necessity cannot be.

Therefore, the book does not simply present one point of view among others; but it presents the point of view that one should have as a philosopher. It is in the very nature of philosophy.

This implies that the book makes special demands on its reader. You cannot understand it if you simply read it "from the outside". If you really wish to understand, then you have to "go in" and think along. And get into the book and think along you can only do if you ask yourself from within the question which is the question of philosophy – and of the book: What is thus necessary that it couldn't be different? And only if you ask this question all the way to the bottom.

We live in a spiritual climate where such thinking has difficulty to find fertile ground. Where the dominant belief is that there is no absolute necessity and that it is pointless to strive for it. This attitude also paralyzes the pursuit of truth in universities. It is a legacy of Nietzsche's misunderstanding of, what spiritual strength entails. For Nietzsche, one marks one's spiritual strength by setting one's own truth. But the one who really has spiritual strength, does not content himself with setting his own truth: what is the

absolutely necessary. The one who sets his own truth is the one who is spiritually weak and unable to live up to rationality's universal obligation. The spiritually strong understands himself under the universal obligation of rationality. It is the resort of laxity to believe itself above this obligation.

Philosophically, Nietzsche represents a wild road – and the present a low point. Kant, on the other hand, represents the philosophical endeavor in its deepest seriousness. Regarding Kant, it is not the endeavor itself, that is wrong. It is where he lets his philosophical endeavour find its absolute foundation. Here it is necessary to go deeper than Kant. What that implies, the book shall try to unravel.

It is not the first time that, in book form, I have tried to express my thoughts about the task of philosophy - and about the answer to this task. I has done so before in three books: In *Det Uomgængelige* [*The inevitable – Philosophical Deductions, 1994*], *Den Endegyldige Sandhed* [*The Ultimate Truth, 2002*] and *Indføring i Filosofien* [*Introduction to Philosophy, 2017*]. In principle, it is the same position which is expressed in all these books – and also in the present one. But at the same time, there is also a development towards greater clarity. For example when I go from formulating the fundamental basis as "the interdependence between the meaning of designations and consistency relations between propositions" to formulating it as "the principle of contradiction and its implicit theory of meaning". The principle is the same, only the wording has changed.

In this new book I also carry out the transcendental deduction of the fundamental conceptual conditions for any possible description of reality in a different way than I have previously done. For example, the deduction of the concept of time and of the causal principle appears here before the deduction of the concept of space and the geometrical principles. This does not mean that it was wrong in the past. It only means that the deduction can be constructed differently than I have previously done. And when you understand this – that both paths are possible – then you also understand better what one is doing when going each way separately.

Like my previous books, this one is also written out of gratitude to Georg Henrik von Wright, who made it possible for me to get published my first book.

1

Philosophy and rationality

1.1 The philosophical wondering

Philosophy springs from wondering. A wondering so deep and comprehensive, as it can be. A wondering that anything at all exists. Why is something at all – and not nothing? And when philosophy thinks about this question it is also confronted with the question of what is thus necessary that it under no circumstances could be otherwise. Is there anything at all which is thus necessary that it could not be otherwise?

In thinking about what to answer, it is natural to relate to what others have answered. Does there exist already an answer that one can and should agree with, or do one has personally to think oneself forward to a new answer? Are the justifications that others have given for their answers valid – are the answers valid – or do one have to seek for deeper reasons? As a philosophizing thinker, one must relate to what one knows about what others have thought, but one has to think from one's own reasons – reasons that one personally embrace.

When asking what is so necessary that it could not to be otherwise, one really asks what can rationally be justified as being thus necessary. The questioning that one, as a philosopher, is entangled with, is a rationally obliged questioning. But what does that mean? What is it to be rationally committed? What does it mean to be reasonable?

Thus, thinkers have asked and discussed throughout history. Thus, every true philoso-

pher wonders.

1.2 What is it to be rational?

As a starting point, to be rational is to stand up for one's own beliefs with the weight for which one has justification. As a rational person one makes sure that one only has beliefs that one can justify are true – and so far that one can justify that they are true.

But is it even possible to meet this requirement of rationality? Initially, I will settle for pointing out that we cannot rationally exclude that we can fulfill it. Because if someone rationally wants to rule out that it is possible to fulfill the requirement, then he must thereby himself assert something which he excludes that he can have sufficient justification for. And so he must contradict himself. Hence the very possibility – that we can be rational – cannot be excluded. It is open.

1.3 The philosophical question and the demand of rationality

The same also applies in the special area of philosophy. We cannot rationally rule out that we can answer the philosophical question of what is so necessary that it could not consistently be different. For such a principled exclusion must be self-contradictory. It itself implies that something is thus necessary, that it could not be otherwise – namely that we cannot rationally answer the philosophic question – at the same time that it itself denies that such a rational cognition is possible.

With this, we have not positively justified what is fundamentally so necessary that it could not consistently be otherwise. We have only justified that we cannot absolutely rule out that something is thus necessary, without contradicting ourselves. Positively we can, for the time being, only say that that which is fundamentally necessary such that it could not consistently be otherwise, somehow must lie implicit in the argument that we have already advanced. The task is "simply" to think it into the open.

Here it is important to understand that it can easily be the case that a person cannot

think himself forward to an answer to the philosophical question of *what is thus necessary that it could not consistently be otherwise*. And it could also easily be that you are yourself such a person. The fact that we assert that it must in principle be possible to answer the question, does not imply that we must also assert that we all can actually answer it. On the contrary, we must understand that we cannot conclude from the fact that we cannot actually answer the question ourselves, to the conclusion that then there are no others who can answer it either. For this inference is invalid. One's own inadequacy need not be everyone's. In principle, we cannot rule out the possibility that the question can be answered, and therefore that someone can answer it.

1.4 Pure reason and philosophy

The argument advanced so far applies to all creatures that stands under the obligation of rationality. It therefore applies to all persons. Purely rationally, the argument is universally valid.

As a result of the special nature of philosophy – the special questioning – a philosophy cannot be valid without it being universally valid. It must be valid for every possible person because it applies as a result of the very nature of the philosophical questioning. Different persons cannot have different valid philosophies because it is implicitly given by the very depth of the philosophical question of *what is thus necessary, that under no circumstances could it be otherwise*, that there can be only one valid philosophy. The philosophical question can in principle only have one valid answer – in that it concerns *what is so necessary that it is not at all possible that it could be otherwise.*

That is to say, philosophy – as a result of the very nature of the philosophical question – must ultimately be a matter for pure reason. It must be a matter for reason, as it is in itself and independently of anything that could be otherwise.

If the philosophical question has an answer at all, then this answer must lie implicitly in reason itself – independent of everything that could be otherwise and as such is basically accidental. The answer must lie implicitly in pure reason. And we cannot consistently

exclude that the philosophical question has an answer.

1.5 Philosophy and independent thinking

Every person must, in principle, have the basis to be able to answer the philosophical question. This is a purely logical claim. But it is not logically given that every person can also actually devise the answer to the philosophical question. It is not even logically given that any person can actually devise the answer to the philosophical question, though it is logically given that every person in principle must already have the prerequisites for being able to devise the answer. It is an empirical fact, whether a specific person has the ability and willingness to devise the answer and unfold it concretely. And it is also an empirical fact, whether other persons have the ability and willingness to follow the concrete unfolding of the answer.

To be a philosopher in the true sense requires that one thinks independently. It requires that you use your own head to devise the answer to the philosophical question of *what is thus necessary, that under no circumstances could it be otherwise.* As a philosophical thinker, you can think radically independently: simply based on the conceptual resources that you have as a person, and without the knowledge that other persons have even thought in the same direction. It is an independence which is in principle possible, but which is also unrealistic. The realistic thing is that we think independently in some form of dialogue with other thinkers who also think more or less independently. The realistic thing, then, is that we think in a tradition, where already exist various more or less explicit – and more or less well-founded – attitudes towards, how the philosophical question shall be understood and answered.

Philosophical originality implies thinking independently and innovatively in relation to the handed-down traditions and the surrounding thinkers. Philosophical originality, then, is not in itself infallible. One can be an original philosopher and think wrong about what the deepest ground of existence is: *that which ultimately is so necessary that it could not be otherwise.* There can be philosophical errors which lead to significant advances for thought

when they are thought through, and when one consequently understands that they do not hold.

If one is philosophically original and at the same time think philosophically correct, then one devises the answer to the philosophical question that every person in principle has a basis for being able to devise, solely because one as a person is rationally obliged and can ask the philosophical question. The philosophically original and independent thinker who thinks consistently does not arrive at something that is complete his own, and which has his[1] own personal stamp. On the contrary, he reaches a truth that belongs – and is in principle accessible – to every person who has the will and ability to devise the universally – and therefore only – valid answer to the philosophical question.

1.6 History of philosophy

When we ask the philosophical question, we do so on the basis of a tradition where others more or less precisely already have tried to ask and answer the same question. With our own situation as a starting point we can go back in this tradition and explicate, how the perception of and the answer to the question have changed. And when we thus go back, we are led – with many intermediate accounts – to the ancient Greeks. To the pre-Socratics, Plato and Aristotle. Their world of thought constitutes the historical starting point for the philosophical-historical tradition that leads to the world of thought in which we ourselves ask the philosophical question.

The historical tradition that we can thus uncover is not a part of philosophy as such. But it is central to our understanding of our own starting point for asking and answering the philosophical question: that we not only have the fundamental prerequisites to ask and answer the question, but that we actually seek to realize these prerequisites within a concrete historical tradition. On the shoulders of a number of special thinkers. Our philosophical-historical tradition is central to the understanding of how we – precisely us – have arrived at being able to think in principle about *what is thus necessary, that under*

[1]The personal pronoun shall, of course, be considered gender-neutral

no circumstances could it be otherwise.

The history of philosophy is the history of how our predecessors have tried to answer the philosophical question of what is absolutely necessary. It is the story of which theories they have put forward in the attempt to answer this question – and about their arguments for and against these theories. When we learn about the theories and the arguments thus handed down, then we get a basis from which we can think through our own independent answers to the philosophical question. And in that process we also learn from wrong philosophical theories: When we understand the arguments for why they are wrong, then we are left with a lesson, which brings us closer to being able to understand what must be the valid position.

However, the history of philosophy is primarily history and not philosophy. Philosophy – the philosophical truth – must as such be independent of history. This it must, because according to its definition it concerns *that which is thus necessary that it could not be otherwise*. It is located in the nature of philosophy, that the valid philosophy must be true at all times – from eternity to eternity. This applies purely conceptually. Is our philosophy not eternally valid, then it is not valid.

1.7 The dominant philosophical position at present

This is how we should understand philosophy: as the effort to uncover the truth of what could not possibly be otherwise, and what is therefore absolutely valid for every possible world. But it requires seriousness in thinking; and that seriousness is denied by what in our time goes by the name 'philosophical thinking'.

This thinking is characterized by relativism and historicism. That means that it fundamentally relativizes our thinking in relation to a special perspective – and this special perspective then can be our historical position. Thus historicism closes our thinking inside an absolute dependence on history – and thus on time and place. But this is a provincialization of philosophy. Rather, it lies in the very philosophical endeavour, that it should ask itself beyond any provincialization – any relativism – in that it should ask about the

conceptual conditions of thinking itself: that which is a necessary condition for thinking to be logically possible at all.

Heidegger stands as an important source of inspiration for the modern historicization of philosophy, which characterizes postmodernism. Heidegger believes that we have "forgotten" that openness to being, which characterizes the pre-Socratics, and to which he himself now wants to lead us back (or forward). That we forgot when we followed Plato in the effort to find the absolute. But in that understanding of the history of thinking, Heidegger has "forgotten" something even deeper. He has forgotten the radical philosophical question itself, which is not satisfied, unless it stands with the knowledge *of that which under no circumstances could be otherwise.* With this, Heidegger excludes himself from a questioning which logically belongs to us as rationally committed beings; so if we follow Heidegger, then we fail ourselves as rational beings. This also means that the postmodern movement in modern philosophy fails us as rational beings.

The universities have a special responsibility for this failure. Officially it is their task to stand for society's best thinking about the world and our situation in the world. When these universities instead have actually stood for an attitude which denies the very possibility of serious philosophizing, and that is unable to think through its own contradictions, then it is not only the universities that have gone astray, so has the whole of the societal culture that they represent.

The question then is what this means in the long term for the culture which is thus astray. When we lack the right understanding of our situation as rationally committed persons, can we then react rationally on the challenges that we – individually and socially – faces?

1.8 The task

If we are to avoid living in a false and poorly thought-out conception of our situation in the world, then each of us must personally attempt to think through the philosophical question of *what is thus necessary that it is impossible that under any circumstances it*

could be otherwise. Only when we understand this necessity can we understand what the necessary features of our situation as persons capable of self-reflection must be.

But before I go to my own universally binding attempt to answer the philosophical question, I will deal with some idea-historical experiences, which each in their own way and together can open up for us to the answer that we seek.

To begin with – in chapter 2 – I look more closely at Kant's reaction to Hume's analysis of the causal relationship. Hume takes necessity out of this relationship, and Kant tries to re-establish it. But does Kant succeed, or must one go deeper?

Next – in chapter 3 – I look more closely at the meaning of developments in modern physics. In the early 1900s a decisive break with Newton's classical physics occurred. On one side, Einstein developed the special and the general relativity theory. And on the other hand, a number of physicists developed – with Niels Bohr as a central figure – quantum mechanics. What does this development really mean for our understanding of how the world, in which we live, basically must be? And can it teach us something about how the philosophical question should be answered?

In the first place, developments in physics teach us that Newton's classical mechanics has a special position as a system of basic concepts for description of reality. And on that basis, it is worth looking up and seeing that in our description of reality we actually also operate with other well-defined systems of concepts that can be seen in isolation from the whole. This applies especially to logic, arithmetic and geometry. I go into that briefly in chapter 4, before I in chapter 5 return to the real philosophical task.

2

Kant and Hume on causality

2.1 Kant as a philosophical rõle model

If there is a philosopher who tries to think the philosophical task as radical as I do, it is Kant. And if one will think oneself into what philosophy should be, then one get a good starting point if one tries to imagine oneself in his world of thought. But Kant also stood on the shoulders of a tradition, and he independently thought through the philosophical task on the basis of what he could learn from what others had thought before him.

In particular, Kant – in his own words – was awakened from his "dogmatic slumbers", when he was confronted with Hume's analysis of the causal relationship. And what could awaken Kant to philosophical reflection, must also be able to inspire us. So it makes sense to begin by looking more closely at Hume's analysis of the causal relationship. Then we can subsequently go into how Kant tries to solve the problem exposed by Hume. After that it is up to us to decide for ourselves whether we should join Kant or whether we should be open to go another way.

2.2 Hume's analysis of the causal relationship

If we are to understand Hume's analysis of the causal relationship, then it is natural to begin with his own well-known billiards example. We imagine an ordinary billiard table,

on which lie two billiard balls, one red and one white. When we hit the red ball, it rolls and hits the white, then it happens that the white also starts to roll. Normally we say that the red ball bumping into the white, causes this to start rolling. Like we say that the fact that the white ball begins to roll is the effect of it getting hit by the red. The causal relationship is thus a relationship between a specific cause and a specific effect.

On that basis, Hume then points out that there is no logical necessary link between the specific cause and the specific effect. That there therefore is no necessary connection between the fact that the red ball collides with the white, and the fact that the white begins to roll. We can easily imagine that the red ball collides with the white one, without the last one starts to roll. (It could, for example, be glued on to the substrate.) But the fact that this can be thought – and that it is possible – means that the specific causal relationship is not logically necessary: that there is no logically necessary connection between the specific cause and the specific effect.

However, Hume did not stop at the concrete example. That served only as an illustration of his general conclusion. He concludes quite generally, that it applies to every possible causal relationship that there is no logically necessary connection between the very cause and effect. The specific cause can always be thought to be possible without the specific effect – and vice versa. Hence it applies to every specific causal relationship that it is not logically necessary.

But what is the causal relationship then based on? Hume maintains that neither does it depend on something in objective reality, nor is it based on necessary principles of reason. According to him, it ultimately depends on habit. For Hume, our expectation that the white billiard ball will start rolling when hit by the red, is just an expression of the power of habit. We have previously gotten used to that process taking place. But for Hume it is simply a matter of psychological habituation, and not about any objective necessity.

2.3 Kant's reaction

This view, as I said, shook Kant. If you took it seriously, it meant that the world as an objectively existing reality fell apart. And that specifically implied that Newton's physics

had to rest on unsustainable presuppositions. If Hume was right, then it was built on sand.

But one thing is that Kant thinks that Hume's position is untenable. Another thing is whether Kant can prove this. Hume was of the opinion that such a proof is impossible, but for Kant the situation looks completely different. For him, Hume's position is beyond all reason, hence there must simply be a way out that Hume has overlooked.

What then does Kant mean that Hume has overlooked? Quite fundamentally, Kant points out that Hume overlooks the importance of us being able to distinguish between objective and subjective time sequences.[1]

A subjective sequence of time takes place when we let our gaze drift over a house: from roof to foundation. First, we look at the roof, and then we see the foundation. But we might as well have let the gaze slide the opposite way: from foundation to roof. The order is subjectively determined. The order of visual impressions follows from the way in which we direct our gaze; it is not an indication that something is happening to the house.

An objective sequence of time, on the other hand – according to Kant – takes place when we see a ship sailing down a river. First, we see the ship in one position, and next we see it in another position. But here the order of visual impressions depends not only by how we direct our gaze. We cannot simply let the gaze slide the opposite way and get the opposite order. Because the ship has sailed from one position to the other. The time sequence between the ship in the first position and the ship in its second position is objective. It is an indication of what has happened with the ship.

Hume had not included this distinction between objective and subjective time sequences in his analysis of the causal relationship. But it is of completely decisive importance for Kant's analysis of this relationship. For Kant assumes that when we can distinguish between objective and subjective time sequences, then we can also conclude that, in the objective time sequences, the second state follows from the first in accordance with a rule, while no corresponding rule exists when it is just a matter of subjective time sequences. And that objective time sequences must be subject to a rule, is just another expression

[1] Cf. *Critique of Pure Reason*, The second analogy of experience [5].

that they must be subject to the law of causality: the law of the connection between cause and effect.

But here we must understand the concept of the causal law in a way that Hume did not have in view. Based on Kant's analysis, we can clarify that what Hume correctly shows is that there is no logical necessary connection between a specific cause and a specific effect; but that Hume goes too far when from that he concludes that there is no necessary connection at all between cause and effect. What the law of causality says, is that it is necessary that a change – an objective time sequence – must have some cause. The causal law itself does not say that the change must have the definite cause which it actually has. What specific cause a specific change actually has, must be an empirical question. But that it has a cause is a necessary condition for us to be able to speak of an objective sequence of time, and therefore of a change.

2.4 Kant's deeper justification for the necessity of the causal principle

Thus far Kant has justified that the fact that we can distinguish between objective and subjective time sequences, implies that we need the causal principle. But with this, Kant is philosophically faced with a new problem: Why is it at all necessary that we must be able to distinguish between objective and subjective time sequences?

Kant answers this question in his own special way. For him the possibility of self-awareness is the fundamental focal point. It is that which we fundamentally cannot deny. Because we cannot at all deny something unless we are conscious of denying it, and therefore have self-awareness.

In Kant's conceptual framework, everything that must necessarily apply to every possible world, is equivalent to what must of necessity apply to our perception of the world: as a condition that we at all can have awareness of ourselves as cognizant beings in the world.

In the first place, Kant sets space and time as forms of perception: they are those forms

in which the phenomena of the world appear to us. And in the next round, Kant then argues that we cannot have self-awareness – awareness of ourselves as perceiving beings – without our having knowledge of objects which are enduring and which therefore exist independently of our immediate perception of them. And it is from here that Kant can give his central justification for the need for us to distinguish between objective and subjective time sequences. Thus Kant has tried to demonstrate that the causal principle must be a necessary condition for the possibility of self-awareness.

2.5 Problems for Kant's solution

I have now briefly outlined how Kant justifies the necessity of the causal principle – and thus how he justifies his reply to Hume. But it is an answer which also contains its own deep problems.

Fundamentally, Kant's justification for the necessity of the causal principle is placed in a conceptual framework where a distinction is made between objects as they are in themselves and objects as they appear to us – in our consciousness. And Kant's argument for the necessity of the causal principle only applies to objects as we perceive them: The objects which we perceive under the forms of perception 'space' and 'time', and which we recognize under the categories and principles of pure reason, including the causal principle. About the objects as they are in themselves, we cannot know anything more certain than that they must be there as an ultimate guarantee that the world is objective.

But on reflection this is an unsatisfactory position. It is a position where thought cannot settle down because it is faced with some questions that cannot be answered within the assumed conceptual framework. What is the relationship between objects as they are in themselves, and objects as we perceive them? It cannot be a causal relationship, for such a relationship only applies – according to Kant himself – between objects as we perceive them. But then it becomes mysterious what the relationship might actually be. The concept of objects as they are in themselves – independent of the conditions under which we can perceive them – is thus difficult to provide a comprehensible place in Kant's

system. But at the same time that concept is necessary if Kant should not end up in a form of solipsism.

2.6 The deeper answer to Hume's problem

First of all, we need to understand what the real reason is why Kant entangles himself in the problem of the relationship between objects as they are in themselves and as they are to us. The basic reason is that he fundamentally starts from the possibility of self-awareness, and that he therefore justifies the necessary features of the objects in the world as necessary condition for us to have self-conscious recognition of the objects in the world. But if Kant's starting point leads to an untenable distinction between objects as they are in themselves and as they are to us, what other – and deeper – starting point should we build on instead? Is there any such other and deeper starting point at all?

To be able to answer this question, we need to take a closer look at the conceptual foundation that the formulation of the causal principle presupposes. Is there something in this foundation that both Hume and Kant (and the subsequent tradition) have overlooked and which at the same time has a conceptual strength, so that it can support a justification of the causal principle?

Since the causal principle primarily presupposes the concepts of 'time' and 'change', this question requires us to look more closely at these concepts. Fundamentally, the concept of 'time' is connected with the possibility of change. That an empirical object is in time means that it can be changed; and this again is equivalent with the fact that it can exist in different temporally linked states in which it possesses incompatible predicates.[2] Thus the fact that an empirical object changes is equivalent to the fact that at one point in time it possesses a certain predicate and that at another – and later – point in time it possesses an incompatible predicate. This is a fundamental and elementary definition of the connection between the concepts of 'time' and 'change'.

[2]That an object possesses a predicate is equivalent to (or short for) that the object possesses the property that is expressed by the predicate.

If we take this definition seriously, then we must logically conclude that propositions about how an empirical object is at different times, must be logically independent of each other. We cannot logically infer from a proposition of how an object is at one point of time, to a proposition about how the same object is at another point of time, because it is logically possible that an object can possess incompatible predicates at the two points of time.

If this conclusion is correct, then the question is how it is at all logically possible that propositions can be about the same object at different times. For Kant, the answer is that they can, because a self-awareness must perceive independently existing objects as enduring in order to be possible at all. This answer is, however, untenable. Not only because, as already demonstrated, it leads to Kant's problems; but primarily because persons – possible self-consciousnesses – themselves must be objects in time, and therefore must themselves be subject to the problem that propositions about what empirical objects are like at different times, must be logically independent of each other. If it is an open question, how empirical propositions can possibly be about the same object at different times, then it is equally an open question how empirical propositions can possibly be about the same person at different times.

But if we cannot solve the riddle of how propositions about how an empirical object is at different times could possibly be about the same object in the manner of Kant, then how can we resolve it? From a purely conceptual point of view, there is only one possibility. It is that the propositions of how an empirical object is at different points of time must stand in some form of non-logical relation of implication among themselves. What exactly does this mean? It means they must stand in a special form of relation of implication which depends on the empirical circumstances under which the object is, and under which it is stable or changing. There must be an interdependence between the object's circumstances and its change or stability.

This is the causal principle; and it is in this way that it must be justified: as a necessary condition for it to be at all conceptually possible that propositions about what an empirical object is like at different points of time can be about the same object.

2.7 The fundamental conceptual framework

But one thing is that the causal principle can be justified as a necessary condition for empirical propositions to be about the same object at different times. Another thing is whether these conceptual connections belong among the conditions for every possible description of reality, or whether they simply belong in the description of our particular – provincial – world.

Just as Kant put his response to Hume into a conceptual framework that was built upon a deeper foundation, namely on the basis of the transcendental deduction of the conditions for the possibility of self-consciousness, then we must also find such a deeper conceptual framework into which our alternative to Kant's deduction of the causal principle can be built. But on what should the conceptual framework that we are looking for be based when it should not – like Kant's – be based on the possibility of self-awareness?

Implicitly there lies an answer to this question in our special deduction of the causal principle. We deduce that propositions about how an empirical object is at different times, must stand in a form of non-logical relation of implication among themselves. It is this non-logical relation of implication, which finds its expression in the causal principle. But thus we also have an indication of what must fundamentally set the conceptual framework in which the causal principle must be fitted. Because when we characterize the causal principle as implying a form of non-logical implication relation, then we presuppose the notion of a logical relation of implication. What a logical implication relation is, and what it entails must set the conceptual framework for the characterization of the causal principle. This points beyond the narrow discussion of the causal principle. It points towards the fundamental answer to the philosophical question of *what is thus necessary, that under no possible circumstances could it be otherwise.* I return to this question in chapter 5.

Before then, I will, however, try to put the discussion of the causality principle into another historical context. For Kant, saving the causal principle from Hume's criticism was linked to saving Newton's classical physics. So if we continue to think with Kant as a role model, then here lies a challenge to think about, how Newton's physics – the physics

that Kant thought was settled – looks like on the basis of the later developments in physics.

3

What philosophy can learn from the special development of physics

3.1 Newton's physics as a scientific paradigm

In 1687, Newton's main work *Philosophiæ Naturalis Principia Mathematica* was published, in which he formulated a system of principles for the description of the movement of material things in space and time. In contrast to Aristotle's earlier system, it was now the same principles which applied to the description of material things here on Earth, and which applied to the description of the celestial bodies, the Moon and the planets. That specifically meant that Newton's system united Galileo's principles of mechanics with Kepler's laws of planetary motion.

Newton's system was exceedingly efficient; and in connection with the construction of better and better observation- and measurement instruments, one could also confirm the theory with ever greater accuracy. Therefore, one could also use the theory to gain new knowledge. Thus, one could find out with the help of the theory that there was a disturbance in the orbit of the planet Uranus, which was due to a new planet, and thus Neptune was identified.

Over time, Newton's system gained iconic significance for the development of science.

It stood as a paradigmatic example of how a science should be designed. On the one hand, every other science had to deal with the fact that it must be possible to describe the movement of material things according to Newton's principles. And on the other hand these sciences should also themselves formulate some principles which could be compared to Newton's if they were to live up to being real sciences.

Newton's approach set the framework for the discussion of scientific theory in the following centuries. On the one hand, you could ask: When our bodies are material things subject to Newton's physical principles, how can our consciousness – our psyche – get a place in the management of our actions at all? Can we have a free will, or is everything determined? And on the other hand, one could try to find some principles for the biological and social development which "corresponded to" Newton's principles and which ensured that one could establish real sciences in the biological and social territory.

This was the situation up to the end of the 19th century; but then there happened, within physics itself, a radical development which completely changed the intellectual climate. With increasingly sophisticated measuring technique one encountered some empirical limits – respectively a velocity limit and a quantum of action – which completely broke with the prevailing understanding of Newton's system of laws of nature.

3.2 The velocity limit and the theories of relativity

On the one hand, it was found that the speed of light is special. In 1887 Michelson and Morley established experimentally that light has the same velocity, regardless of the direction it is moving relative to the earth. From that one could more generally conclude that the velocity of light does not depend on the movement of the light source. This again meant that nothing in principle could move faster than light: that the velocity of light had to constitute an upper velocity limit.

With this result, one was forced to "go beyond" Newton's classical physics. Initially, it happened with Einstein's formulation of the special theory of relativity, which in addition to Galileo's classical principle of relativity – which implies that the laws of nature are

the same in all coordinate systems which move uniformly relative to each other – is also based on the principle that the velocity of light is always the same and that it constitutes a velocity limit. The special theory of relativity led to a deeper understanding of the entanglement between space and time.

Understood in this way, the special theory of relativity can be seen as a generalization of Newton's classical physics. It is classical physics designed taking into account that the velocity of light constitutes a principled velocity limit, which it is impossible to exceed. (More technically you can also say that it is the classical physics generalized so that it includes Maxwell-Lorentzian electrodynamics.[1])

But seen in that light, the special theory of relativity itself also appears incomplete. First, it only presupposes that the laws of nature are the same in all coordinate systems that move uniformly in relation to each other. And secondly, it still does not include gravitation; but when the velocity of light is an absolute velocity limit, then this limit must also apply to the propagation of gravitation.

On this basis, Einstein made a brilliant move. He saw a fundamental relationship between gravitation and acceleration which allowed him to generalize the special theory of relativity so that there emerged a theory which is the same in all coordinate systems, regardless of how they are accelerated relative to each other, and which also includes gravitation. It was the general theory of relativity.

Mathematically, the general theory of relativity is far more difficult than the special one. But it was nevertheless taken seriously quite quickly, because it had some consequences that could be verified in the real world. Firstly, you could, during a solar eclipse, see some stars which should actually be covered by the solar disk. This could now be explained – completely in accordance with the general theory of relativity – by the fact that the Sun's gravitational field deflected the light from the stars. For the second, there is a deviation in the movement of the planet Mercury around the Sun, which earlier – in accordance with classical physics – one had tried to explain by the existence of a new and unknown

[1]Cf. Johannes Witt-Hansen, Om generalisation og generalisationsproblemer i de matematiske og historiske videnskaber, Københavns Universitets festskrift 1963, pp. 62-3 [14].

planet. However, this planet had never been found; and now one could instead explain the deviation in Mercury's movement on the basis of the general theory of relativity. Thus, this theory was not only theoretically consistent, but it was also empirically tenable.

3.3 Quantum of action and quantum mechanics

The second major break with Newton's classical physics arose from Max Planck's discovery that an electromagnetic field can only receive or release energy in well-defined minimum portions or quanta. Energy thus cannot be divided continuously but is discontinuous or quantified. The experimental experiences had to be understood to mean that physical reality turns out to be discontinuous when you get down to the smallest detail.

Niels Bohr exploited this insight in his ground-breaking theory of the structure of the atom. In Bohr's model of the atom, the electrons move in fixed paths around the core and can only change path by a discontinuous "jump" while emitting or absorbing light quanta. On the basis of this model, the organization of the elements that the chemists had already established could be substantiated with an emerging physical understanding of the structure of atoms.

However, Bohr's theory was incomplete in many ways. It revealed that a more general theory was needed to describe the interaction between light and atoms. And such a theory – quantum mechanics – was worked out during the 1920s in an intense collaboration between a number of different physicists, especially around Bohr's institute in Copenhagen.

It is characteristic of quantum mechanics that it implies a principled limitation in the applicability of causal descriptions. Quantum mechanics is necessary because atomic reality cannot be described classic-deterministically. The atomic reality must be described with a complementary use of both particle image and wave image, where neither can stand alone, but where the most complete description involves concepts from both images. This connection is especially expressed in Heisenberg's uncertainty relation.

3.4 Unification of quantum mechanics and theories of relativity

Quantum mechanics and the theories of relativity obviously apply to different aspects of reality. Quantum mechanics applies to the very small – to the smallest particles and at low velocities. The theories of relativity apply to the very large – at high velocities and for very large masses, where gravitation is of decisive importance.

But theoretically, reality as such must fall under all three theories – both quantum mechanics and the special and general relativity theory. This means that the theories must "merge into each other", when the velocities or masses change. And this then again implies that one must be able to unify the three theories. Or more precisely, that one must be able to unify quantum mechanics with both the special theory of relativity and the general theory of relativity (for the special and the general theory of relativity are already unified in the general theory).

Science has actually succeeded in unifying quantum mechanics with the special theory of relativity in building a unified theory that includes all of the physical forces with the exception of gravitation. This has happened with the construction of ever more refined quantum field theories, so that physicists now are in possession of what is called the standard model. It is the most refined physical theory ever - confirmed by the most accurate measurements.

But something is missing. The standard model needs to be unified with the general theory of relativity: that is, to get gravitation into the theoretical model itself. That has been worked on now for many years – among other things with the so-called super-string theories. But the problem still cannot be said to be solved in a satisfactory manner. It still stands as an open task for the physicists: a relatively clearly defined task. On the one hand, they have the standard model: the most precisely verified physical theory ever. And on the other hand, this model needs to be generalized so that it also includes the gravitational force and thus is compatible with the general theory of relativity. When the frame is thus set, why has it been so difficult to fill it out? Does it just require an extraordinary physical talent to make the pieces fit together, or could there be something

wrong with the approach itself?

3.5 Einstein's reservations about quantum mechanics

The development of the new physical theories – the theories of relativity and quantum mechanics – was not unproblematic. There were serious theoretical – philosophical – discussions about how to interpret the new situation: how to interpret the relationship between Newton's classical physics and the new more accurate theories.

In that context, Einstein's reaction is particularly noteworthy. Einstein was the absolutely central person in the innovation that led to the special and the general relativity theory. While Einstein could well accept that quantum mechanics was an advance, he could not accept that quantum mechanics should be an unavoidable physical theory. He refused to recognize that the limitation in the applicability of causal descriptions which is built into quantum mechanics should be conclusive. He believed that it might be possible to work out an underlying deterministic theory. This led to a lengthy discussion between Einstein and Bohr.[2]

The central question in the interpretation of quantum mechanics – and the question that Einstein raises – is the question of whether the limitation in the applicability of causal descriptions which are built into quantum mechanics, must be understood as an unavoidable feature of our description of reality. Or should we believe that it is possible – if we just think clearly and logically enough – to arrive at formulating a valid theory which manages to describe what takes place where quantum mechanics puts up with indeterminism?

If we are to be able to answer this question, we must first take a closer look on how we should understand the relationship between Newton's classical physics on the one hand and respectively the theories of relativity and quantum mechanics on the other hand. And here I want to start by dealing with a popular explanation of how this relationship is to

[2] A discussion that Bohr himself has described in his contribution to the Einstein volume in The Library of Living Philosophers series.

be understood. Because if it is valid, then the thinking is done.

3.6 Kuhn's paradigm theory

In his book *The Structure of Scientific Revolutions* [3] Thomas Kuhn puts forward a theory about how scientific development proceeds, which has subsequently gained significant impact in the academic world. Kuhn's theory is built around the concept of 'paradigm'. Science at a given stage will always be within some dominant understanding of how the world is: a paradigm. Normal science works within such a paradigm that determines what experiments are done and how they are interpreted. Scientific revolutions involve paradigm shifts. They take place when paradigms collapse and can no longer explain what the experiments show, and therefore what happens in reality. Then you need a new paradigm to explain how reality is connected.

In addition, Kuhn further argues that paradigms are basically in-commensurable. Different paradigms define the basic concepts differently and therefore cannot be translated into each other. And they can therefore not be rationally compared either. In Kuhn's theory paradigm shifts can thus basically not be explained as an expression of a rational development, but instead "merely" as an expression of a – basically irrational – change of attitude among scientists.

Kuhn then used this theory to explain actual development within the sciences – and especially within physics. Here he saw Aristotle's physics as a paradigm that for a long time determined the interpretation of the world, but which was eventually replaced by a new paradigm: Newton's classical physics. And this paradigm dominated until it was confronted with problems which it could not explain, and which required new paradigms: the theories of relativity and quantum mechanics.

The question then is whether this view of the development of science – in casu physics – is tenable. If we initially think it through purely in principle – that is: if we apply it to itself – then we can see that it undermines its own foundation. It is at its core itself a scientific

[3] Originally published in 1962 [6].

interpretation – and thus itself a scientific paradigm. But in that case, it cannot itself claim to be a rationally binding explanation of how scientific development takes place. If Kuhn's theory itself is a paradigm, then it must also itself recognize that it has conditional (limited) validity. At the same time as the theory claims to be valid, it also takes away the validity obligation from under itself. That's as close as we can come to a logical paradox.

This criticism of Kuhn is for now purely principled; but there is also reason to be critical of Kuhn's interpretation of the history of physics. It is fundamentally wrong to put the scientific revolution which occurred with the transition from Aristotle's physics to Newton's physics, on the same level as the revolution that took place with the transition from Newtonian physics to relativity theory and quantum mechanics. The first revolution was a real rupture. Newton's theory led to Aristotle's theory having to be rejected. The Second Revolution was not in the same radical way a break. It did not lead to Newton's theory being rejected, but only to its clarification. It was still valid for things that move relatively slow compared to the velocity of light, and which are relatively large in relation to the quantum of action.

If we acknowledge this criticism of Kuhn's interpretation of the history of physics, then we simultaneously reject his claim that paradigms are basically in-commensurable. For our reinterpretation of Kuhn's interpretation is equal to a rational comparison of different paradigms. But Kuhn's claim that paradigms are rationally in-commensurable, is also hit by the purely principled criticism against Kuhn's position: If paradigms cannot be compared rationally, then rationality is taken out of science itself, and then rationality is also taken out of Kuhn's own point of view. And a point of view which has this consequence is rationally – scientifically – untenable.

Kuhn's theory of the development of science is thus fundamentally flawed; and we understand something important when we understand that it fails in principle. But as I said earlier, Kuhn's theory has had significant influence. Not so much within the self-understanding of the natural sciences , as within the self-understanding of the social sciences and the humanities . Here it has stood in the way of a rational recognition of the special – moral – character of these sciences. And instead it has contributed to the in-

tellectual superficiality which these sciences have experienced and which the universities have experienced with them. But as important as this discussion is, it belongs in another context.[4]

3.7 A deeper understanding of the relationship between Newtonian physics and modern physics

Shall we understand the relationship between Newton's classical physics on the one hand and respectively the theories of relativity and quantum mechanics on the other hand, then it is natural to begin by looking more closely at how one actually found out that there was something wrong with classical physics and that it was necessary to move on to other theories. This was found out by noting on the one hand that the velocity of light did not appear as it should solely according to classical physics, but that it constituted a kind of velocity limit. And, on the other hand, by finding that when you get down to very small phenomena, then energy cannot be divided continuously as it should according to classical physics, but that it appeared in quanta. These empirically established conditions meant that in physics one had to go from classical physics to, respectively, the theories of relativity and quantum mechanics.

Here it is therefore important to understand that classical physics was used as a prerequisite for being able to measure the velocity of light so precisely that one could ascertain that it constitutes a form of velocity limit. Just as one used classical physics as a prerequisite for establishing that energy cannot be divided continuously. One could not have carried out the experiments which showed that the velocity of light is special and that the energy is quantified, if one did not have classical physics as a precondition.

Basically, it is a matter of classical physics defining the concepts which are a necessary condition for us to be able to formulate the theories of relativity and quantum mechanics at all. The theories of relativity presuppose that the velocity of light is finite and that it constitutes a limit. Just as quantum mechanics presupposes that energy is quantified.

[4]See more in Chapter 7, *Pure reason in the political*.

But for us to be able to ascertain that the velocity of light is finite and that the energy is quantified, we must have a well-defined concept of velocity and a well-defined concept of energy. And we have these concepts from classical physics. Classical physics gives us the definition of the concepts which are a prerequisite for us to be able to ascertain the facts – the finiteness of the velocity of light and the reality of the quantum of action – whereupon, respectively, the theories of relativity and quantum mechanics build. Therefore, these theories cannot be understood as overturning classical physics, but only as clarifying it when it comes to (very) high velocities and (very) small effects.

In principle, then, we should understand classical physics in such a way that it defines the concepts – especially the concepts 'mass', 'velocity' and 'energy' – which are a necessary condition for us to be able to discover and define the quantities that form the basis of, respectively, the theories of relativity and quantum mechanics.

3.8 The inner consistency and implicit consequences of classical physics

Since classical physics is a conceptual prerequisite for us to be able to formulate the theories of relativity and quantum mechanics at all, we can therefore conclude that these theories are clarifications (or generalizations) of classical physics. Therefore, the fact that the theories of relativity describe reality more precisely than classical physics, is not a sign that we should reject this physics. On the contrary, it is a sign that we should see this physics, as even more deeply confirmed than before.

But if that is the case, then it is natural to inquire in a new direction. When classical physics is a conceptual prerequisite for our discovery of the velocity limit and the quantum of action which are built into the theories of relativity and quantum mechanics respectively, is it then merely an empirical coincidence that there is such a velocity limit and such a quantum of action? Could it be otherwise? Could we have used classical physics to describe reality's smallest parts and highest velocities without ever encountering a quantum of action or a velocity limit?

To be able to answer this question, we must take a closer look at classic physics and its implicit consequences. In addition to the laws of motion (inertia and acceleration) Newton's physics also contains a law of gravitation, which states that all physical things attract each other with a certain force which decreases with (the square of) the distance. It is a law that applies to all things in the universe. It applies to the movement of things here on Earth: that they fall down if we throw them up. It is the cause of the fact that we are basically bound to the Earth's surface. And it applies to the Moon's movement around Earth and for the movement of the planets around the Sun.

Based on this universal law of gravitation, we can in principle conclude that there must be a velocity limit. At first it can be concluded that it must be impossible that the mutual attraction between physical things can move infinitely fast. Because in that case it cannot at all be characterized as an attraction between concrete identifiable things. Then, instead, it is simply a matter of a condition of the universe as a whole. An attraction between concrete identifiable things must therefore in principle be characterized as being propagated with a finite velocity.

In the second round, we must then be able to conclude that it must in principle be impossible for anything to move faster than the velocity with which its attraction of other things moves. The velocity of the propagation of the universal attraction must therefore be a principled speed limit. It is thus implicit in the law of gravitation of classical physics that there must be a velocity limit. This also means, that it is implicit in the law of gravitation of classical physics that it must be supplemented by a form of relativity theory. If we consistently think through classic physics and its law of gravitation, then the theory of relativity is a completely natural consequence.

But what about the quantum of action and quantum mechanics? Ordinary physical things have extension in time and space. They can in principle be divided into smaller parts. And since these parts must also be subject to gravitation, so may it become a problem how to explain the stability of ordinary things. In principle, we can conclude that if the smallest parts, of which physical things consist, can be described by classical physics (and this means, in effect, that we cannot talk about any smallest parts), then we

cannot explain why physical things can be stable at all. Then it is a mystery that there are relatively stable things that consist of stable substances. If it is to be possible to explain that there are such things, then this presupposes that they must consist of some smallest parts – elementary particles – which cannot be described precisely with classical physics. Or put in another way: It presupposes that there is a principled limit to the applicability of the causal principle. That is the limit which is actually expressed by the quantum of action.

If we think through classical physics with its law of gravitation consistently, then we see that it is implicit in its consequences that it must be supplemented in a way that corresponds to how it has actually been supplemented by the development of the theory of relativity and quantum mechanics respectively.

3.9 Classical physics as a condition for describing reality

When we understand that the development of modern physics – theory of relativity and quantum mechanics – does not contradict classical physics, but on the contrary presupposes and clarifies it, then it means that we can consider classical physics as a form of actual a priori in relation to the theories of relativity and quantum mechanics.

Or exactly formulated: Classical physics formulates some conditions for the description of reality, which are made more specific in the theories of relativity and quantum mechanics.

But if Newton's classical physics thus functions as an actual a priori – as a system of conditions for describing reality – then a new and deeper question arises, purely philosophically. Does this system of conditions for describing reality – this actual a priori – apply only for the reality that we know? Or does it apply to every possible reality? Is it logically possible that there could be a (rationally valid) description of reality, which does not presuppose these conditions – this actual a priori?

To be able to answer this question, we must embark on a new and different way of thinking. The principles of classical physics are justified from experiments with things in the reality in which we actually live, and it consists in a clarification of the concepts

with which we actually talk about reality. But in this way, we can only justify that the principles – the system of basic concepts for describing reality – that we arrive at applies to the reality that we know. In this way we cannot justify that this system must apply to every possible description of reality: that there is simply no logical possibility for an alternative system of basic concepts for the description of reality.

If we are to justify this, then we must put brackets around our actual use of language and our empirical knowledge. Then we should not use this as premise for our argument. Then we have to build the argument from the basic premise of any possible conceptual system: the very logical condition that make a conceptual system possible.

This leaves us in the same situation as at the end of the previous chapter where we pointed beyond the narrow discussion of the causal principle to the fundamental answer to the philosophical question of *what is thus necessary that it under no circumstances could be otherwise.* And as I already mentioned there, it is not until Chapter 5 that I directly tackle this question.

For the matter is that classical physics is not the only actual a priori that we know from science. Just as in physics we have isolated a special conceptual system of conditions for description of reality, so we have done something similar in other specific intellectual disciplines: in geometry, in number theory and in logic. And there is reason to briefly reflect on that before we go to the strictly philosophical beginning.

4

The given system of sciences

4.1 Physics and the other sciences

Physics is is a spectacular example of a scientifically precise conceptual system. But physics is not the only such system. Even before physics was given its classical formulation in Galileo's and Newton's work, other – simpler – conceptual systems had been isolated to some extent. It applies to logic, number theory and geometry.

But more generally it can be said that any special area of cognition – every science – must base itself on its own special conceptual foundation. That means, that if we try to outline the existing system of sciences, then we thus simultaneously get an overview of the conceptual system that we actually use to describe the reality, in which we live and of which we ourselves are a part. And such an overview is useful before we try to philosophically go deeper and think through how any possible system of basic concepts for description of reality must necessarily be structured – whether it is at all possible to justify the existence of such a system. This reflection I postpone till the next chapter.

4.2 Logic

The first specific logical analyses, which have helped shape our scientific tradition, stem from classical Greece. It concerns primarily Aristotle's analysis of possible syllogisms.

Here Aristotle isolates the negation term and the two quantifiers 'some' and 'all'; and he uncovers the logical relationship between propositions in which these designations (or terms) are used. Moreover, it concerns the Stoics' analysis of the logic of propositions. Here the logical connectives 'and' and 'or' are isolated; and the logical relationship between simple and compound propositions are clarified. Furthermore, the Greeks discuss the logical consequence relation itself: What does it mean that a proposition implies another proposition? Can one define the logical consequence relation – the implication relation – truth functionally? In this connection, the Greeks also begin a study of modal logic: the logical relationship between the concepts 'possible', 'necessary' and 'real'.

After the first flowering in Greece, no remarkable development happened for a long time in logic. Leibniz made some progress, but it had no immediate effect. Kant could even think that since logic had made no real progress since Aristotle, it must be presumed to be complete. But during the 19th century, a new and effective breakthrough occurred. The propositional and predicate logic was axiomatized – and the same also applied to set theory and relational logic. This meant, especially, that logic and mathematics became closely linked.

The very fact that propositional logic was axiomatized also meant that one could generalize divalent logic – with the two truth values 'true' and 'false' – and set up polyvalent logics with more than two truth values. It was therefore natural to ask if it was possible that one could use one of the alternative logics to describe reality instead of the divalent logic. But this question shows that one has misunderstood the relationship between the divalent logic and the polyvalent logics. It is not the case that the latter should be perceived as alternatives to the former. On the contrary, it is the case that the polyvalent logics must be understood as a generalization of the divalent logic. That is, they presuppose and make more precise the divalent logic. This means that we can see this relationship by analogy with the relationship between classical physics and respectively the theories of relativity and quantum mechanics – uncovered in the previous chapter.

4.3 The science of numbers

Just as the logical connectives and the logical quantifiers the numbers also belong to our elementary language use. We can count quantities of thing. But here a special thing has happened, namely that we have "invented" a notation, so that we always know in advance how the next number should be is written. Concretely, we use a decimal system, with ten as a base number, but it is just a convention. We could also have used a different base number.

With the fact that we can write an infinitely many numbers, we have implicitly introduced an elementary arithmetic operation. Any new number can be defined as the previous plus one. From this one can immediately define a general addition operation. And based on this, two other operations can then be defined: Subtraction is defined as the "converse" operation of addition, and multiplication is defined by repeated addition. On the basis of the multiplication operation, two new one operations can then be further defined: Division is defined as the "converse" operation of multiplication, and exponentiation is just expressing that a number can be multiplied by itself. Furthermore, root extraction can be defined as the "converse" operation of exponentiation.

When our starting point is the natural numbers, then we can immediately find that there are some of the listed operations that will always have results that fall within the range of the natural numbers. That involves addition, multiplication and exponentiation. The opposite, however, applies to subtraction, division and root extraction. These operations can have results that lie outside the natural numbers. Consequently, it is possible to "extend" the number system, so that the operations always have a result. Thus, subtraction leads to negative numbers. Division leads to fractions (rational numbers). Root extraction leads to irrational numbers (represented by square root of 2) and then to imaginary numbers (represented by the square root of -1).

Hereby I have merely marked how the various arithmetic operations can be defined and how the generalization of certain of these operations leads to successive extensions of the number system. An actual elaboration of these definitions and their consequences belongs

to the mathematical science. And here we have seen how formal logic and mathematics have entered into a close collaboration on the construction of axiom systems for the various fields.

Where is philosophy in this context? Philosophically it is interesting that it is possible to make the outlined extension of the number system, and that the "new" numbers do not contradict the natural numbers, but presupposes them, in that the new numbers emerge by a purely conceptual generalization procedure based on the natural numbers. The very fact that the natural numbers can conceptually stand as a foundation for such an abstract edifice gives them an important place in our given conditions for describing reality. And in philosophy we must then ask how these conditions relate to the conditions which must be presupposed for every possible description of reality. Then one must think through whether the conceptual basis for the number system could have been different, or whether it is implicit in any possible system of basic concepts for the description of reality.

4.4 Geometry

Geometry has a special position among the intellectual disciplines, because it is the first to be formulated axiomatically. It was done by Euclid in classical Greece. Since then, geometry has stood as the paradigm of a deductive system building. Compare the title of Spinoza's main work *Ethica, ordine geometrico demonstrata*.

In Euclid's geometry, the parallel axiom plays a central role. It expresses that from a point outside a straight line (in the plane which is determined by the line and the point) one can only draw one line which does not intersect the given line. In that one could show that this axiom is independent of the other axioms, one could also show that purely logically there is the possibility of alternative – non-Euclidean – geometries. Respectively, elliptical geometries in which, under the given conditions, no straight line can be drawn which does not intersect the given line, and hyperbolic geometries in which several such lines can be drawn.

We now know that Euclidean geometry is not the only possible consistent geometry, but

that there are also non-Euclidean geometries. But that does not mean that it is an empirical question which geometry applies primarily to the world – to every possible description of reality. Because we cannot define the concepts in the non-Euclidean geometries without presupposing the concepts as they are defined in Euclidean geometry. This corresponds (as we saw in the previous chapter) to the fact that we cannot determine the basis for the theories of relativity and quantum mechanics, without presupposing the classical physics definition of the basic physical concepts.

The non-Euclidean geometries cannot be used for concrete description without being specified by a curvature constant, which for the elliptic geometries is positive and for the hyperbolic geometries is negative. And this curvature constant cannot be determined without presupposing the Euclidean geometry – which, by definition, has the curvature constant zero. This also means that when the spatial distances "go" towards zero, then non-Euclidean geometries "go" into the Euclidean geometry.

The very fact that there are consistent alternatives to the Euclidean geometry, therefore, does not mean that these alternatives conceptually are equivalent. On the contrary, Euclidean geometry conceptually has a special position among the possible alternatives. This is important to bear in mind when, in philosophy, we seek to uncover the conceptual conditions for every possible description of reality. Because then the task is primarily to uncover how the Euclidean concepts are built into that system of basic concepts which is presupposed for every possible description of reality. Then geometry, as a special study, has already clarified how the non-Euclidean geometries purely conceptually are possible.

4.5 Physics

In the system of sciences, physics comes after geometry. While I, in the previous chapter, demonstrated how the theories of relativity and quantum mechanics presuppose the clarification of the physical concepts which has taken place in classical physics, I can now place this clarification of the physical concepts in relation to the clarification of the logical, arithmetical and geometrical concepts which have taken place in their respective disciplines. It

is no coincidence that classical physics must fundamentally be connected with Euclidean geometry. Just like classical physics is a prerequisite for us to be able to define the concepts and the constants in the theories of relativity and quantum mechanics, so Euclidean geometry is a prerequisite for us to define the terms and constants in non-Euclidean geometries. But then it is, also, no coincidence that non-Euclidean geometry conceptually is available for the relativistic development of physics.

With the establishment of Newton's classical physics, it gradually became clear that the possibility of life and consciousness had to become a problem. If our material bodies can be explained on the basis of classical physics alone, then it becomes a mystery how life and consciousness can even be expressed in the physical world. On the one hand, theories of a special life force were presented. And on the other hand theories about how the physical substance and the psychic substance can interact were put forward. But none of this could be confirmed empirically.

However, it was not only the possibility of life and consciousness that became problematic in light of classical physics. It was also the very fact that material things could be stable and consist of stable substances. This problem became, as we saw in the previous chapter, in principle resolved with the establishment of quantum mechanics. Therefore, quantum mechanics is also a necessary condition for us to explain that living beings and conscious beings are relatively stable and consist of relatively stable substances. But at the same time, we must recognize that since quantum mechanics is a sufficient condition that ordinary physical things can be stable and of stable substances, so quantum mechanics cannot be a sufficient condition for there to be certain things which are alive and which have consciousness. Then there must be something special about the structure of living and conscious things which causes them to be alive and conscious. But what is it? This is a question for some new sciences: biology and psychology.

4.6 Biology: the science of living beings

In biology, the living is investigated empirically. It is uncovered which species of living beings that exist and how they live and have developed. Understood to be about the living beings here on Earth. Astrophysicists seek to find signs of life in the universe, but that is for the time being an independent area.

It was of central importance for the development of biological science, that Carl von Linné succeeded in setting up a system for how one could classify the species as to their kinship relationships. Later, Darwin put forward a theory that on an overall level could explain the development in the biological world. This theory is based on three basic elements: reproduction, variation and selection. Reproduction implies that each generation of living beings gives rise to new living beings which resemble themself. Variation implies that certain changes may occur – mutations – in the new living creatures. And since these changes can affect the viability of the individuals, selection comes into play. It is the individuals, who are best adapted to the concrete life circumstances, that will survive and bring new individuals into the world.

With this theory, Darwin determined the overall dynamics in the evolution of the species. But it was still a mystery how the dynamics – reproduction – takes place at the concrete physiological level. To the clarification of this question, the Austrian monk Gregor Mendel contributed decisively with his experiments with crossbreeding plants. By combining heredity research inspired by Mendel with Darwin's overarching theory of evolution "the modern synthesis", or simply neo-Darwinism, was worked out.

At the same time, with the development of quantum mechanics and the clarification of the atomic structure of the elements, one obtained still better – theoretically and technologically – assistive devices. This meant that one could turn microbiology into an independent discipline, and that one could enter into specific investigations of how living beings are actually structured at the micro-physical level. One could identify the concrete types of molecules that form part of the building material in living beings. Not least the uncovering of the structure of DNA was a spectacular event.

Overall, through such empirical analyses, it was discovered that normal living beings are made up of cells that are different according to the function they have in the organism as a whole – whether they are nerve cells, muscle cells, liver cells or something fourth. Moreover, it was discovered that all cells contain the entire genome that governs the structure of the plant or animal; but that the individual cells – depending on their function in the whole – are only controlled by a specific part of the genome. And gradually one also succeeded in empirically uncovering the entire human genome.

Thus, microbiology is primarily an empirical science. It teaches us, how living beings are actually structured. And it teaches us that as living beings are actually structured, life must be possible in a world that is subject to the physical and micro-physical laws. But the empirical studies alone cannot teach us, how living beings must necessarily be structured, if their implicit purpose directedness is to be consistent with the physical conditions. When it comes down to that, then it is no longer just about finding out how living beings are actually built at the micro-physical level; but it is about thinking ahead to, how they have to be structured, at the basic micro-physiological level, if there is to be any possibility of the purpose directedness which is defining for life phenomena.

In principle, we can, as a starting point, establish that the special purpose directedness of living beings cannot possibly be explained on a purely physical – or microphysical – basis. So, if the special purpose directedness of living beings is to be explained at all, then these beings must be made up of special units that have an inner purpose directedness in relation to their function in the wholeness. These units must therefore, on the one hand, be made up of physical molecules; and on the other hand, they must be embedded in a special structure which makes them units for the construction of living beings.

The question then is how we can reconcile these fundamental conditions for living beings to be possible on a physical basis, with that which the biological science has taught us about the factual structure of existing living beings. As the case is thus presented, it is easy to realize that it is no coincidence that biological science has actually found that normal living beings are made up of cells which contains the genome of the whole living being, but which – depending on their function in the whole – is controlled by a specific

part of the genome. It is only, because living beings have this special structure (where the cells have an internal relation to their function in the whole living being), that it can be explained, how life is even possible in consistency with the general validity of the physical principles.

In this regard, it is worth noting that Richard Dawkins is mistaken when he claims, in a side note, that it is easy to imagine a form of life in which it is not the case that the entire genome is reproduced in every cell, but in which each cell type only contains the genes that control this particular cell type[1]. Because in that case the individual cells do not get the internal relationship to their function in the whole, which is expressed in the relationship between the active genes and the entire genome, and which is necessary for the purpose directedness of the living being to be consistent with the general validity of the physical principles. On the contrary, there is reason to believe that if biochemistry wishes to reach an increased understanding of the life processes, then it should concentrate on investigating how the interaction between the active genes and the entire genome more precisely unfolds in the individual cells. There is, in any case, no reason to believe that this interplay is unimportant.

4.7 Psychology: the science of the conscious

Psychology is the scientific study of the life of consciousness in all its various aspects. Firstly, there is the psychology of perception, which concerns how we sense or perceive the world around us. Secondly, there is the psychology of motivation, which concerns our emotional life: what urges and drives we feel and why. Thirdly, there is the psychology of learning, which concerns how we learn new skills and how we retain those skills: what benefits or impairs learning in the longer term. Those are the three fundamental psychological disciplines.

Seen in that light, conscious beings are fundamentally defined by the fact that they can perceive, feel and learn. And once we have defined conscious beings in this way, then we can

[1]Richard Dawkins, *The Extended Phenotype*, Oxford 1982, p. 293 [1].

draw a new distinction. Then we can distinguish between conscious beings that can learn (develop) language, and conscious beings who do not have that ability. Conscious beings who have language, we can call persons. By definition, persons can express themselves linguistically about what they perceive, feel and do, and that they perceive, feel and do it. They cannot be conscious without being able to express themselves thus with sufficient justification that it is true. It is only possible that a person may be mistaken in one or other of these respects, if it happens on the basis that the person concerned can at the same time "retreat" to another – and true – description of what he perceives, feels or does. A person cannot therefore be conscious (awake) without at the same time having some knowledge of his concrete situation: that he perceives, feels, and does something that he actually perceives, feels and does.

Persons must learn language while living with other persons. So they must be social and live together. At the same time, language must be developed among conscious beings who, with this development, become persons. The development of language must be part of a social and cultural development. It must be part of the development of social norms which must characterize any community of persons.

Since persons as conscious must have knowledge of their immediate situation, it must also be possible for them to have knowledge of the consequences of what they do. It must be possible for them to know that if they do such and such under such and such circumstances, then such and such will happen. And they must be able to include such knowledge in the causal conditions of what they do. This entail that they are not forced to follow their own immediate incentives. They must be able to ask themselves what they should do – what is right to do – in that situation. And this again entails that they must be able to act under responsibility. Persons stand under the ethical obligation of rationality.

So far, we have only defined persons as a special type of conscious beings. They are conscious beings who have language and who thus have knowledge of their concrete situation and are under responsibility for their actions. This is a purely principled definition of the concept of person. But when we look at reality and at our own existence as persons, we also see that we are persons of a certain biological species. We are humans before we

became persons. And the only persons whose existence we actually know belong to the species of human beings. Purely logically, there could be other biological species, which through the development of language, evolved into persons. But still we have not found that to be the case. It is probably unthinkable here on Earth, now that it has all been explored, but not on other planets in the universe.

When we have thus clarified the concept of consciousness and the concept of person, then we face the same question that we faced in connection with living beings: How is the life of consciousness – in its different aspects – at all possible in consistency with the causal principle and thus with the basic conditions for physical objects to be stable?

In order to be able to answer this question, we must begin by making it clear to ourselves that the fact that a conscious being must be able to perceive, feel and learn is a condition for it to be able to move with purpose in consistency with the general causal principle. Then we must include that conscious beings are also physical objects, and that as such they are subject to the physical laws. It requires that we make ourselves clear how the conditions for a conscious being to move with purpose can operate in consistency with the physical laws. Here we must initially conclude that that there must be special physiological conditions for conscious beings to be able to perceive, feel and learn. It must have special perceptual organs, and it must have a physiological basis to be able to feel incentives and to be able to learn. Just as it must have special organs of movement to be able to move in consistency with the physical laws.

But when we have concluded this far, we are left with the question of how the physiological basis for conscious beings to be able to perceive, feel, move and learn, can even be open to the possibility of a conscious life. Why is it not just "dead" physically matter? Here we are basically in the same situation as we were in, when we clarified the conditions under which the purpose directedness of living beings can be consistent with the necessary conditions for physical objects to be stable at all. Basically, the purpose directedness of conscious beings must be a special case the purpose directedness of living beings. And conscious beings must be a sub-type of living beings.

The possibility that a concrete conscious being can function in consistency with the

physical laws to which it is also subject, therefore presupposes that it is made up of biological units (cells), which have an internal relationship to their function in the organic whole (as due to the fact that they contain the genome for the entire organism, but are actively controlled by a particular subset of this genome). The different types of perceptual organs must therefore be made up of cells that have such an interior relation to their function in the construction of just such organs. The physiological basis for a conscious being to feel incentives and learn from its experiences, must also be made up of cells that have a corresponding internal relationship to their function. And thus for the conscious being – or the person – in its totality.

Through scientific studies conducted with the most refined technology, it has actually been established that conscious beings – and thus also humans and persons – have such a structure. But these studies can only tell us that this is indeed the case. They cannot tell us that this is how it must be if life and consciousness are to be possible in consistency with the physical laws which must necessarily apply to spatial things. It is this extra argument which I have now given. So, what I am saying is in no way contrary to what neurophysiology – and the empirical study of the brain – has found. It only puts this into a deeper conceptual framework.

When we understand this conceptual framework, we also understand that computers with actual consciousness must, in principle, be impossible. For real consciousness is only possible on the basis of a matter which is made up of units, which have an internal relationship to their function in the whole, and which therefore have an internal relation to their function as basis for the construction of a "brain" which makes consciousness phenomena possible. And it corresponds to the structure that biological cells have. But that is not how computers are built at all. They are not made up of units that have an internal structure similar to that of biological cells. Instead, they are made up of simple digital chips, which lack the internal complexity that they should have if they were to be able to be the basis for phenomena of consciousness. Therefore, computers can only simulate consciousness. They cannot possibly be conscious.

4.8 Linguistics

Linguistics studies language as actual phenomena. It is an empirical fact that many different languages are spoken here on Earth. They have from the beginning developed in various isolated communities. The task of linguistics is to clarify what is common for all the languages that have actually developed in concrete human societies, as well as what is peculiar to individual languages. Linguistics thus basically has two sides.

Firstly, it has a structural side whose task is to investigate which word classes the different languages contain, and how they can be connected to each other in meaningful sentences. One can, for example, distinguish between nouns, verbs and adjectives. Further, one can also examine how different languages express singular and plural, how they qualify verbs temporally and the like. Through such investigations are established grammars for individual languages.

Secondly, linguistics has a physiological side. Here it is examined, how we, as humans, actually express ourselves linguistically. We have learned to use certain pre-given parts of our biological equipment to produce sounds to communicate with others; and we have gradually developed this into a higher linguistic ability. As humans, we are created in such a way that we can produce and hear sounds; and from there we have developed the ability to learn actual languages. Phonetics is the study of how our physiological basis for expressing linguistic sounds actually work. And it is so also the study of how specific languages utilize this common physiological basis differently. (Thus, some languages have soft *d*s, others do not.)

When you can study individual languages scientifically, you can also conduct comparative linguistics. Then you can study how individual languages relate to each other grammatically and phonetically: whether they are similar in grammatical structure and phonetic way of expression or whether they differ from each other. And through such studies, one can go further and uncover linguistic kinship: whether the different languages are related to each other and have evolved from a common source or whether they have developed independently of each other. In this way, you can get an overview of how all the

languages that are actually spoken here on Earth, are really related to each other.

In principle, there is no difference in what different languages can express. Therefore, every language must in principle be able to express everything, that another language can express. What can be expressed in one language, must in principle also be able to be expressed in another. And therefore, every language could in principle also be translated into any other language. There are no languages that are fundamentally untranslatable to other languages.

But the fact that translation between languages must always be possible in principle, does not mean, that there cannot, at the same time, be serious practical problems regarding translation between specific languages. For which words a language actually contains depends on the environment in which it spoken. Both the external physical and geographical environment, and the social and cultural environment. Thus, a language that is spoken at the arctic circle, will contain many words that cannot be easily translated into simple words in a language spoken at the equator. And correspondingly, a language spoken in a scientifically developed society, will contain many words that cannot easily be translated into simple words in a language spoken in a society that has not undergone such development. But these cases concern deficiencies that can be remedied by paraphrases or by introducing new words. A concrete language must always be developable. The crucial thing is that it is not a question of in principle unbridgeable abysses, but only of practical translation problems.

When we consider the special conditions of linguistics, it is necessary also to include the importance of language for the development of persons. Conscious beings develop into persons by learning language (section 4.7). One must therefore be able to speak a language before one can study this (or any other) language scientifically. One must be able to follow in practice the rules of a language before one can become aware of these rules. So, we cannot begin by learning language via linguistics, because we can only do linguistics – or any other science – if we already have a language and can use it correctly (for a valid description of our situation in the world).

In this context, the difference between spoken and written language should also be

mentioned. We learn spoken language spontaneously if we are only exposed to the right influences at the right time in our development. We are simply biologically programmed for this learning. The spoken language use only our innate physiological equipment. With written language it is different. It is based on the use of tools (such as pens and typewriters). And it requires hard training before you can use these tools fluently. Written language is important because it enables us to preserve linguistic expressions; and that in turn means that we can think more deeply – and that we can systematize our knowledge in a new way.

In that the written language is based on the use of tools, and that at the same time it enables us to preserve our thoughts and think deeper, one might ask whether the difference between the tools that we can use to maintain our thoughts, has an influence on the thinking, which we are able to provide. Do we think differently when we learn to retain our thoughts using pen and paper and when we learn to retain them using a computer? Do these different tools for preserving the thought have different consequences for the development of the culture of thinking? Does what you write "by hand" enter the brain differently than what you type just by pressing a machine? It is a question that only experience can answer: an empirical question. So, it is not really a philosophical question.

Philosophy differs from linguistics, as it differs from any other science. Linguistics examines language as a factual phenomenon. As part of that, linguistics must specifically clarify the concepts which must be presupposed in the scientific investigation of language as actual phenomena: the concepts which belong to respectively grammar and phonetics. Philosophy, on the other hand, seeks to determine the system of basic concepts which must be presupposed by every possible description of reality. Linguistics is empirical in its aim. Philosophy is purely conceptual-logical in its aim. Since the conceptual system, which must be presupposed by every possible description of reality, must somehow be realized in every possible language, philosophy and linguistics must, however, stand in close contact with each other. But when one asks for this conceptual system – for *that which is thus necessary that it under no circumstances could be otherwise* – then one goes beyond linguistics and any other empirical science. Then one enters the field of philosophy.

4.9 Social Science

Many different human societies exist on Earth. It is the task of social science to examine the various forms of society under which people live – and especially to investigate, whether they can sustain themselves or whether they are unstable.

In this context, there is one thing that is particularly important. It is that we humans already must live in society before we can conduct social science. This means that when we do social science, then we do so based on a real existing social order that has that spiritual development, which actually makes it possible to conduct social science. It is a spiritual development that obliges us to examine our own society as unbiased and open-minded as we examine other societies – also societies that have not reached the stage where they are ripe for actual science and social science.

A society in which genuine social science is practiced must be conscious of the obligation of rationality. A considerable and dominant part of its citizens must therefore understand that they should only go so far in their beliefs as they have justification for – either empirically or conceptually. They must therefore not be closed off in cultural narrow-mindedness. Hence genuine social science therefore also includes the awareness that society – culture – could be otherwise.

Just as the individual person coming to self-awareness should understand his own responsibility for his actions, so a society of persons, thus becoming self-aware, should also understand their shared responsibility for one another and for society. This means that they too are faced with the political-philosophical question of how they, as rationally committed persons, should organize their common society.

Social science and political philosophy should therefore enter into some form of symbiosis. On the one hand, social science is an empirical science, which must clarify how society is actually structured and works. As part of it, political science forms a central subsection which specifically examines how society's political decision-making process is actually structured and functions, and thus how power in society is actually distributed. On the other hand, political philosophy is a philosophical discipline which, purely conceptually,

seeks to uncover how a society of rationally obliged persons ought to organize itself so that each person can exercise his rational obligation.

The concrete policy, that we as a rationally committed society ought to pursue, should therefore be determined on the basis of both social science and political philosophy. The social sciences should – together with our own experience as citizens in society – give us the knowledge, of where society actually stands, which we need for our political work. Political philosophy should, on the other hand, give us the ideal towards which we should strive and seek to realize in society. The task of the actual politics should then be to approach the ideal under the conditions that reality offers. (What this entails is made explicit in chapter7.)

4.10 History

Both in principle and in fact, social science must be closely connected with the study of history: the study of that past which has led to our present, and which has thus determined that our present should be, as it is, and not otherwise.

The social sciences must necessarily have a historical dimension, since it must be based on an understanding that it itself is only possible in a social order which has reached such a spiritual openness that a scientific attitude is a real possibility for its citizens. This spiritual development must necessarily rest on the shoulders of a historical development. It only understands itself if it understands its own historical conditioning. One cannot really understand the social reality in which society has reached such a spiritual development, without also having some clarity about the historical background – the social forces – which have fertilized the ground for this development.

Just as for the social sciences, it also applies to the study of history, that it can only unfold where there is a social order which makes it a real possibility for the individual to have a scientific attitude to the world and to our situation in the world. And such a social order does not come by itself. It must itself be the result of a historical development. What has concretely shaped this development, it must be the study of history's own task

to uncover.

But before the real study of history comes the myths. All societies have myths about how they originated and where they came from. The study of history comes into being when one begins to relate rationally to these myths and when instead one begins to build one's narrative about the past on historical source material which is exposed to source criticism.

History as an academic study is radically different from physics. That is due to the difference between those aspects of reality that the two academic studies have the task of clarifying. There cannot be laws in human history in the same sense as there must be laws of the physical world. There cannot be, because history depends on human action, and because humans are confronted with having to act under responsibility – depending on a more or less precise knowledge of the consequences of what they do. This means that humans are subject to an ethical requirement, and so they cannot at the same time be subject to a unambiguously determined historical law. The study of history is therefore not the study of how historical law unfolds. Rather, it is the study of how the human societies are able to realize the ethical demand in social life.

In the unfolding of history, humans do not follow an inevitable historical law. Such a law cannot be found. In history, however, people are faced with the task of realizing rationality in their own life and in social life. It is a battle whose outcome no one knows in advance. It is an obligation that one ought to fulfill in spite of internal and external resistance. But if one can, stays open. (I am coming back to conditions for this battle in chapter 6 and 7).

4.11 Philosophy and the system of sciences

Through the sciences, we seek to gain a systematic knowledge of the world and of our situation as persons in the world. The different sciences investigate different aspects of the world and our situation in the world. By clarifying the conceptual basis for the individual sciences, we can therefore uncover the system of basic concepts which are presupposed for

our actual description of the world and our situation in the world. That is what we have done so far in this chapter.

At the same time, we must also conclude that this conceptual system must basically apply for all human languages. It follows since all languages in principle must be mutually translatable. Therefore, the criteria of rationality must also be the same for all persons: that one does not go further in one's beliefs than can be justified on the basis of conceptual deliberations and empirical experiences. This requirement is universal – a condition for rationality. And therefore the scientific results must basically be common – regardless of the everyday language in which they are expressed. Basically, all human beings should bow to the same logic. They should recognize the same arithmetic, geometry, physics, biology, and psychology. And they should recognize the same method in social science and in the study of history.

Hereby I say that all human beings – and everyone that we can recognize as a person – are bound by this system of basic concepts for the description of reality. However, I am not saying that all people actually understand that they are thus bound. Because they do not. That insight does not come by itself. It requires active thinking. It is something that we must think us forward to in our effort to understand, how our situation in the world basically is and must be.

And in our effort to think ahead along that path, we can easily go wrong. Indeed, this is what has happened to an influential intellectual fad which continues to ravage universities – especially the humanities and social sciences. This movement goes by different names, which can be gathered under the common name 'postmodernism'. The central point is that it denies the universality of rationality. Thus, it prepares the ground for cultural relativism and identity politics. At the same time, it cannot itself claim to stand for a position to which others should bow. It entangles itself into a contradiction if it wants to assert its own position as intellectually binding for others. Basically, it cancels the foundation for the common conversation.

In reality, one does not understand the nature of rationality at all, if one want to deny its universality. Because it is not a position that can be denied without contradiction. Rather,

it is an obligation that one ought to fulfill. It is an obligation which is the prerequisite for meaningful thinking: an obligation to go only as far in one's beliefs as can be justified on the basis of conceptual logic and empirical experiences. If you reject this obligation, you reject meaningful thinking. And if you take on the obligation, you should also understand that postmodernism is an intellectual delusion. Then one should understand that one should follow the path taken by the sciences and which presupposes the special system of basic concepts for description of reality that we have uncovered so far.

Rationally speaking, we must thus state that we cannot justify any alternative to – and thus any way out of – this system of basic concepts for describing reality. But at the same time, we are confronted with a question that cannot be answered on the basis that we have used so far: the actual existence of the sciences. It is the question of why this system of basic concepts is as it is at all. Or: Why do we have precisely the system of sciences that we actually have? Could it not be otherwise?

On the basis so far, we cannot rule out the ultimate possibility that it could be otherwise; for so far we have assumed the sciences as actually existing. We can only rule out the possibility that we, such as we actually are, can understand the possible alternative. For it could not be translated into a language that we can understand. If we are to rule out the very logical possibility that there could be an alternative, then we must find a new ground on which to stand; and then we have to proceed completely differently.

Here, philosophical thought acquires an independence which is quite unlike that it has had so far.

5

The transcendental deduction of the conceptual conditions for any possible description of reality

5.1 Can the question be answered?

By uncovering the conceptual basis for the different sciences, we have, in the previous chapter, laid bare that system of basic concepts, which is presupposed for any possible description of reality, which we can understand. But why is this system the way it is? Why is it not different? That is the question; and the task now is to answer this question.

Initially, however, the task must be to clarify whether the question can be answered at all. There are those - including Zinkernagel[1] – who believes that it cannot be answered. They believe that we can only point out that we cannot understand a break with the system of basic concepts that are presupposed by the possibility of the sciences, but that we cannot provide an independent explanation of why this system is the way it is. And they justify this by the fact that any such explanation itself must presuppose the system of basic concepts that is to be explained.

[1]Cf. Peter *Zinkernagel, Virkelighed*, Munksgaard 1988 [15].

But this is only partially true. It is true that we cannot give an empirical explanation of why the system of basic concepts which is presupposed by the possibility of the sciences must be as it is and could not to be otherwise. So, we cannot explain it based on how the world actually is – nor from biological, social, cultural or historical conditions. For all such empirical explanations would not themselves be necessary. On the contrary, they open up the possibility that the fundamental system of basic concepts for description of reality could have been different.[2]

Moreover, any such explanation would presuppose that very system of basic concepts for describing reality, which had to be explained. For one cannot describe the empirical conditions which shall explain why the conceptual system is as it is, without using this very conceptual system itself. So, any such explanation is empty. Thus, we cannot explain why the laws of classical physics are as they are because we cannot speak accurately of the physical world without precisely presupposing the laws of classical physics.

We must therefore recognize that no empirical explanation can be given as to why the fundamental system of basic concepts which is presupposed by the possibility of the sciences – and thus by every possible description of reality – is as it is. But does this also mean that it is logically impossible that a reason can be given for why it must be the way it is – and why it is logically impossible that it could be otherwise? No, in that we have ruled out that an empirical explanation can be given as to why it is the way it is, we have not ruled out that a logical deduction can be given that it must be the way it is. A deduction which is therefore not based on our actual description of reality – and on the actual existence of the sciences – but which is only based on the very logical basis of a possible conceptual system.

For now, the question is simply whether such an argument is even possible. And when we think about this question, it can be enlightening to consider whether there is anything in the philosophical tradition that corresponds to the situation in which we have now placed philosophy. If I am to point to such a parallel, then it must be the situation in which Kant

[2]David Favrholdt seems to make that mistake in his book *Philosophical Codex*, Gyldendal 1999, page 274 [2].

was when he wrote *Kritik der reinen Vernunft* and *Prolegomena zu einer jeden künftigen Metaphysik*. In *Prolegomena,* Kant himself has explained how he proceeds differently in those two books.[3] He characterizes his method in *Kritik der reinen Vernunft* as synthetic, and he characterizes his method in the *Prolegomena* as analytic. If you now compare what I have done in the previous chapter, with what Kant does in *Prolegomena*, then the justification for why the fundamental system of basic concepts for description of reality must be as it is, which I am now seeking, must be compared with what Kant does in *Kritik der reinen Vernunft*. Where Kant here carries out a transcendental deduction of that system of categories, which must be presupposed by the possibility of self-awareness, I shall try to carry out a transcendental deduction of the system of basic concepts, which must be presupposed by every possible description of reality. But is such a transcendental deduction even possible? Can it avoid all the problems that Kant's deduction leads to?

5.2 The fundamental foundation

If we are to attempt to carry out a transcendental deduction of that system of basic concepts, which must be presupposed for the possibility of any valid description of reality – and which must therefore be presupposed for the possibility of the sciences – then we are first faced with the task of having to find the foundation from which such a deduction must proceed.

For Kant, the fundamental starting point is the possibility of self-awareness: the fact that I cannot consistently deny that I am conscious. And Kant justifies this on the fact that it is a prerequisite for my being able to deny anything at all, that I am conscious. With this Kant follows in Descartes' footsteps, when Descartes asserts that the only thing which he cannot doubt is that he himself doubts – and thus thinks.

Should I continue in the same footsteps? Shall we also claim that the fundamental basis for a transcendental deduction of what is thus necessary *that it could not be otherwise*, must be the claim that I myself think and am conscious?

[3] *Prolegomena*, paragraph 4. On page 274 in the academy edition [4].

If we think this question through, we can initially point to a serious problem in Kant's position. It is that if we follow in Kant's footsteps, then the individual will only establish, through his reasoning, the conditions for him himself to have consciousness. This means that the conditions established in this way – with this starting point – close the individual into a form of solipsism. That is what is expressed in Kant's distinction between the thing-in-itself and the thing-as-it-is-perceived. The individual only lives in the world that his own conditions of cognition have set. But that consequence is untenable and casts a shadow back over the starting point.

In the second round, we can then take a closer look at the starting point for Kant's deduction. What is it that this starting point contains, and which leads us astray? To see that, it is necessary to realize that although I cannot consistently deny that I am conscious, because being conscious is a prerequisite for my being able to deny anything at all, it is yet an empirical fact that I am conscious. Logically, it is possible, that I am not conscious – and that I do not exist. Therefore, my being conscious simply cannot be the foundation for a *transcendental deduction* of *what is so necessary that it could not be otherwise under any circumstances.*

That is, if we are to carry out a transcendental deduction of the system of basic concepts that must be presupposed for any consistent description of reality, then we should not follow Kant – and Descartes – and start from the possibility of self-awareness: that I cannot consistently deny that I myself am conscious. Then instead, we have to start from something even more fundamental. But what must that be? We must find that out by taking a closer look at what Kant and Descartes presuppose, when they argue that they cannot consistently deny that they are conscious.

When they argue for this, they basically presuppose two things. On the one hand, they presuppose that they cannot claim anything without themselves being conscious. And on the other hand, they presuppose *the principle of contradiction*: that if a proposition is true, then the negation of the same proposition must be false. It is only under this last presupposition that I am inconsistent if I deny that I myself am conscious.

As a result, we can conclude, that when we have to find a basis which is deeper than

that on which Kant builds, it must be *the principle of contradiction*. Then it can be nothing but the principle, that the truth of a proposition implies the falsity of the negation of the same proposition.

But then the question is: Is this starting point – the contradiction principle – even sufficient to "carry" a *transcendental deduction* of the system of basic concepts which must be presupposed every possible description of reality?

Here we must remember that *the principle of contradiction* does not stand entirely alone. It presupposes *a theory of meaning*. It presupposes that the designations with which propositions can be expressed must be defined by relations of implication to other designations. Or to put it another way: It presupposes that there must be an interdependence between the meaning of designations and relations of implication between propositions. We see this connection quite fundamentally and concretely in the very formulation of *the contradiction principle*, which also determines how the negation designation is defined in relation to the designations 'proposition', 'true' and 'false'.

When we have this as a starting point, then we can also go further and set up the criteria that must apply for a *transcendental deduction* of the system of basic concepts which must be presupposed for every possible description of reality. Then such a deduction must be based on *the principle of contradiction* and its implicit theory of meaning, and then it must proceed from there by successively defining new concepts (or terms) on the basis of their relations of implication to the presupposed basis.[4] In this way one can obtain that a universal system of basic concepts for description of reality gradually emerges – if such a system exists at all. It requires thinking.

In advance, however, we do have something to stick to. Because it must necessarily be such that what we can unfold through the transcendental deduction of the system of basic concepts, which must be presupposed by any possible description of reality, must be the same as that which we can uncover in the analytic explication of the fundamental conceptual basis of the system of sciences. The two ways of thinking must therefore be able

[4]Concepts are terms (or designations) abstracted from their physical properties. So the concept x is solely the implicative relations that define the term x.

to be used in a mutual correction. If they do not reach the same fundamental conceptual basis, then there must be an error somewhere.

5.3 The logical framework

When the task is to make explicit the conceptual structure that lies implicit in *the principle of contradiction* and its *implicit theory of meaning* – and which therefore lies implicitly in *the interdependence between the meaning of designations and consistency relations between propositions* – then we must begin, on the basis indicated, to clarify what it at all means that a proposition implies another proposition.

5.3.1 Clarifying the basis

The concepts 'consistency', 'implication' and 'negation' are defined in their interconnectedness. That a proposition implies another proposition means that the first proposition is inconsistent (incompatible) with the negation of the second proposition; and this inconsistency is again due to the mutual definition of the terms by which the two propositions are expressed.

(We can illustrate what is meant here with an example. The proposition "the book is red" implies the proposition "the book is colored" because the first proposition is incompatible with the negation of the second proposition, as a consequence of the fact that red is conceptually a colour. But then we just have to remember, that since such an example is drawn from our empirical experience, then it can have no place in the transcendental deduction itself of the conceptual system which must be implicit in *the principle of contradiction* and its *implicit theory of meaning*. At the same time as we use the light of the example, we must also be aware that this light cannot have any weight in the actual thinking work that is now required.)

If we have first defined what it means for a proposition to imply a second proposition, then we have also implicitly defined what it means, that a proposition follows from another proposition. For the fact that a proposition implies another proposition, is equivalent to the

fact that the second proposition follows from the first. This again means that a proposition follows from a second proposition if the negation of the first proposition is incompatible with the second proposition as a consequence of the mutual definition of the designations with which the two propositions are expressed.

When this is in place, we can also include that, the fact that a proposition is inconsistent with another proposition, is equivalent to the fact that a property can be defined that the two propositions cannot both have. This property is called truth. If a proposition is true, then the negation of the proposition therefore cannot be true. Then it must necessarily be false. True and false are thus incompatible truth values.

This again implies that if one proposition implies another proposition, and if the first proposition is true, then the second proposition must also be true. If you have a true proposition, then all propositions which logically – as a result of the meaning of the terms with which the proposition is expressed – follow from this proposition, must therefore also be true.

5.3.2 The logic of propositions

On the basis of the foregoing, some concepts can be defined – the logical connectives – with which simple propositions can be connected into compound propositions. First, one can define a logical connective – the conjunction – which is characterized by the fact that a compound proposition which is formed by connecting two simple propositions with this connective, implies both the simple propositions. Secondly, one can define another logical connective – the disjunction – which is characterized by the fact that a compound proposition, which is formed by connecting two simple propositions with this connective, is implied by both the simple propositions individually.

When one has thus defined the logical connectives by possible implication relationships between simple and compound propositions, and when one has defined 'truth' in such a way that if a proposition is true, then every proposition that it implies must also be true, then one can further define the logical connectives truth functionally. Then a conjunction

of propositions must be defined by the fact that it is true only if both of the simple propositions of which it consists are true. And then a disjunction of propositions must be defined by the fact that it must be true if only one of the simple propositions of which it consists is true.

Thus, one can determine these very simple logical relationships within the frame which is set by the transcendental deduction of the conceptual system, which must be presupposed for every possible description of reality. But on the basis of our actual knowledge of the history of logic we also know (as indicated in the previous chapter) that these logical relations have already been determined analytically in the logic of propositions. And therefore, we do not need to make any more out of these connections within the framework of the transcendental deduction. For if we proceed with the purely propositional logical relations, then we will merely repeat what has already been made explicit within the logic of propositions, and which therefore can already be found in most simple introductions to logic.

However, there is one thing that it can be enlightening to draw attention to in this context. It is that one, within the logic of propositions, also has tried to define the implication relation as a truth functional connective. Here it has been said that the compound proposition "p implies q" (where p and q stand for simple propositions) is false only if p is true and q is false. But this definition entails some paradoxes – as for example that a false proposition implies every proposition. On the basis of the fundamental definition of the concept of implication which is contained in the very starting point of the transcendental deduction, we can, however, directly justify why a purely truth functional definition of the concept of implication is not possible. It is not possible for the simple reason that an implication relation between propositions must fundamentally depend on the meaning of the terms with which the propositions are expressed. The implication relation depends on the content of the propositions. And this content dependency is ignored in the purely truth-functional definition of the implication concept. Consequently, we must therefore conclude that the truth-functional definition of the concept of implication only provides a necessary, but not a sufficient, condition for a real implication relationship to exist.

5.3.3 The logical framework for the possibility of propositions about reality

If, within the framework of the transcendental deduction, we are to try to determine the conditions under which propositions can be about reality at all, there is one distinction that we must first make more explicit. It is the distinction between propositions that follow from the meaning of the terms by which they are themselves expressed and propositions, which do not follow thus.

A proposition is necessary – necessarily true – if it follows from the meaning of the designations with which it itself is expressed. A proposition is necessarily false if it is inconsistent with the meaning of the terms by which it itself is expressed. The negation of a necessarily true proposition is thus necessarily false. Finally, a proposition is possible – or possibly true – if it is consistent with the meaning of the designations by which it is expressed, without its truth directly following from the meaning of those designations.

Hereby we have placed the modal concepts – necessity and possibility – in the system of basic concepts which can be defined by a *transcendental deduction* from *the principle of contradiction* and its *implicit meaning theory*. The relationships between these concepts are examined in more detail in the modal logic; and there is therefore no reason to go further into these relationships in this – strictly philosophical – context.

Here, however, we shall try to approach a definition of those conditions that – purely conceptually - must be met for a proposition to be about reality. For now, we can only say that a proposition about reality – *an empirical proposition* – must be "located between" necessary and possible propositions: it need not be necessary, but it must be "more" than merely possible. More precisely, we can also say that the truth value of an empirical proposition must depend on something that does not follow from the definition of the terms by which the proposition is expressed.

But what is the condition for the truth value of an empirical proposition to depend on something that does not simply follow from the meaning of the terms by which the proposition is expressed? Basically, there must be two such interrelated conditions. The

first is that the proposition refers to something that exists (is real) independently of the meaning of the terms by which it is expressed. And the second is that the proposition predicates something which may be true or false, about that to which it thus refers.

From this we can conclude that a simple empirical proposition, must be able to be analyzed into a *subject* and a *predicate*. A subject with which the proposition refers to something in reality – an object. And a predicate, by which the proposition attributes a property to the object to which the subject refers. The proposition is true if the object to which the subject refers has the property that the predicate attributes to it. Otherwise, the proposition is false.

Implicit in this explication of the conditions for propositions of (something in) reality to be even possible, lies a definition of a special predicate: *the concept of existence*. It is a necessary condition for a simple empirical proposition to be true, that it refers to an object which exists independently of the meaning of the designations with which the proposition is expressed. But at the same time, it is also an empirical fact that this object exists; since it does not follow from the meaning of designations that it exists. That is to say, it is a necessary condition for an object to possess an arbitrary empirical predicate that the object possesses *the predicate of existence*. This predicate thus has a very special function in that system of basic concepts, which must be presupposed for every possible description of reality.

5.3.4 Developing the logical framework for propositions about reality

So far we have deduced that a possible reality must consist of objects to which reference can be made in simple empirical propositions but which exist independently of whether they are actually referred to. The question of how every possible reality must be, must then more precisely begin with the question of how the objects, to which it primarily must be possible to refer in simple empirical propositions, must necessarily be; and this is then again equivalent to the question of which (types of) predicates – in addition to the existence

predicate – that are necessary in order to describe these objects.

Within the framework of the transcendental deduction, we cannot immediately define such specific (types of) predicates. But we can do something else. On the basis of the preliminary foundation, which implies, that an object is characterized by which predicates it possesses, we can define some "meta-predicates": *identity* and *difference*.

The object referred to in one proposition is identical to the object referred to in another proposition, if any predicate that belongs to one of the objects also belongs to the other object – if the objects do not possess incompatible predicates. In contrast, the object referred to in one proposition is different from that referred to in another proposition, if one of the objects possesses a predicate which is incompatible with a predicate, which the other object possesses. If the one object is not identical with the other, then it is different from the other.

So far, I have characterized the concepts 'identity' and 'difference' as meta-predicates. But if we analyze these concepts more precisely, then we can clarify that they stand for relations. If it is asserted that an object is identical to or different from another object, then it is also asserted that the one object stands in a certain relation to the other object. The very fact that identity and difference propositions are possible, thus implies that relational propositions are possible. They are examples of relational propositions. These are propositions which assert that objects referred to by different designations stand in a certain relation to each other.

If we take a closer look at the way in which we have defined the concepts 'identity' and 'difference', we can, however, define identity and difference propositions more precisely than simply as relational propositions. We can also conclude that these propositions have some special logical properties. First, we can conclude that if the proposition that object A is identical to object B is true, then the proposition that object B is identical to object A, must also be true. This we can conclude solely as a consequence of the definition of the relation 'identical to'; and thus, we can also specifically characterize this relation as symmetrical. Correspondingly, we can conclude that the relation 'different from' must also be symmetric.

But at the same time, we can also add that the very conceptual possibility of symmetrical relations also implies the conceptual possibility of asymmetric relations (where the fact that the relation holds from A to B, implies that it does not hold from B to A). Although, within the framework of the ongoing transcendental deduction, it is still an open question, how to give content to the possibility that objects can stand in asymmetric relations to each other.

However, the relation 'identical to' also has another special conceptual property. It follows logically from how this relation is defined, that if the proposition "A is identical to B" and the proposition "B is identical to C" are both true, then the proposition "A is identical to C" must also be true. We characterize this relationship by saying that the relation 'identical to' is *transitive*. If we analyze the relation 'different from' in a similar way, then we can establish, that it is not transitive. From the proposition "A is different from B" and the proposition "B is different from C" we cannot conclude anything about, whether A is different from C or not different from C. Therefore, we also only say that the relation 'different from' is not transitive. But logically there is also the possibility that there can be intransitive relations: relations where we can conclude that if they hold from A to B and from B to C, then they do not hold from A to C.

Here it is only important to get marked that relational propositions – and thus also the logical properties of these propositions – must necessarily have a fundamental place in any possible system of basic concepts for description of reality. The closer analysis of this part of logic on the other hand, there is no need to go into it here. It is a task for the logic of relations that has already been developed outside of the framework of the transcendental deduction. In the following, however, there is reason to make more explicit what follows from the very concept-logical possibility that there can be different objects.

5.3.5 The world of numbers

The very concept-logical possibility that there can be different objects, implies that there can be more objects, and that it must be possible to talk about quantities of objects.

Basically, it can be said that if you start with one object and if you add another – therefrom different – object, then you have a set of two objects. If you then add to this set an object different from it, then you have a set of three objects. And if you, to this set of three objects, then again add an object different from these, then you have a set of four objects. Thus, in principle, you can continue infinitely.

In this way, one can within the framework of the transcendental deduction define the simple natural numbers. In practice, it is limited how many numbers that one can thus define. But the very definition of the numbers makes it possible to design a system with which one can write endlessly many numbers with a limited number of signs because the system itself ensures that it is always given in advance how the next number in the row should be written. (This is what is built into our decimal system.)

From the beginning, numbers are defined by simple relations to each other. First, they are determined in a sequence by simple addition of one. From there the addition operation can be generalized so that it becomes possible to add arbitrary numbers. And on the basis of the generalized addition operation, it is also possible, purely conceptually, to define the other simple types of arithmetic operations: subtraction, multiplication and division – just as it is possible to define the concept 'square root'. From these operations it is then further possible to generalize the number concept, so that it includes everything from *natural numbers* to *negative* and *irrational numbers* to *imaginary numbers*. This has already been done in the scientific construction of mathematics, which I have explained in sect. 4.3. And there is therefore no reason to go into more detail here.

The only thing that should be particularly noted in this context is that the conceptual basis for the construction (and generalization) of the number concept, that we actually know from mathematical science, lies not only implicitly in our actual language, but it lies implicitly in the very conceptual basis for any possible system of basic concepts for describing reality. The basis of arithmetic cannot therefore only be uncovered by analysis of the logical presuppositions for the actual use of the numbers, but it can also – as here – be made explicit by a *transcendental deduction* from the principle of contradiction and its implicit theory of meaning. The possibility of arithmetic is thus not only a given with its

actual existence. It is also – and more deeply – given with *the principle of contradiction* and its implicit theory of meaning. When you understand this difference, then you also get a deeper understanding of our situation in the world.

5.4 How empirical predicates are conceptually possible

Empirical predicates are predicates, which, in true empirical propositions, actually belong to empirical objects, but which do not belong to these objects with conceptual necessity. The task now is to make explicit what lies in this, that the objects possess the predicates, but not possess them with conceptual necessity. (This problem and the following attempt to give it an answer, is an example of "real philosophy", so if one has difficulty in following along, one should not be satisfied with believing that it is probably a case of the same conceptual mess that unfortunately characterizes most of that which nowadays goes by the name of philosophy; instead one should turn the gaze inward and ask oneself whether one's head is now also suitable for philosophizing on a serious level.)

5.4.1 Deduction of the concept of time

Basically, there lies in the fact that objects possess predicates, but does not possess those predicates with conceptual necessity, that the objects could have been different. And that would, at a minimum, mean that they could have possessed a predicate which is incompatible with a predicate that they actually possess.

This immediately presents us with a new question: How can it, purely conceptually, become a real possibility – that is, how can it be consistent – that an object can possess a predicate which is incompatible with a predicate which it actually possesses? This can only become a real possibility if it is possible that the object can exist in different *states* in which it may actually possess incompatible predicates. But how is this possible?

If it is to be possible, then the first condition must be that, purely conceptually, it must be a given that the states in question are different. And this – as a consequence of the previous definition of the concept of 'difference' (5.3.4 on page 64) – implies that, purely

conceptually, it must be a given that the states in question possess incompatible predicates. But how is that possible within the framework of the transcendental deduction? Can we point to a conceptual basis which by necessity ensures that the states in which an object may possess incompatible predicates, themself must possess incompatible predicates – and thus must ensure that these states are different?

Yes, we can. In addition to defining the concept 'difference', we also made it clear (still in Sect. 5.3.4), that the possibility of this concept further implied the possibility of asymmetric relations. Such relations are defined by the fact that if two objects stand in an asymmetric relation to each other, then these objects are by definition different. That is to say, if we are to conceptually ensure that the states, in which objects can possess incompatible predicates, are different, then we must specify that these states must stand in an asymmetrical relation to each other.

But how should this asymmetrical relation be characterized more accurately? In principle, we can say that it must be unique, and that it must somehow be found implicitly in any possible system of basic concepts for the description of reality. When we have said this much, we can also take the step further and say, that the asymmetric relation in question must be the one that we express in ordinary English by the designations 'before' and 'after' – or 'earlier' and 'later'.

If an object is in a state in which it possesses a certain predicate, then it may have been in an earlier state in which it possessed a therefrom incompatible predicate, just as it is possible that it can transfer to a later state, in which it again possesses an incompatible predicate. These relations can be specifically characterized as temporal. We have thus given a *transcendental deduction,* that any possible system of basic concepts for describing reality must contain the concept of time. Or put another way: We have deduced that every possible world must be in time.

When we have thus defined the concept of time by the asymmetric relation 'before' (or 'after'), then we can, in principle, characterize time as a series of points extending on and on back to what comes before what comes before. And which extends further and further to what lies after what lies after. Infinite in both directions.

In this context, we can also, in principle, define the concept 'change'. An object changes if it, at one point in time, possesses a certain empirical predicate, and if it, at a subsequent point in time, possesses a therewith incompatible predicate. In contrast to this, an object is stable if, over a period of time, it does not change.

5.4.2 Deduction of the causal principle

There is a serious problem with the foregoing. The problem is that propositions about how an object is like at different points of time must be logically independent of each other. It follows from the very possibility that objects at different points of time can possess incompatible predicates, that it must be impossible, purely conceptually, to conclude from how an object is at one point of time, and to how the same object is at another point of time. Therefore, pure conceptual logic cannot be sufficient to ensure that it is at all possible that different propositions can be about the same object at different times. And if this is not possible, then the possibility of talking about time and passage of time is also undermined. So, we are not finished with our transcendental deduction of the concept of time before we have also solved this problem.

What then is required for it to be possible for propositions to be about the same object at different points of time? We know this is not possible if propositions about how an object is like at different points of time simply stands in a purely conceptual relation of implication to each other. The simple – but difficult – conclusion then is that the propositions in question must also stand in a special kind of implication relationship which does not depend solely on conceptual connections.

But what exactly does that mean? Overall, this must imply that propositions about how an object is at different points of time (besides the purely conceptual relation of implication), must also stand in a form of implication relation, which depends on the empirical circumstances, under which the object exists. We call that a *causal relation of implication*. And we call the principle that empirical propositions must stand in such relations of implication among themselves for the *principle of causality*.

We have previously made it clear that a relation of implication between propositions depends on the meaning of the terms with which the propositions are expressed. There must be an interdependence between the meaning of designations and implication relations between propositions. We define the meaning of a designation on the basis of what its use in a proposition implies with respect to the proposition's implication relations to other propositions; and we determine these implication relations on the basis of the meaning of the designations by which the propositions are expressed. The meaning of designations and the implication relations between propositions are two sides of the same coin.

And now we can conclude that something similar must apply to relations of causal implication. Here there must also be an interdependence between propositions about how an object is at different points of time, and propositions about how the circumstances are.

If an object is stable, then the immediate circumstances must also be stable. If an object changes, then there must be something in the circumstances – the internal or external circumstances – which brings about the change. And that, which thus brings about the change is called the cause of the change. In that sense every change must have a cause. It is a conceptual necessity, that there is a relation of causal implication between cause and effect; but the proposition which expresses the cause does not imply, purely conceptually, the proposition which expresses the effect, because the circumstances come in-between.

This deduction of the conceptual necessity of the causal principle is fundamentally different from Kant's. Where Kant deduces the causal principle as a necessary condition for the possibility of self-awareness, I instead deduce the causal principle, as a necessary condition for propositions about how something is at different points of time can possibly be about the same object. This difference is symptomatic of the difference between Kant's transcendental deduction of the conditions for the possibility of self-awareness and my transcendental deduction (from the principle of contradiction and its implicit meaning theory) of the conceptual conditions for any possible description of reality.

5.5 Which specific empirical predicates are conceptually necessary?

What I have said in the previous section applies in principle to all empirical predicates. But what specific (types of) empirical predicates must fundamentally be possible? Can one within the framework of transcendental deduction infer anything about that? In the previous section we deduced the conceptual conditions for simple empirical objects to possess predicates which it is not necessary that they possess. In this section we shall then try to give a transcendental deduction of the (types of) predicates that simple empirical objects must possess solely as a result of it being conceptually necessary that there can be different simple objects.

5.5.1 Deduction of the concept of space

Our starting point must therefore be the conceptual fact that the proposition, that simple empirical objects are different, is equivalent to the proposition, that they possess incompatible predicates. So, the question is, how – within the framework of the transcendental deduction – we can guarantee that two simple empirical objects possess incompatible predicates. We can guarantee that in only one way: if the two objects stand in an asymmetrical relation to each other. The question then is: what, more precisely, must apply to this asymmetrical relationship?

Let's assume that objects a and b are in the asymmetric relation R among themselves. That is, b is in the relation R from a, and a is in the opposite relation R^* from b. This does not in principle rule out that there may be an additional object c, which is different from both a and b, and which is also located in the relation R from b. The object c is therefore in the relation R from both a and b. And both a and b are therefore in the relation R^* from c. In that case we say that b is *between* a and c. And we can then define a symmetric relation that holds between the objects a and b and between the objects b and c, and which (within the asymmetric relation R) uniquely identifies the objects b and

c in relation to a. We can call this symmetrical relation A; and since b lies between a and c, we can say that the A relation that holds between a and b is less than the A-relation that holds between a and c.

This is a simple transcendental deduction of the conceptual fact that in any possible system of basic concepts for describing reality – for description of simple empirical objects – we must be able to define two simple relations R and A, the first of which is asymmetric and the second symmetric, and where it is necessarily true that any pair of simple empirical objects must be in an instance of each of these relations to each other.

When we can deduce that such relations must exist, then we can also conclude that it somehow must be possible to express them in every possible language in which reality can be described. But we cannot logically deduce what these relations should be called – with which terms they shall be expressed. This is necessarily an empirical question, which depends on the specific language in question.

But having said this, it can hardly be difficult for the person who has actually carried out the transcendental deduction of the two relations R and A, to determine how they are actually expressed in the language in which he ordinarily describes the reality in which he lives. And for someone, who primarily speaks English, this means that the relation R is actually called *direction*, while the relation A is called *distance*. Thus, we have deduced that any pair of simple empirical objects in every possible world must be in some direction and at some distance from each other. This implies that they must be in *space* and thus be *spatial*.

5.5.2 Deduction of geometry

Just as the fact that a simple empirical object must be temporal means that it must extend over time (duration), so the fact that a simple empirical object must be spatial means that it must have extent in all directions of space. But since the object cannot fill the entire space, so it must have a boundary – a surface. And thus, it must also have a form.

And just as the possibility of talking about simple empirical objects, which have ex-

tension in time, provides the basis for the possibility to talk about moments that do not have extension in time, so the possibility of speaking of simple empirical objects, which have spatial extent, also implies the possibility of talking about spatial points which have no spatial extent. The very conceptual possibility that such points can be defined, implies that the talk about respectively temporal and spatial relations can be made more precise.

Where the direction and distance between two simple empirical objects must be imprecise because of the spatial extent of the objects, the direction and distance between two points must be exact because the points themselves have no extent. So the fact that points can be defined in relation to simple empirical objects, implies that the descriptions of the mutual spatial relations between simple empirical objects can be made more precise. And this again implies that several new concepts can be introduced on the basis of those which have already been introduced into the transcendental deduction of the conceptual preconditions for any possible description of reality.

With the very possibility of talking about spatial points which are different from each other (are in a direction and distance in relation to each other), we can firstly define the concept of 'straight line'. We can say that any pair of spatial points defines a straight line. And we can say that a straight line and a point outside this line determine a plane. Moreover, we can say that three points which do not lie on a straight line form a triangle with a certain sum of angles. And we already know from Euclidean geometry that this angle sum must be 180 degrees, provided that through the triangle vertex can be drawn a straight line that is parallel to the triangle's baseline.

There is no reason to proceed with this deduction of special geometric consequences because we know that these consequences are already made explicit within geometry. And I have previously (in section 4.4) explained how the possibility of non-Euclidean geometries logically presupposes the possibility of Euclidean geometry, because non-Euclidean geometries must necessarily contain a curvature constant which can only be defined on the basis of Euclidean geometry.

What we have now done is only to show how the discussion about the relationship between Euclidean and non-Euclidean geometries, purely conceptually, must be placed in

relation to the transcendental deduction of the system of basic concepts which must be presupposed by any possible description of reality.

5.6 The conceptual conditions for describing simple spatiotemporal objects

In Sect. 5.4 on page 68 we have deduced that simple empirical objects must be temporal. And in Sect. 5.5 on page 72 we have deduced that they must be spatial. Overall, they must therefore be both temporal and spatial. On one hand, they must exist over some period of time and be subject to the causal principle; and on the other hand, they must have spatial extent and exist in some place (at some distance and direction from others objects).

It is on this basis that we now stand. And from here we can go further and conclude that it must be possible that simple empirical objects as temporal can be changed with respect to their spatial predicates. This fundamentally entails that it must be possible that they can be changed with respect to their mutual location. It must be possible that they can be moved in relation to each other. A simple empirical object is moved relative to another if its direction and/or distance from the other changes.

If we can thus talk about movement, then we can also more precisely talk about velocity. An object's velocity depends on what distance it travels in a given period of time. An object moves at a uniform velocity if it moves in the same direction and if it moves the same distance in the same amount of time. An object changes velocity if it changes direction of motion and/or if it does not move the same distance in the same amount of time.

This implies, purely conceptually, that any simple empirical object, which must be in space and time, must thus also be in some state of motion. If it is at rest or in a uniform rectilinear motion, then it is in a stable state of motion. If on the other hand it is neither at rest nor in uniform rectilinear motion, then it is in a state of motion which changes.

These conceptual possibilities for describing simple empirical objects follow solely from the fact that such objects must be both in space and time. When we add that such

objects, being temporal, must also be subject to the causal principle, then we can carry the deduction further.

With the causal principle, we have given that there must be a mutual dependence between how a simple empirical object is over a given period of time and how its circumstances are. More specifically it means that if an object changes, then there must be a cause of the change in the circumstances.

When we apply this to the fact that simple empirical objects must be in both time and space, then we can conclude that what primarily stands in interdependence with an object's circumstances, is not the location of the object, but that it is its state of motion. For when the change in the object's location can simply be due to the objects own state of motion, then it must be changes in the object's state of motion – its deviation from being at rest or in uniform rectilinear motion – which implies that there must be a cause in the circumstances.

5.6.1 Newton's laws of motion

If the cause that a simple empirical object changes its state of motion is called a force, then we can immediately, purely conceptually, draw some significant conclusions.

First, we can conclude that a simple empirical object will remain in the same state of motion – that is, at rest or in uniform rectilinear motion – unless affected by forces in the circumstances that compels it to change its state of motion. That corresponds to *Newton's first law.*

Second, we can conclude that the change in a simple object's state of motion is proportional to the magnitude of the force and that it takes place in the direction in which the force acts. This is simply a consequence of the fact that the causal principle implies that there must be mutual dependence between an object's change and the circumstances under which this change takes place. Then the change of the object's state of motion becomes itself a measure of the magnitude and direction of the force. This corresponds to Newton's second law.

When we take into account that we are within the framework of the transcendental deduction – and thus have only given that which is given within this framework – then we can draw another conclusion. Because then we can conclude that since it must fundamentally be simple empirical objects which constitute each other's circumstances, then it must also fundamentally be simple empirical objects which affect each other with forces. And this can primarily happen by the collision of such objects: that an object which is at rest is struck by another which is in motion, or that two objects which are in motion, bump into each other. But if you have such a situation, then the same collision can be seen from the point of view of each of the two objects. Seen from the point of view of one object, it is the other which constitutes the circumstances – and vice versa. And so the force with which one object is affected must, in principle, be equal to and oppositely directed to the force with which the other object is affected. That corresponds to Newton's third law.

5.6.2 Gravitation and its consequences

If we think about it, then there is a weak point in the previous argumentation. We have assumed that simple empirical objects have the property that they can affect each other with forces when they collide. But where does that property come from? It cannot just be a property that the simple empirical objects each happen to have by coincidence. It must be a property that they must have, as a consequence of the very "substance" of which they consist, in that they exist as simple empirical objects.

And how can this substance itself then have such a property? It can only have so if it is affected in advance with a mutual force, which is oppositely directed to the force with which simple empirical objects affect each other when they collide. This means that the substance, of which simple empirical objects consists, must be subject beforehand to a mutual force of attraction – a universal gravitation. This is a necessary condition for simple empirical objects to be at all able to resist each other in their mutual collisions.

The conceptual fact that simple empirical objects must consist of matter, which necessarily has the property that it is subject to mutual attraction, has a number of important

consequences. Firstly, it has the consequence that the force of attraction must decrease with distance. Because we simply cannot establish that it is the concrete substance in separate simple empirical objects which attract each other without we also are able to establish that the force of attraction in a unique way thins out with distance when it spreads out over a larger space. In a three-dimensional space we can more precisely deduce that the attractive force must decrease with the square on the distance. Which corresponds to Newton's law of gravitation.

The second consequence, which follows from the fact that the force of attraction must have its origin in the individual separate simple empirical objects, is that it must propagate with a finite velocity. Corresponding to the fact that it must thin out with distance, it must propagate with a finite velocity. Otherwise, it is a state of the universe and cannot be attributed to the substance of the individual separate objects. (And then it has no foothold at all in the transcendental deduction of the conditions for description of reality.) But the fact that the universal mutual attraction, which is a prerequisite for the individual simple empirical objects to have mass, must be propagated with a finite velocity, also implies that this velocity must set a principled limit to what velocity any simple empirical object can possibly achieve. It must in principle be impossible for any such object to achieve a velocity that exceeds the velocity at which the universal attraction is propagated. It is this conceptual necessity, which Einstein used as the basis for his generalization of Newton's laws.

Finally, there is also a third decisive consequence of the fact that there must be a universal force of attraction between that substance of which simple empirical objects consists. This consequence follows when we take into account that simple empirical objects must have extent in all directions of space, and that they must therefore consist of parts, which in principle could be separated. These parts must therefore also attract each other, regardless of whether they are actually separated or not. But if it is thus given that there must be a universal attraction between the individual parts of a simple empirical object, then we are immediately faced with the question of how it is at all possible that stable empirical objects can exist. How can it be that such objects do not contracts and

disappears into a "black hole"?

This cannot be explained if the smallest particles, of which simple empirical objects consist, can still be described by Newton's laws. So, the very possibility of simple empirical objects, that can be described by Newton's laws, presupposes that these objects must fundamentally consist of a system of elementary particles which cannot be described precisely by these laws. The precondition for stable empirical objects to exist, therefore, is that these objects are made up of elementary particles, and that there is a conceptually necessary limit to how precisely these elementary particles can be described. It is this fundamental limit that Planck encountered when he discovered the quantum of action, and which is now built into quantum mechanics.

5.6.3 The conceptual relationship between the transcendental deduction and the science of physics

In the foregoing, it has been demonstrated how Newton's laws purely conceptually can be derived as conditions for description of simple empirical objects, that are characterized by existing in space and time and by being subject to the causal principle. As an extension of this, it is further marked how these laws must be generalized in accordance with Einstein's theories of relativity. Like it is also marked, how Newton's classical physics, on the other hand, must be generalized in accordance with quantum mechanics.

The thought work that we have now carried out – within the framework of the transcendental deduction of the system of basic concepts which must be presupposed by any possible description of reality – thus supports, what has already been said (in Chapter 3) on the basis of the physical science's explication of the classical physical laws and its generalization of these laws in the theories of relativity and quantum mechanics respectively. The decisive new point that we now understand – or should understand – is only the special philosophical dimension: that the fundamental conceptual connections that physical science has explicated, do not just contingently happen to apply to our world or to our conceptual system, but that they apply to any possible conceptual system, which can be

used to describe any possible reality, and thus any possible world.

5.7 The conceptual conditions for the possibility of conceptual relations in a physical world

So far, we have deduced the conceptual conditions for it being at all possible to speak consistently about a world, which consists of spatio-temporal objects, which are subject to the causal principle. That is the physical world. But with this we have also created a new problem for ourselves regarding the very possibility of being able to talk about (the existence of) conceptual systems. For the physical conditions imply that any spatial change of simple empirical objects must be physically explainable. And then how is it even possible to speak meaningfully about concepts and conceptual systems in a world that is subject to such physical conditions? For meaning and logic – and therefore also concepts and conceptual systems – cannot be explained physically.

So if there is to be a possibility for concepts and conceptual systems in a world that is subject to the (so far deduced) physical conditions for description, then there must fundamentally be a possibility for something, that happens in the physical world, and that happens without breaking with the physical conditions, but which nevertheless cannot be completely explained physically. And how can something like that even – purely conceptually – be possible?

5.7.1 The possibility of living beings

To answer this question, we must start from the very beginning: with that, that there must be something that cannot be fully explained by the physical conditions, but which are nevertheless subject to the causal principle. This again means that it must be possible that there can be physical objects, which are not only physical, but which are also in an elementary way causally determined in relation to a purpose; and which are thus open in relation to the future in a way that purely physical objects are not. Then the next question

is: How is it even conceptually possible that there can be physical objects which are also causally determined in relation to purpose?

The simplest possibility for such objects must be objects which fundamentally are determined to maintain their own existence as determined in relation to purpose, and which are specifically determined in relation to forming new beings which themselves are purpose related. Thus, the fundamental purpose of life is to sustain and develop itself. And living beings must be defined as physical objects, that are alive: purpose-directed to maintain their own life and to bring new life into the world.

At the same time, we must remember that living beings are also physical objects subject to the physical conditions. The processes that living beings must go through in order to maintain their own life and to bring new life into the world, must therefore take place in consistency with the fundamental principles of physics. This implies that the energy that a living being needs to maintain life and to be able to bring new life into the world, must ultimately be obtained from a metabolism with the environment. And therefore, a living being must have a structure – have organs – so that it can participate in a such metabolism with the environment.

But this is not in itself enough to ensure that the purpose-directedness of a living being is consistent with its being subject to the principles that apply to all physical objects. Because if a living being is only subject to the principles which – on the basis of quantum mechanics – applies to the construction of physical objects, then there is nothing that can explain why living beings can even be open to their special purpose-directedness. If this is to be explained, then it requires that living beings must have a very special physiological structure, which goes beyond the structure that they must have simply because they are also physical. In order for living beings to be open to purpose-directedness, it is required that they must be made up of some special physiological units which have an internal determination to their function in the whole. The organs that living beings must have, as a condition for their metabolism with nature to work, and so that they can reproduce, must therefore be made up of special units which have an inner determination to their function in the organic whole which the living being must be.

With this, some purely principled conditions have been set for how living beings must be structured if they are to be possible in consistency with the physical principles. But it is one thing to justify these conditions purely in principle within the framework of the transcendental deduction. It is another thing to find out how the conditions are fulfilled in the real world. That requires scientific research. And in microbiology it has been found out how the conditions are actually fulfilled. It has been found that living beings are actually made up of special biological units – cells – each of which contains the genome for the entire living being, but which is concretely controlled by the particular part of the genome which is relevant for the cell's special function in the organic whole.

The transcendental deduction of the possibility of life and the scientific microbiology's uncovering of the fundamental structure of living beings thus meets from opposite sides in the understanding of the fundamental structure of life. They need each other. For as little as philosophy, purely conceptually, can arrive at an understanding of how the biological units (and their particular internal determination to their function in the whole) are actually built up, just as little can microbiology, by its purely scientific method, arrive at a justification for the conclusion that the possibility of life, purely conceptually, requires such a special construction. Microbiology does not fully understand what its own investigations actually say, if it is not supported by the philosophical explication of the conceptual apparatus that it presupposes.

5.7.2 Living beings that can move with purpose

At this point we must also acknowledge that the possibility of living beings is only a necessary condition for the possibility of language and conceptual thinking in a world that is subject to the physical conditions. The possibility of language further presupposes the possibility of living beings that can carry out concrete purpose-directed activities. The next question then is: what are the conceptual conditions for such living beings to be possible. What causal conditions must a living being fulfill, if it is to be able to carry out concrete purpose-directed activities? When we here take into account that the fundamental

possibility for a living being to carry out such activities, must be that it can move itself with purpose, then the question can be specified as follows: What are the causal conditions for a living being to be able to move itself with purpose? And it is now our task within the framework of the transcendental deduction to formulate these conditions.

The first condition must be that the living being can perceive (something in) its surroundings. That is a condition for it to have a purpose to move towards. The second condition must be that the living being has feelings and can feel incentives. That is a condition that it can aim to move towards (or away from) something that it perceives, and not towards (or away from) something else that it also perceives.

Since it must also be a fundamental requirement that the self-movement of a living being must take place in consistency with the already (in sect. 5.6) deduced physical conditions, then we can further deduce some causal conditions that a living being must fulfill if it is to be able to move itself with purpose. First, we can deduce that it must have organs of movement. It must have some organs which enable it to overcome the physical resistance which its surroundings make to its movement. Second, such a living being must have organs of perception through which it receives impulses from that which it perceives. This is a necessary condition for it to perceive its surroundings in consistence with the physical principles. Third, we can deduce, that a living being must have a physiological basis for it to feel drives and incentives. And here we can further deduce that there must be some physiological connections – a nervous system – which makes it possible for these impulses to be sent from the organs of perception to the physiological basis for emotional life; and that there must be some corresponding connections which enables impulses to be sent from this basis out to organs of movement.

Hereby is given a brief outline of the deduction of the special causal conditions for it to be even possible for a living being to move purpose-directed consistent with the continued validity of the physical conditions. And to understand what this entails demands a lot of slow thinking. But one thing in particular must be included. It is, that those conditions which are deduced in this section must be substantiated with the conditions for the very possibility of living beings (purpose-directed beings in a world which is subject to the

physical principles) that were deduced in the previous section. This underpinning implies that the living beings that can move themselves with purpose must not only have organs of perception, organs of movement, and an intermediary physiological basis for them to feel incentives; but that it must also be the case that all these organs are made up of some special biological units which have an inner determination to their function in the specific organs that they help to build.

Organs of perception must therefore be made up of units that have an inner determination to their function in the construction of these organs. The physiological basis for emotional life (and for the nervous system) must be made up of units that similarly have an inner determination to their function in the construction of this basis. Just as the organs of movement(including the muscles) must be made up of units that have an internal determination to their role in the construction of these organs.

Living beings must necessarily have this complicated structure as a necessary condition for them to be able to move purpose-directed in consistency with the causal principle and therefore also in consistency with the physical conditions.

5.7.3 Learning, consciousness, and language

Once again, however, we have to accept that we have only determined necessary conditions for the possibility of language (or conceptual systems). For the fact that a living being can move with purpose is still only a necessary condition for it to be able to express itself linguistically. If a living being in addition is to be able to express itself linguistically, it must first have learned language in its social interaction with others.

This means that if living beings, who can perceive their surroundings, and who can move with purpose, are also to be able to become language users, then it must also be a necessary condition, that they can learn from their experiences. Quite primitively, they must be able to learn that if something is immediately linked together in experience, then there is reason to believe that it will also be linked together in the future. In this way one can learn simple conditioned reflexes.

But in order to learn language, one must be able to learn more than just simple conditioned reflexes. Language learning must be a social process. It presupposes that one can learn to use signs to communicate with others who also have the ability to use signs. And complete languages for description of reality can thus be developed through a longer social process.

However, the fact that living beings can learn language must presuppose that they have a particularly high degree of learning ability. In principle, it must therefore be possible for different types of living beings to have different degrees of learning ability: from those that merely can learn simple conditioned reflexes to those that can learn complete languages with which they can describe their situation in the world.

At the same time, we can also determine that the ability to learn is related to the degree of consciousness. A living being has a higher level of consciousness, the more it is able to learn. And the highest level of consciousness is then reached by those living beings who have been able to learn so much language that in every situation they have the means to describe what they experience – what they perceive, feel, and do.

For the sake of completeness, we must also, in this context, make it clear how the possibility of learning and higher forms of consciousness can be consistent with the physical conditions, which we have deduced in sect. 5.6. As before, here too we must build on what (in Sect. 5.7.1) has been deduced as a condition for purpose-directed living beings to be even possible in a physical world. This means that we must also here conclude that there must be physiological conditions for a living being to learn: a form of brain in which what is learned can be embedded. And in particular we must then be able to conclude that this brain must be made up of units which have an inner determination to their function as a physiological basis for learning.

A living being that can learn – and that can especially learn language – must thus already, with its very existence, have such a physiological basis which enables it to learn under the right exterior circumstances. And this physiological basis must already – through nerve pathways – be connected to both the physiological basis for the living being to perceive, as well as to the physiological basis for the living being to move itself. A language-using

living being can only be aware of its situation and react to it if it has such a complicated internal structure, quite independently of whether it is itself aware of this structure.

At this point there may also be reason to consider that while the physical form of a concrete language must be characterized by the organic equipment of the actual language users – which organs they use to express themselves linguistically – then all possible languages that can at all be used to describe reality, must ultimately build on the same structure of mutually defined basic concepts. For this structure is not determined by anything empirical – not even by the organs or the brain of the language users. On the contrary, it is determined in such a way that it can be uncovered by a transcendental deduction from *the principle of contradiction* and its *implicit theory of meaning* – just as we are trying to do in this chapter.

5.7.4 Person, knowledge, and responsibility

Step by step we have now given a *transcendental deduction* of the necessary conditions for there to be language – conceptual connections – when it is presupposed that these conditions must be consistent with the given necessary conditions for the description of spatio-temporal objects at all. As a consequence of this deduction, we can state that the possibility of language first presupposes that there must be living beings that can move with purpose, and secondly presupposes that such living beings must be able to develop (and learn) language in their mutual social interaction.

Purely conceptually, the actual existence of language therefore presupposes, that there are concrete living beings that can move themselves with purpose, and which have language such that they (as conscious) can describe their situation in the world. They must immediately be able to express that they perceive something that they perceive, and that they feel something that they feel, as well as that they do something that they do. And they must be able to express this, with sufficient justification that it is true. This simply follows from the constitution that they must necessarily have, in connection with the premise that they have evolved a language so that they are able to describe their situation

in the world.

Such living beings we call persons. And that which persons can express with sufficient justification that it is true, we say that they know. A person must therefore (as conscious) immediately have an interconnected knowledge that he perceives something that he perceives, and that he feels something that he feels, as well as that he does something that he does.

This does not mean that a person must know that he perceives everything that he perceives, and that he feels everything that he feels, and that he does everything that he does. Nor does it mean that he cannot be wrong about what he perceives, feels and does. So, it is not ruled out that he can believe – hold it to be true – that he perceives something that he does not perceive, that he feels something that he does not feel, or that he does something that he does not do. However, if he is wrong about something that he perceives, feels or does, then it must always be on the basis of the fact that at the same time there is something (simpler) that he actually perceives, feels and does with the knowledge that he perceives, feels and does it. This is prerequisite for him to be at all rightly described as being in a situation where he can be wrong.

A general denial that knowledge is even possible must therefore be inconsistent. It cannot be formulated without contradicting itself. Therefore, skepticism fails as a philosophical position. And therefore, persons cannot completely escape knowledge of the world. The fact that they have learned a language, with which they can express themselves about their situation in the world, implies conceptually that they, as conscious, must have a fundamental knowledge of their situation in the world. They must know that they are perceiving something that they perceive, and that they feel something that they feel, as well as that they do something, that they do. And in particular, they must do something with the knowledge that they are doing it.

When, through experience, they must be able to gain knowledge of general causal features of things in the world, then they must also be in a situation where they can know in advance what will happen with great probability – under normal circumstances – if they themselves do something specific. So, they can act with knowledge of the consequences

of what they do. And they can further let their knowledge of the consequences of doing something determinate enter into the causal determination of whether to do it (or refrain from doing it). They can consider whether to do it – go through a more or less conscious decision-making process. And thus, they can act under responsibility.

5.7.5 Responsibility for knowledge: the commitment to rationality

Persons must necessarily have knowledge that places them under responsibility. As conscious beings, they must necessarily have some knowledge of their concrete situation – what they perceive, feel and do – and of the causal properties of the things that surround them. And since they can let this knowledge enter into the causal determination of what to do, they can consider what they should do; and thus they are subject to a responsibility for what they do.

But when this is the case, then as a person you become responsible, in the first place, for the knowledge that you act on: that you are sure that it is knowledge, and not just belief or superstition. It, generally, requires that you are not too frivolous in your beliefs; but that you take a critical view of whether what you call true is now also really true, before you act on it – at least when the consequences of your action are not immediately transparent.

Such an investigative and probing attitude is therefore primarily a positive trait in persons. It is a requirement for being rational: only to go as far in one's beliefs as one has justification for their truth. But it is also a requirement to go as far in one's convictions as one has justification for their truth. Therefore, it is not rational to simply remain in an ongoing investigating and probing attitude without ever arriving at a binding truth.

This is especially true because that which makes it possible for us, as persons, to adopt an investigative and probing attitude towards our own opinions, is that we have a language which enables us to describe our specific situation. And this language must necessarily presuppose the implicit conceptual structure that we – through a transcendental deduction

from *the principle of contradiction* and its *implicit meaning theory* – – have exposed in this chapter. At the same time is it is not a given – and therefore not necessary – that a person, as conscious, have knowledge of this conceptual structure. So philosophically, it is an essential condition of the situation of persons, that although every person implicitly must have sufficient justification for the entire implicit structure of basic concepts of a possible language, it is not a given that he actually knows that he has such a justification. It is something that he must arrive at through his own personal thinking – most likely carried out in interaction with others. And he does not live up to the obligation of rationality until he has conducted such personal thinking. So not at all, if he just remains in the investigating and probing attitude – in the constant doubting – without really taking a step into the truly committed thinking.

5.7.6 The truth-committed inquiry: The origin of science and philosophy

The fact that we can examine and test the validity of our own opinions, means quite generally that we can examine what is true. We can investigate whether the opinions that we already have, are now also true. We can also examine what opinions we should have about the world in which we live. Based on the knowledge that we, as conscious persons, must already have, we can examine all the different aspects of the world of which we ourselves are a part. And we can, in collaboration with others, organize such studies systematically, as we have done in the sciences.

In the sciences, we use our linguistic equipment – and thus the universal conceptual structure that this equipment presupposes – to examine and describe the world as it actually is. And this requires especially that we also clarify the conceptual prerequisites for the description of reality that we give in the various sciences. Through such an uncovering of these conceptual prerequisites we can lay bare the elementary conceptual structures which fundamentally are presupposed for the possibility of our actual description of reality. As, for example, we have been able to "uncover" Euclidean geometry and classical physics.

But one thing is, that in this way we can uncover the conceptual prerequisites for the possibility of our actual description of reality. Another thing is, that we can also ask if these presuppositions apply to every possible description of reality at all, or whether they only apply to our own special possibility for description of reality. Is there a possibility for description of reality which is real but which we cannot understand because we are enclosed within a conceptual system – a language – that binds us to some particular conditions for describing reality?

Here we are faced with a question that cannot be answered scientifically, but which must be answered philosophically. A question that cannot be answered on the basis of how we in the sciences actually describe reality, but which must be answered on the basis of the conceptual preconditions for any possible description of reality: by the universally binding self-thinking of pure reason. So, what does that mean?

Fundamentally, this means that we must proceed from the logical preconditions for any possible description of reality. In the last instance it can be nothing but the principle of contradiction and its implicit theory of meaning. From there, we must carry out a transcendental deduction – in Kant's sense – of that system of mutually defined basic concepts which must be presupposed for every possible description of reality. That is what we have done in this chapter.

Thus, we now stand where we stood at the beginning of this chapter. But now we can further establish that the transcendental deduction of the basic concepts that must be presupposed for any possible description of reality, can actually be carried out in such a way that it is consistent with its own possibility.

With this, it also follows that what we have said in this section about the relationship between science and philosophy, is consistent with that which we have actually done in the previous chapter (where we have exposed the conceptual presuppositions of the sciences) and in this chapter (where we have carried out the transcendental deduction of the conceptual system, which must be presupposed for any possible description of reality).

As we think through the transcendental deduction of the concepts, which are presupposed for any possible description of reality, we also get a greater understanding of what

we are doing when we think through this deduction.

6

Pure reason in ethics

So far, we have reasoned how the fact that a person must be able to act depending on the knowledge of the consequences of what he does places him under responsibility. And initially a special responsibility to ensure that his knowledge is correct.

Thus there is a moral requirement to be rational: to ensure that one does not act on the basis of prejudices and false perceptions of the reality.

But is there also a rational demand to be moral? Is there a particular moral requirement that every person should rationally follow in his dealing with himself and other persons? A demand that not only requires one to act on the basis of true knowledge; but which also requires, that one "goes behind" one's immediate desires and incentives, and that instead one acts on the basis of a deeper regard for oneself and others? Can such a demand be rationally justified at all? Does such a demand belong to rationality?

6.1 The denial that values can be rationally justified

It is a widespread philosophical view that it is not even possible to justify an ethical demand rationally. It is an opinion that builds on the assumption that values as such cannot be justified rationally, but that basically they must be based on an irrational choice.

6.1.1 Hume and positivism

This position – that values are irrational – goes back to Hume. He argues that one cannot conclude from 'is' to 'ought' – that one cannot conclude from what is the case to what ought to be the case. Expressed in other words, this means that one cannot conclude from purely empirical premises to normative conclusions. In particular, one cannot conclude from the fact that a norm actually applies in a concrete society, to the consequence that it should apply in an ideal (rational) social order.

This point of view is taken over by the positivists. They believe that what can be justified rationally, is what can be justified within the sciences – with the scientific methods. In this way one can justify which norms actually apply within an existing social order. But thus, one cannot justify which norms ought to apply. According to the positivists' view – as to Hume's – this must depend on a choice which is basically irrational.

So, the question is whether we should follow Hume and the positivists in this conclusion. In response, we must first point out that the positivists overlook the very fundamental fact that rationality itself is a value. From a purely conceptual point of view, rationality – the endeavour to live up to the demand for rationality – is not at all possible, without it being at the same time its own highest value. It is a value that one is committed to solely in that one as a person can act under responsibility.

This also follows from the fact that one, as a language user, is obliged to be consistent. Without this commitment, one cannot use the language unambiguous – and therefore one cannot learn it either. So, one does not learn language, without at the same time learning that one is – and should be – committed to consistency. The first is not possible without the second. And if one as a language user – and a person – is committed to consistency, so one is also committed to rationality: not to go further in one's beliefs than one has justification for. Because otherwise the commitment to consistency is undermined. Therefore, already, by being a person, one is subject to the obligation to recognize the value of consistency and rationality. And that commitment is given purely conceptually.

This means that one can very well agree with Hume and the positivists that one cannot

conclude from empirical premises to normative conclusions, without therefore also agreeing that one cannot rationally justify values – and that one cannot rationally justify an ethical norm. Because there is the possibility that such a norm can be justified purely conceptually, just as one purely conceptually can justify that persons ought to be rational (consistent). It just remains to show whether it is possible, purely conceptually, to justify a rational ethical norm. I will return to that question later.

6.1.2 Nietzsche and his successors

The positivists are not the only ones who deny that values – and thus ethics – can be justified rationally. There is an even more radical version of this denial where one goes deeper and denies that there is (or can be) a universally binding rationality at all. So, as opposed to the positivists, it is also denied that science is founded on a universally binding rationality.

This position finds an original expression in Nietzsche. For him the belief that we are subject to an obligation to rationality – to not to go further in our beliefs than we have justification for – is not an expression of spiritual freedom and strength. On the contrary, Nietzsche perceives this conviction as an expression of spiritual weakness and dependence. For Nietzsche, the ideal is the thinker who sets his own values – and who is only bound by his own choice. Then there is no universally binding philosophy; but instead, there is an eternal –and irrational – battle of interpretations.

Where Nietzsche replaces the rational philosophical endeavor with a basically irrational battle of interpretation – between weakness and strength – there Heidegger sees the matter differently. For him, too, the rational philosophical endeavor is an expression of a spiritual narrowing; and also for him the actual openness to true reality consists in going beyond the limitations of rationality and logic. But for Heidegger is it is not primarily a question of the individual having to fight for his own values. It is, on the other hand, that the individual must be open to the nature of Being itself. More specifically, Heidegger means that we must be open to the understanding of Being from which the tradition from Plato

has shut us out. To reach this understanding we must go "beyond" rationality and logic.

What binds Nietzsche and Heidegger together is the denial that we in our cognition of the world is subject to a universal rational obligation. It is the denial that we cannot reach any deeper and truer understanding of our situation in the world than by following this obligation to its ultimate consequence. For both Nietzsche and Heidegger, there is a form of deeper truth in a passing "behind" or "beyond" the rational obligation.

But with this, a new position has also become possible: the one which the postmodernists occupy. Like Nietzsche and Heidegger, they deny the universal obligation of rationality, but at the same time they also deny that there is some deeper truth behind this denial. They have diluted the legacy of Nietzsche and Heidegger; and thus, they have, from the beginning, excluded himself from the enigma that the universe and their own existence presents.

Characteristic of Nietzsche and his successors is that they do not think fundamentally and self-critically enough about their own thought process. Irrespective of how you deny the universal obligation of rationality – whether you do it like Nietzsche, like Heidegger or like the postmodernists – you end up in a contradiction if you make the denial (rationally) binding for others. If you thus want to make your denial more than an expression of your own rational impotence. Quite elementary, one commits philosophical suicide, if one makes the denial of the obligation of rationality a universally binding condition. Then it is those who stick to the obligation who carry the philosophical spirit forward.

6.2 Earlier attempts to formulate a rational ethical principle

If we recognize that the very denial that values can be justified rationally is not tenable, then we can go further and ask if there is one of the attempts to formulate a rational ethical principle of action, which is already given, which is valid; or whether we have to make an independent attempt to justify such a principle. Here I will limit myself to dealing with the two basic ethical positions which defines the modern ethical debate: the utility ethics of utilitarianism and Kant's ethics of duty.

6.2.1 The utilitarian principle

On the one hand is the utilitarian principle, which says that *one should act in such a way that one maximizes happiness in the world. Or expressed differently: One should seek the greatest possible happiness for the greatest possible number.*

Should we then accept this demand as the basic ethical requirement? To answer this question, we must begin by making it clear what we should in principle demand from a fundamental ethical requirement. Here our starting point is, that the ethical question of how we should act as persons, arises because we should not blindly follow our desires and incentives – because we should not blindly take our given desires and incentives for good. When we ask the ethical question about how we should act, then we need, accordingly, to find the answer by going "behind" our immediate desires and incentives.

The question then is whether the utilitarian principle fulfills this condition. It fulfills the condition insofar as it requires of the individual person that he must not only take into account his own desires and incentives, but that he must take into account the total sum of desires and incentives. But it does not fully satisfy the condition, because it does not require that one has to go completely "behind" the desires and incentives of the persons involved. The utilitarian principle has therefore not reached that degree of liberation from desires and incentives which, purely conceptually, must be required by a rational ethical principle of action. The utilitarian principle still stands where a slave's desire for freedom must be weighed against the slave owner's desire for labor. And if you stand there, you have not thought deeply enough.

6.2.2 The categorical imperative

On the other side of the modern ethical debate stands Kant's categorical imperative. It requires that *one should act in such a way that one can make the maxim of one's action to a general law. One should therefore not carry out an act if one cannot universalize that rule according to which one acts concretely.*

Then the question is whether this principle satisfies the conditions that must be satisfied

by a rational ethical principle of action. Contrary to the utilitarian principle it is not based on the desires and incentives of the persons involved. It thus satisfies the condition that it must go "behind" the immediate desires and incentives of the persons involved. And it also satisfies the condition that must apply for all persons, in that they are persons: that it must have universal validity. It is precisely in order to fulfill this condition, that the categorical imperative sets the requirement that one must be able to universalize the maxim of one's action.

Is this sufficient for us to conclude that the categorical imperative is the fundamental ethical principle of action? We can immediately see that Kant is doing something right, in that he, in his argumentation for his own special formulation of the basic ethical principle, begins from the conditions that such an ethical principle must satisfy. It is, because the principle must satisfy the condition that it must be valid for all persons that Kant can conclude that the principle must require that one must be able to universalize the maxim for one's action: that one must accept that others in a similar situation (where one was a victim oneself) act like one does oneself.

But how do you decide whether you can universalize the maxim for your action? How do you decide whether you can accept that other persons act in the same way as you act yourself? If this decision is merely subjective, then ethics – the ethical demand – falls as a universal rational obligation. And if it is not subjective, then there must be an objective condition that it must fulfill.

Such an objective condition is also implicitly given for Kant. For Kant it is an implicit precondition that the common personal life is maintained. One cannot universalize the maxim of an action, if this universalization means that the shared personal life is undermined. It is thus that Kant argues, in principle, that one should not lie, steal or break one's promises. Because if you do that, you do something that, if it is universalized, will undermine the common personal life.

If we make Kant's argument explicit in this way, then we do something, which implies that the fundamental ethical principle of action can be formulated in a simpler and more obvious way than the one that in Kant's eyes is the most accurate.

6.3 The ethical consistency requirement

When we understand how Kant's justification for the categorical imperative is actually built up, and what it implicitly presupposes, then it also becomes obvious how it, in a simpler and more transparent way, is possible to proceed in the rational deduction of a fundamental ethical principle of action.

It is about finding out how we as persons should act, in that we are able to act depending on knowledge of the consequences of our actions – and therefore in that we are not forced to follow our immediate incentives. Through our discussion of the justification for Kant's categorical imperative it must now be clear that a fundamental ethical principle of action must, as a minimum, meet two conditions. First, it must apply to every person qua person. And secondly, it must also be consistent with, that one as a person can maintain one's existence (so that one can continue to act according to the principle).

The task is then to find – that is, to think ahead to the formulation of – an ethical principle that meets these two conditions. And how do we do that? We can simply do it by deducing the principle itself from the two conditions. In this way we arrive, purely conceptually, at what I have called the *ethical consistency requirement:* A fundamental ethical principle which asserts that every person should act in a manner consistent with the fact that he and other persons can continue to maintain their existence as persons.

This is the conceptually simplest formulation of the rational basic ethical principle. But to understand what this principle entails, it is also necessary to make explicit, purely conceptually, how what a person needs in order to live as a person relates to what the person in question immediately desires or feels motivated to do.

6.4 The ethical consistency requirement and the necessary features of the situation of persons

The ethical consistency requirement requires that we should live in consistency with each of us being able to live as persons. How does this requirement relate, purely conceptually,

to our immediate desires and incentives? How far does it require us to act against – put ourselves beyond – what we immediately feel prompted to do?

In order to be able to answer this question, we must start from the determination of what the necessary features of our situation as persons are. More specifically, we must make ourselves clear, how that which a person needs in order to live as a person (in accordance with the ethical consistency requirement), purely conceptually, relates to that which the person immediately feels prompted to do. And here we can, in the first instance, establish that conceptually it concerns two different causal relationships.

On the one hand, what a person needs in order to live as person, is fundamentally that which is needed physiologically, if he is to be able to maintain the processes which are prerequisites for him to be able to preserve life; and it is, moreover, that which is necessary for him to gain the knowledge that he must have if he is to be able to act responsibly under the ethical consistency requirement. And on the other hand, that which a person immediately feels prompted to or desires is equivalent to that which immediately drives him to do something – depending on what he perceives – to satisfy his drives.

When we talk about what a person needs and what he feels prompted to or desires, then we are talking about two different causal relationships. And from there, we can immediately conclude that it is not conceptually necessary, that what a person feels prompted to do, will also be what he needs in order to live as a person. So, there can be something that a person feels prompted to do which is contrary to what he needs as a person. Just like there can be something that he needs as a person that he does not feel any immediate incentive to acquire.

(These connections are justified here purely conceptually: on the basis of the transcendental deduction of the necessary features of the situation of persons, as given in section 5.7. Therefore, they are also abstract. But for the sake of enlightenment, they can be easily illustrated with concrete experiences. Thus, we know very well from experience that we can have incentives that are contrary to our needs. This applies, for example, to the smoker who finds it difficult to quit, or those who ruin their health by eating too many sweets. And, on the other hand, science can also tell us that we need certain vitamins and

minerals that we do not immediately feel any incentive to cover because they normally are automatically covered under our usual life circumstances.)

Once we have understood these connections, there are two other features, which must also characterize the relationship between what a person needs and what he immediately feels prompted to do. The first is that there must indeed be a fundamental correspondence between what a person needs and what he feels prompted to do. This conformity must be a consequence of biological development. For if there was no such conformity – if our incentives were not adapted to cover our needs – then we simply would have expired in the biological development. The second is that a person must have a need for some satisfaction of his immediate promptings. No one can bear constant disappointment, because then one learns that one will be disappointed, no matter what one does, and then one will break down mentally. Therefore, it is important that one as a person seeks to preserve and maintain some circumstances which ensure that there is a fundamental correspondence between what one needs and what one feels prompted to.

These principled conditions imply, that no sharp boundary can be drawn between what a person needs and what he feels prompted to. But they do not imply that no boundary can be drawn at all. One must learn how to draw the boundary through experience. Firstly, this can teach one which disappointments one can actually endure without weakening as a person. Secondly, it can teach one how other persons, who are similar to oneself physiologically, can live without weakening as persons. In addition, experience can also teach us what we cannot miss without weakening and becoming sick. Just as we can also learn that we as persons are different in character and endurance.

When we have thus determined the intricacies of the conceptual-logical relationship between what we need and what we immediately desire and feel prompted to, then we have the principled background on which the ethical consistency requirements obliges us. And we can draw from this requirement some more specific implications as to how we should act.

First, we can draw some conclusions regarding, how a person should relate to himself. Here we can simply conclude that a person should not follow impulses which undermine

his own needs qua person. Instead, he should seek to "educate" or train himself to have impulses that are commensurate with what he needs. But at the same time, he should also seek to secure his needs in a way which, as far as possible, allows him to follow his incentives so that he does not break down his own psychological preparedness. There is no simple conclusion on these demands; but there is room for each of us to exercise our own judgment. Something, which we can also do with more or less wisdom and strength of character.

In a similar way, we can make explicit what the ethical consistency requirement implies with regard to how a person should relate to other persons. Here we can, firstly, conclude that one as a person should refrain from doing anything that directly harms other persons, and which undermines their ability to meet their vital needs. Second, we can conclude that if one is faced with a person who is in deep distress (for example by drowning) and if one can help this person without major sacrifice – that is, without getting into distress oneself – then one should help. This applies in principle.

But it is also given in principle, that no sharp and unambiguous boundary can be drawn for what constitutes a "major sacrifice". We are characterized individually by when we think the sacrifice is too great. That some are braver and more willing to sacrifice than others means not that these are not willing to sacrifice at all.

Furthermore, the fact that a person can desire something that he does not need, and which will actually harm him, implies that there may be situations, where the ethical consistency requirement demands that one should help a person against his own wishes. In such situations, special human knowledge and empathy are required because one must not simply let one's own judgments trump the judgment of the other. And that empathy is not a given that we all always have. On the contrary. We can fall short in various ways. Thus, we are no strangers to the hypocrisy which consists in the fact that in an emergency we want help from others, even though we, when being on top ourselves, ignored those who were then needy.

If we are to understand ourselves and our situation in the world, then there is every possible reason to think deeper into these conceptual relations. But I will leave that up to

the reading co-thinker to do on his own behalf. Here, instead, I will move on to examine, what the ethical consistency requirement implies regarding how we should relate to the handed down social order – and especially with regard to how we should organize the social decision-making process.

7

Pure reason in the political

So far, we have deduced what the ethical consistency requirement implies as to how persons should relate to each other when we only presuppose the very fundamental features of their situation: that they have wants and needs. But to this must then be added that in reality persons must relate to each other within a more complex frame. In reality, they must relate to each other within a social framework where certain traditional norms already apply for how one should act in relation to one another. And in reality, persons must also biologically be adapted to live in such a social order.

When we include this background, then the fact that persons come to awareness of their ethical responsibility implies not only that they must deal critically with their own immediate desires and incentives. It also implies that they should relate critically to the inherited social norms. They should not blindly follow those norms if they require that they should act contrary to the ethical consistency requirement. They should each, as rationally responsible persons, assess whether what the traditional norms require of them, is now also compatible with what the ethical consistency requirement demands of them.

This also implies that, in principle, one can ask how the social norms should be in a society of persons who are each subject to the ethical consistency requirement. Or put differently: How should such a society organize itself? It should not blindly accept norms which are incompatible with the elementary equal dignity between persons which

the ethical consistency requirement implies. But what can we positively conclude about how such a society should organize its own political decision-making process?

7.1 Democracy as a rational political ideal

The ethical consistency requirement implies that there is no one who, purely in principle, has a special right to make the overall decisions about the affairs which affect the whole of society. This applies to the conditions for the property rights that society shall protect, and what citizens must provide in return for such protection. This applies to the layout of the legal system and the rules for the flow of traffic – and much else.

Persons who are subject to the ethical consistency requirement should therefore not blindly accept that there is someone who has a special right to make the overall societal decisions and to determine how society should respond to specific challenges. The ethical consistency requirements implies that all citizens in principle have equal right. Therefore, they should also all work to develop a societal order which is based on the basic political equality of citizens: in other words, a form of democracy.

7.1.1 Democratic self-education

But what then are the conditions that such a political order can function? It is not automatically given that the members of a society have the knowledge that is a prerequisite for them to be able to participate rationally in the political decision-making process. That is, it must be one of the very fundamental tasks of a democracy to ensure that its citizens obtain this knowledge. Firstly, it must require that they get a general education so that, as far as possible, they get that background knowledge – and the skills – which are necessary for them to participate meaningfully in the political decision-making process. Second, it must require a free press – a free exchange of opinions – which allows discussion of all political issues, and which thereby provides the opportunity for all citizens to gain the special knowledge that is necessary for them to be able to participate meaningfully in the concrete discussion (even if only passively) of the ongoing political problems.

7.1.2 Representative democracy

Although a democratic society should ensure that all its citizens can get such knowledge, it is not a given that it must also ensure that everyone must participate directly in the concrete political decision-making process. It must be a question of what is practically possible. And when, in practice, it is impossible to realize the political equality of the citizens in a direct democracy, then it must instead be realized in an indirect democracy. The political equality of the citizens then manifests itself in the fact that all citizens have an equal right to participate in the election of the representatives who shall sit in the parliament which must take the concrete political decisions on behalf of the citizens. In order for such a system to work, one must also have developed a culture where there is general trust that a political majority, which loses an election, also recognizes that it should step back and hand over power to the new majority – until the next election.

7.1.3 Democracy requires limits

Hence, democracy requires continuous self-education of its citizens. They must have that knowledge and that culture which implies that they can participate actively and supportively in the political decision-making process. And that they do not have automatically. Therefore, a democracy also requires limits. It must know who is a citizen, and therefore also who is not. Those who are involved, must go through the democratic education- and self-education process. And therefore no one should be invited inside – and given citizenship – without it being ensured that the person in question meets the demand for democratic education. Otherwise, democracy risks undermining itself.

It is worth making clear that when a democracy thus sets limits for itself – and when it therefore keeps someone out of its geographical area and its decision-making process – then it does not violate the ethical consistency requirement and the fact that this requirement ultimately implies political equality. For this does not imply that everyone must also have political equality in the same political decision-making process. A democracy, that sets limits for itself and for who is a citizen, does not therefore break with what the

ethical consistency requirements demands in relation to those who are outside. Because the ethical consistency requirement does not demand that those who are outside the concrete democratic social order must be given a place in this order. It only implies that these persons – outside the limits of a democracy – themselves are under a rational obligation to build a democratic order in their own societies. And this is an obligation that only they themselves can fulfill.

The ethical consistency requirement does not imply that there should be one democracy for the whole world. For that, the cultural differences can also be too large. It only implies that the different societies from within stand under a rational obligation to develop in a direction where democracy and intellectual freedom are nurtured through a rational cultural self-education process. And the ethical consistency requirement then, further, implies that such independent democracies should, as far as possible, seek to give each other space so that they can each live out democracy in their own way.

7.2 Is democracy a realistic social order?

It is one thing that democracy is a rational political ideal; another thing is whether it is also a realistic ideal. Is it realistic to believe that a society of human beings can educate itself – its own citizens – so that they can realize the democratic ideal? This question cannot be answered purely philosophically. It cannot be answered within the framework of a purely conceptual deduction. It must be answered on the basis of what historical experience tells us about how rational the great majority of human beings actually are.

And what does history say about the ability of humans to build a social order that agrees with the rational democratic ideal? Overall, we can ascertain that human beings, as a result of the geographical separation, have built different large cultures. Furthermore, we can establish that only one of these cultures, namely the Western or European, in recent times has been able from within to carry out such political self-education that it has been able to realize different versions of a fairly well-functioning democratic social order. None of the other cultures – neither the Chinese, the Indian nor the Islamic – have been capable

of something similar from within.

If we are to have clarity about the ability of humans to build a fairly well-functioning democratic order, we must therefore understand what it was that made Western culture in particular able to realize such an order. Since there is hardly any reason to believe that the Western man is characterized by a markedly higher degree of rationality than other humans, then the explanation must be found elsewhere. And here is it is natural to look at the ideas that people in the different cultures already have in their heads: this means especially those ideas which they have got into their heads through their respective religions.

Is there a difference between the religion that prevailed in the West (or Europe), and the religions that prevailed in the other great cultures, which has meant that people in the West have found it easier to realize a democratic order? Have the people in the West had an advantage with regard to the possibility of realizing a rational democratic order because they had a religion which helped them to realize such an order? And have people in other cultures had a corresponding disability because they had religions that blocked a similar development?

To answer this question, we must take a closer look at the different religions and at their inner potential to be reconciled with the principles of a rational democratic social order. And especially, we must examine whether the religion that prevailed in the Western world differs from the other major religions in containing a message which it is relatively easier to reconcile with the principles for a democratic social order.

The religion that ruled in the West was Christianity, whose core is constituted by the preaching of Jesus, as reproduced in the four Gospels. And if we look more closely at this preaching, the most characteristic thing about it is that it contains some radical commandments – love your enemy, turn the other cheek – which, first of all, cannot be made into political legislation (it is contradictory to want to support them by force), and which, secondly, implies that one can never be entitled to claim that one has God on one's side in the confrontation with an enemy. Jesus' preaching is therefore characterized by the fact that it fundamentally places all persons equal (before God), and that it implicitly

secularizes the political, in that it cannot be used as a justification for political legislation. In this way, Jesus' preaching indirectly pushes the persons, who adhere to it, into the position that one should have if one is to be able to participate rationally in the construction of a democratic social order. This is not the purpose of Jesus' preaching, but it is the indirect consequence of it.

In none of the other major (culture-defining) religions do you have correspondingly radical commandments that fundamentally treat all persons equally, and which from within the religion itself leads to a separation of religion and politics. In Confucianism, on the contrary, tradition – the ideal empire – is made into a religious ideal. In Hinduism you build on a doctrine of transmigration of souls and a caste system which divides the members of society into a fixed order of rank. And in Islam it is an inseparable part of the religion that it contains a practicable legislation for society – a legislation which also includes how the Muslims shall deal with unbelievers.

When we compare the basic core of the different major world religions with the historical fact that it was in the culture where Christianity was dominant, that people were actually able to build (different versions of) a reasonably well-functioning secular democratic social order, then there is every reason to believe that this connection is not accidental, but that Christianity has worked as a catalyst for the development of the secular democratic order. Because, while Christianity through Jesus' radical commandments indirectly teaches people that they should not argue religiously for their political stance, then the other religions directly oppose such learning, in that they themselves stand for a political stance on how the laws in society should be [1].

7.3 Do we have the rationality to preserve our democracy?

If it is true that the Christian faith of our ancestors contributed positively so that they were able to build a fairly well-functioning democratic order – and as I said, there is every

[1] I have previously argued for this point of view in more detail. Especially in my book *Forsvar for rationaliteten – Religion og politik I filosofisk perspektiv*, Informations Forlag 2008 [10].

reason to believe that – then we have a problem when we now see that the Christian faith weakens in the population. Do we then generally have sufficient rationality to sustain democracy? Do we rationally understand our situation and our obligations so well that we do not politically undermine the prerequisites that a reasonably well-functioning human democracy needs? Or on the contrary, should we be afraid that the dominant majority will be seized, instead, by ideas that lead us to destroy the democratic heritage that we were handed down?

This is not a philosophical question whose answer can be devised conceptually. Rather, it is a historical question that we are living in the middle of. We do not know in advance whether we as a population have enough rationality to maintain democracy when the religion which has helped us to develop it weakens. That we must experience in the process. Then we will see whether the ideas which enter there where religion has been will be some that support democracy, or whether it, on the contrary, will be some that help to dissolve it.

So, what can we observe here in the middle of the process? The first – and most general – point which we must recognize is that we have an intellectual elite that has fallen short of the philosophical task, and that therefore do not understand that we as persons are subject to a universal rational obligation which has consequences, not only, with respect to the conditions for the description of reality, but which also has consequences for how we should act and how we should organize our common social order. In that our intellectual elite, overall, is broken under the burden of philosophy, it has – consciously or unconsciously – put up with one form or another of relativism. Therefore, we live in the time of postmodernism and of philosophical triviality. Not because philosophy has nothing essential to say; but because, in general, the intellectual and academic elite lacks the thinking power to understand what it has to say.

Overall, we can therefore state that the weakening of religion in the population has not brought about that genuine philosophical reflection has been given more space. Instead, we have seen that a lack of understanding of the real philosophical commitment has also become more widespread. This means that the weakening of religion has not been

replaced by a rationally committed substantiation of democracy. On the contrary, the dominant intellectual environment is characterized both by a religious weakening and by a rational – philosophical – weakening. On the one hand, a weakening of that religion, which has historically been a catalyst for the development of democracy; and, on the other hand, a weakening of the philosophical rigor which rationally can justify the democratic ideal. Instead, the dominant intellectual situation characterized by a belief in "many small truths".

On this basis, one cannot give democracy a universally binding rational support. But can democracy live on without being aware of such support? This question can likewise not be answered purely conceptually. Perhaps the values that the religion supported can live on socially, even though the religion itself weakens. But the question depends primarily on which ideas then penetrate and gain a dominant influence in the intellectual elite – and in the political landscape in general.

Here we have as a matter of fact experienced that a number of ideas, that in the long term will actually contribute to undermining democracy, have won acceptance in different corners of the intellectual elite – and thus also more broadly in the democratic decision-making process. Here I want to take a closer look at some of these ideas which in their own way threaten to undermine our democracy. Because if we are to face this threat, then we must first and foremost come to the realization together that it is real.

7.3.1 The lack of understanding of the diversity of religions

If there is anything that contributes to undermining our democracy, it is the fact that a dominant part of the intellectual elite does not understand, that the great religions are different in terms of their inner potential to be reconciled with a secular democratic order. They interpret the fact that secular democracy has actually developed in the West as an expression of the victory of scientific enlightenment over religion, and not as a consequence of the special content of the religion in question. And they therefore also do not understand that when the scientific enlightenment took place in the West, then it was because religion

– Christianity – gave it space. Unlike the other major religions, which stood in the way of scientific enlightenment, just as they stood in the way of secular democratic development.

The failure to understand that the religions are different in terms of their inner potential to be reconciled with a secular democratic order, is connected with the fact that the demand for freedom of religion has been interpreted as implying, that the state must treat all religions equally. This means that an immigration and asylum policy that ignores any difference between religions has been politically demanded. In practice, this means that one – on the basis of the demand for freedom of belief – has defended a significant immigration of Muslims, who have a religion which with its claim to determine the legislation in society is in direct conflict with the conditions for a secular democratic order. Thus, one has defended a policy which rationally must weaken the popular basis for democracy. And one has thought that one should pursue this policy, because one has misunderstood what the demand for freedom of belief entails, and because one has ignored that the existing religions actually differ with regard to their inner potential to be reconciled with a secular democratic order.

This rational misunderstanding – the belief that religious freedom implies religious equality – has thus led to that the Western democracies have pursued an irrational immigration and asylum policy. And irrationality has been doubled because the policy has not only been chosen politically, but because it has been enforced by legal human rights tribunals. Such courts – primarily the *European Court of Human Rights* in Strasbourg – have, in the name of human rights, prevented the European democracies from politically being able to act based on a rational understanding that Christianity and Islam are radically different in their inner potential to be reconciled with a secular democratic order. Rationally speaking, these courts have thus contributed to a weakening of the foundation on which our democracies stand. How fateful this weakening in the long term will prove to be, there is no one who at this time can know exactly. Here democracy should make room for different political assessments. But regardless of how one's political assessment of this issue concretely turns out, everyone should agree that it is rationally a scandal that legal courts have been allowed to play such a political role.

7.3.2 Relativism of the left: Identity politics

Traditionally, the political left is characterized by fighting for the weak in society. In the early years of democracy, political life was characterized by the opposition between the possessors – those who owned the land and the means of production – and those who had to live by selling their labour. And the left wing represented the latter. It fought for better conditions for the working class. Overall, one did not believe that this could be done under the prevailing property conditions. It was the general opinion on the left that the way to ensure decent living conditions for the working class had to happen through a socialization of the economy. The private ownership of the means of production should be abolished, and the grueling and irrational competition between various capitalist producers was to be replaced by an orderly planned economy.

These vague socialist ideals gave way to different ideas of how the socialist transition should be carried out concretely. Karl Marx's thinking had a particular influence in this area. In Marxism, socialism is supplemented with a theory that history follows a particular causal dynamic and that rationality is class determined. Therefore, one rejects the belief that socialism can be introduced through an ordinary democratic process, in order instead to profess the necessity of a regular revolution.

After the "student revolt" in the late 1960s, Marxism gained a strong influence in the academic world as a framework for understanding the social reality. And this meant that certain circles in the academic the world saw themselves as vanguards for a more just social order – and for the truth that this social order must be based on.

But in the context of the stagnation and collapse of the Soviet Union and with the relative integration of the working class into the Western democracies, left-wing Marxism lost its traditional rationale. No one believed anymore in a state takeover of the ownership of the means of production and that the working class would be the vanguard of a revolution.

This meant that the left – the academic Marxists – had to find some other weak to fight for. As the social situation had developed it naturally became the oppressed minorities. First the obvious minorities like refugees and immigrants and then all sorts of

other minorities. But the theoretical basis of this struggle is still a diluted Marxism. It implies that one rejects rationality as a universal obligation, and that one instead professes a belief that each minority has its own special rationality that can only be understood from within.

This is, in elementary form, the theoretical basis for the identity politics of the left. And thus understood, the foundation is based on a double illusion. Firstly, it is based on the illusion that one consistently can reject the existence of a universal rationality obligation. But one cannot do that without assuming it exists. And secondly, it builds on the illusion that one helps and supports the minorities when one claims that they have a special rationality that cannot be understood "from the outside". Because, if this is the case, then the majority has no rational obligation whatsoever to help the minorities.

Such an obligation exists only because there is a universal rational obligation, which includes all beings who can act responsibly. It is necessarily the universal rational obligation that must be basis for the majority's obligation towards the various minorities – just as it is also the basis for the common obligation to maintain a viable democratic order. Therefore, the identity politics that the left now pursues on the basis of academic theories which deny the universality of rationality is both an academic scandal and a political stupidity.

7.3.3 Relativism of the right: The identity politics of national conservatism

In response to the political left is the right. It is traditionally divided into two which deny different aspects of the socialist ideology of the left. On one side is conservatism, which is against the left's faith in progress, and which in its starting point will defend the ruling order and the ruling privileges. And on the other side stands a liberalism which opposes the socialists' desire for state management of the economy, and who will preserve and expand the free market. Both of these ideological opposites to the left have a place in the democratic dialogue about how our common society should be organized. But here I would especially like to point out, how both these ideologies can also take on forms

which undermine the common foundation of a sustainable secular democratic order. In this section, I highlight how conservatism can take such a form. And in the next section I do something similar for liberalism.

As a starting point, conservatism believes that the existing social order has value in itself, and it denies the Marxists' belief that there is a historical dynamic which automatically leads to a better and more fair social order. This means that conservatism, in the development phase of democracy, stands as a delaying and foot dragging factor. And this is not only negative, since a democracy that is introduced too quickly and without the necessary popular self-education cannot function for its own good. Because that requires that most of the population has actually got the democratic value base – the recognition of citizens' political equality and of the separation between politics and religion – into their spinal cord. And that they do not have automatically. The combination of conservatism's hesitation and a strong effort for popular democratic self-education can be positive for the sustainability of democracy.

However, the fact that conservatism is fundamentally preserving does not only mean that it is a counterweight to any frivolous belief in progress. It also means that it is local. It needs to know what it wishes to preserve, and it is therefore bound to a concrete society with its particular order. Therefore, conservatism must also draw boundaries. And, since a well-functioning democratic order requires limits in order to carry out its own popular self-education – it must know who is involved and who is outside the self-education – then conservatism so far conforms with the conditions for the development of democracy.

But conservatism is not philosophical. It is not based on a universal rational obligation, such as the democratic ideal basically is. Conservatism is based on an elementary attachment to the given geographical and cultural conditions. So, there is no principled connection between conservatism and democracy. In a society, where one has established a reasonably well-functioning democratic order, there must however be reason for some conservative caution, if this order is to be preserved. At this stage of development, conservatism must play a positive role in the political decision-making process that is necessary

to ensure the continued maintenance of democracy[2].

This presupposes, on the other hand, that conservatism continues to be an un-philosophical attachment to the given conditions. It does not apply, if conservatism follows a similarly relativistic wild road as the identity-political left. And it does so when it also embraces cultural relativism.

Samuel Huntington points out that what the West sees as universal the non-Western world sees as Western. He even says that what is universalism for the Western world, the rest of the world perceives as imperialism.[3] And he is right for a long way. But as such, it is only an empirical proposition about what people thinks.

It is quite another thing to become a cultural relativist and, actually, conclude that Western political ideals are only Western, while other political ideals apply to the non-Western world. Because this conclusion does not hold. It overlooks that the Western ideals are not based on a cultural-historical foundation, but on a foundation where rationally committed persons ask themselves and each other how they should organize their common society. And the rational obligation, from which one thus asks, is universal. It is an obligation for the individual rationally responsible person, whether he understands it or not. It is something that one should "grow" to understand. One cannot deny that the rational obligation is universal – that it belongs to rationality itself – without entangling oneself in a contradiction. And if one first recognizes that, then one also has to accept the ethical consistency requirement and its political consequences – and thus also a demand that a rational political order should be based on a recognition of the political equality of the citizens.

These ideals are thus rationally universal. They are not particularly Western; but when it is in the West that these ideals have been allowed to develop from within, then it is –

[2]Cf. my article *'Er konservatismen rationel?' (Is conservatism rational?),* The Yearbook Critique II, 2 December 2010, `https://aarsskriftet-critique.dk/2010/12/kai-sorlander-er-konservatismens-rationel/` [11].

[3]Samuel Huntington, *The Clash of Civilizations and the Remaking of World Order*, Touchstone 1998, p. 66 and p. 184 [3].

rationally speaking – a positive characteristic of Western culture. Through its pursuit of rationality – in science and politics – this culture has managed to elevate itself to ideas that have universal rational validity.

That this is true – and that the rational democratic ideals are universal and not only particularly Western – does not therefore mean that the rest of the world must implement a rational democratic social development, because we in the West want them to. On the contrary, it is their own task to carry out a rational democratic self-education; and they simply cannot make a rational democratic order work without first carrying out such a self-education.

Here the non-Western cultures are often in a difficult situation, because they are historically entangled in religious and cultural belief-systems which block the free development of rationality. Faced with these difficulties we must not become cultural relativists, but we must try to understand the difficulty in which the different cultures stand, from within these cultures themselves (cf. sec. 7.2). In this way, we can understand, for example, that the very fact that the Islamic culture carries a heavy burden of Sharia law entails that it must have its own special difficulties in implementing the rational self-education that a democratic order presupposes.

If we bypass these difficulties by becoming cultural relativists, then we fail not only our own rational obligation, but we also fail that in Western culture which we should see as its greatest gift: that it has opened the door for a striving for rationality which rises above the "merely cultural". When conservatism connects with cultural relativism, then it undermines Western culture, on the basis of which it unfolds itself.

7.3.4 Liberalistic value relativism: the economic concept of rationality

Central to liberalistic ideology is the belief that a free society presupposes a free market.[4] The liberalists are opposed to the socialists' desire to replace the unorganized market

[4]I use the words 'liberalistic' and 'liberalism' to denote the ideology which is based on the economic concept of rationality, and which puts the market above the democratic decision-making process.

economy (and the private ownership of the means of production) with a state-organized planned economy. But after the fall of the Soviet Union, there is no longer any significant political force which wishes to abolish the market economy. The only question is how one should deal with it politically. Whether to consider the market economy to be an ideal to which one should leave as much as possible of the societal coordination and development process. Or whether one should only consider it to be a necessary part of a democratic social order, which however must be limited politically because it has some built-in dynamics, which are socially harmful.

In this choice, the liberalists are on the side of the market. They believe that the market is best at managing the societal development; and that the politicians' task should primarily be to ensure that market forces can get free play. Are liberalists right in this belief in the market? Is it true, that a free market is optimal for securing societal prosperity?

In answering this question, it makes sense to start by considering what the experts have to say. And the experts on the question of the social efficiency of the market must initially be the economists – the economic science. Because it is the task of academically trained economists to examine how the economy in a modern society works – and therefore also how it should be organized if it is to function most efficiently.

So, what do the economists say? They do not completely agree. There is one dominant main line, and then there are different schools that deviate from this line. But the main line – the dominant economic theory – stands on the side of the liberalists. It supports the belief that a free market is the most efficient way to provide optimal social prosperity. And it has set up a theory that supports this attitude. So, if we have confidence in the economists – that is, in the dominant economic school – then we should support liberalism, and then we should exercise our democratic influence by moving in a liberalistic direction.

But when we think this question through in principle, we should not blindly trust the economists. Then we should also examine whether the theories on which the economists build, are well-founded. And, in particular, we should examine whether the assumptions on which their theories are based are valid.

What then are then the central assumptions on which the dominant economic theories

are based? Fundamentally, these theories build on a special concept of rationality, which entails that one cannot rationally discuss the wishes or preferences that the individual has. The economic concept of rationality only entails that it is rational for a person to maximize the satisfaction of his preferences. And from there the economic theory goes further and claims that if the individual citizens act economically rationally (and thus each maximizes their own wish-fulfillment on the market), then society as a whole will tend towards an equilibrium state where it achieves maximum prosperity and where the individual citizens get what is due to them relative to other citizens.

When we independently think through whether the economists' assumptions holds, then we have to start with the concept of rationality itself. Does the economists' concept of rationality hold up to a rational inquiry? The short answer is no. The economists' concept of rationality is based on the assumption that one cannot rationally discuss which preferences one should have. (It is a legacy of the positivist philosophy). But this position is simply not completely rational. This follows from my discussion in chapter 6, "Pure reason in ethics". Here I have demonstrated that when one rationally asks the ethical question about how one should act as a responsible person, then one should basically "go behind" ones immediate desires and preferences – that is, behind that which, for the economic concept of rationality, is the starting point. And then rationality's own possibility – that is, the possibility for the individual persons to be able to act in consistency with their own continued existence as rationally obliged persons – should be the basis for the rational obligation, and thus be the highest value. Hereby is justified that which I have called the ethical consistency requirement, which is also the rational basis for the democratic obligation: the mutual obligation of the citizens to recognize each other as having equal political dignity.

So, there are two things to say about the economic concept of rationality. The first is, that it is not completely rational: that it simply does not think rationality sufficiently deeply through. And the second is, that the economic concept of rationality cannot justify any obligation on democracy and political equality. Hence, if we believe that the economic concept of rationality is fundamental, then we must implicitly undermine the foundation

of a sustainable democratic order. Therefore, it is important to make the economists understand that their concept of rationality is untenable. Because otherwise they will continue to contribute to eroding the foundations of democracy.

Independent of this criticism of the economic concept of rationality itself, we can also raise another fundamental criticism against the dominant (neoclassical) economic theory. This applies to the theory's "proof" that if the individual simply maximizes the fulfillment of his own preferences, then the market will attain a state of equilibrium where, socially, there is maximum freedom and preference fulfillment. But this proof builds among other things on the assumption that all persons have complete knowledge of their preferences and possibilities of choice. And this is a completely unrealistic assumption. In a realistic economy, one must take into account the limited and unequal knowledge of the agents; and therefore, one cannot assume that the economy automatically strives for a socially optimal equilibrium. On the contrary, one must expect that it can get out of equilibrium, and that it can run off track.

This consequence of the agents' limited and unequal knowledge cannot be countered by claiming that the necessary knowledge lies in the relative prices on the market. Because this assumes that these prices are not skewed; and that again assumes that they are the result of transactions between omniscient persons. And it is precisely this assumption which must be rejected.

There is therefore no reason to believe in the economists' "proof" that a free market, through its own internal dynamics, will bring about a socially optimal state of equilibrium. On the contrary, there is reason to recognize that the fact that the market participants' knowledge is limited and that it is unequally distributed implies that the free market can come into social imbalance. That is to say, although a democratic society should recognize that a free market is inevitable, it should also at the same time – by political caution – ensure that this market does not come so much out of equilibrium that it undermines the conditions for democracy itself and thus for the basic political equality of its citizens.

When we direct this criticism against the dominant economic theory on the academic parnassus, then it follows by itself that the liberalists' belief, that as many political decisions

as at all possible should be left to the market, is irrational. It undermines the very support, that a secular democratic social order needs, if it is to stay alive.

While socialism was an economic theory for the working class – the relatively weak in society – then liberalism is instead an economic theory, which benefits the relatively well-off. The more money one has, the greater is one's freedom in the market, and the more one benefits from the political effort to reduce democracy by leaving as many political decisions as possible to the market. It is therefore no coincidence that modern economic liberalism has led to greater inequality in the traditional Western democracies. This inequality is the result of the relationship between the market and the democratic decision-making procedure being skewed in favor of the well-off.

So, from the point of view of democracy, we must conclude that neither socialism (the belief that the market must be replaced by a planned economy) nor liberalism (the belief that politics should be replaced by the market) are defendable ideologies. But what must then apply to a sustainable relationship between market and democratic politics?

As a starting point, we must accept the market, as a basic condition. It will arise in one form or another by itself from the free action of the citizens. And in this free exchange there may also be some who choose to work for others for a wage. So far it is unproblematic. It only becomes problematic when the market becomes so extensive, that citizens cannot get a basis of life unless they can earn enough money to buy what they need in the market. Because, in that situation, there will be citizens who are forced to sell their labour to be able to get a basis for living at all. And then it must be the task of a democratic state to ensure that no citizen is relegated to have to work under slave-like conditions in order to earn the costs of the maintenance of life. The state must therefore not only ensure that working conditions on the private labor market are decent, but also that there is a decent alternative – a form of basic security – if you cannot find any work and therefore do not have an income, so you can sustain life.

And how should the democratic state do that? It must among other things do so by collecting tax from those who have an income from the market, and who earn more than what covers their basic necessities. They have to sacrifice some of their surplus to support

those who cannot find or are offered a decent job, and who are therefore left without a livelihood under the prevailing property conditions. Otherwise, the democratic state is not morally entitled to defend the prevailing property relations. In a democratic market economy, the determination of the conditions for property rights is complementary to the determination of the tax system which shall enable the state to also secure the basis of life for those who are without work and income from the market.

Thus, in a democracy, the state – the democratic decision-making procedure – has three fundamental tasks in relation to the market. Firstly, it must determine the conditions that shall apply to the property right – and especially for the right to own something of nature. Secondly, it must ensure that the weakest have an alternative – a form of basic security – so that they are not forced to work under slave-like conditions to sustain life. And thirdly, it must design a tax system, so that people who have surplus in the free market economy, pay part of their surplus in return for the state's protection of their property rights, and so that the state can realize a basic security for the weakest.

But while these tasks themselves are clear enough in principle, there is no unequivocal answer as to how they should be solved. There is no unequivocal answer to how the system of property rights should be organized. Should one be able to own some of the land on which we all are dependent? Should the state protect patents? What about inheritance? Nor is there any unequivocal answer as to how the state must ensure that the weakest have a decent alternative to having to work under slave-like conditions. There is room for different political assessments of what is necessary to live a decent life as a citizen in society. And there is room for different political assessments of whether people themselves do enough to be able to live a decent life in society, or whether society is too unaccommodating. Finally, there is also no clear answer as to how the taxation system should be organized. There is room for different assessments with respect to what everyone who earn above a certain minimum shall provide: whether they have to provide a fixed amount, whether they have to provide a certain proportion of their income, or whether a certain progression shall also be built in, so that one has to pay a larger percentage of one's income the higher up one goes in the income hierarchy.

There is no clear answer to all these questions. They have to be answered through the democratic decision-making process through which representatives of the various political interests negotiate with one another. It is also in this decision-making process that democracy must find out what degree of economic inequality it finds compatible with a secular democratic order. Does the economic inequality risk becoming so great that it undermines democratic equality and that it distorts effective competition in the market? There is no fundamentally correct answer to that. The answer must depend on the political reality in the concrete society.

But before we start making political decisions in this field, there is a very fundamental question that we should also confront: the relationship between the individual and society. How much does the individual depend on others helping him, and how much does the general public depend on individuals coming up with new ideas? If we are to answer this question, then we must begin by relating to how much the individual could get out of his idea if he did not have others to help him (and if he did not stand on the shoulders of those from whom he has received the ideas on which he builds). Then he could hardly have been able to create a life for himself in which the product of his efforts was about twenty to thirty times what a normal citizen of society can earn. So here we have some kind of natural measure for what inequality we should accept in society.

However, nothing is completely natural and clear-cut in these questions. On the one hand, it is about us having to make a moral choice: Which inequality is morally decent? And, on the other hand, it is about us having to make a realistic choice: What inequality is psychologically realistic? And these questions are not independent of each other. What inequality is psychologically realistic also depends on what inequality is perceived in society as morally decent. And this depends, to a significant extent, on society's social self-education: that is, on the culture of the society in question. For the democratic handling of economic inequality, it is essential whether people are brought up to understand themselves as dependent on others – or whether they are brought up to understand themselves as free standing and independent of others.

In relation to this cultural self-education, the dominant (neoclassical) economic theory

has played a negative role. It has built on the belief that a free market where the individual agents act from a desire to maximize their own preference-fulfillment will automatically tend towards a socially optimal state of equilibrium. But this belief does not hold. It is invalid purely in principle. And when one nevertheless continues to build on the theory, then one does not deal scientifically with the question of the role of the economy in a democracy. Then one approaches the question politically. In fact, one supports the ruling economic interests against a wider consideration of the conditions for the maintenance of the democratic order. One supports the individual selfishness against a deeper and more mature realization that we all live in dependence on others. And one contributes to the dissolution of that social cohesion which is absolutely necessary as a foundation for a viable democratic order.

7.4 The social foundations of rationality: the failure of universities

Western societies have been characterized by giving greater individual freedom than other societies. Christianity has presumably made a positive contribution to this because it does not provide special regulations for how society should be structured concretely, but instead it puts forward some commandments which are so radical, that they cannot be made into societal legislation. Therefore, Christianity indirectly led to a separation of religion and politics. And therefore, we have from Christianity been given the inheritance that we must manage social life here on Earth, as best we can with our common sense.

As a starting point, the freedom of Christianity has been the freedom of spirit. Christianity requires that one shall believe beyond reason; but it does not require one to give up reason. On the contrary, one only believes beyond reason if one maintains reason at its sharpest, and if one still believes anyway. Seen in that light, science – the rational study of how the world hangs together – is not contrary to faith, because faith knows its own irrationality. And on that background, it is no coincidence that it was precisely the Christian culture that provided fertile ground for a special scientific development. Complementary

to this scientific development also followed a technological development. It created new and more efficient work tools, which in time led to increased production and to economic growth; and all this brought about social changes which completely transformed the political conditions. It was through such a complex development of the class-divided industrial society that the modern democratic social order emerged.

In this social dynamic, Christianity gave us a foundation on which we could build reasonably well-functioning democracies. But with the increased popular understanding of Christianity's message Christianity withdraws itself as a political foundation. It surrenders the foundation to rationality, which for its part cannot accept a religious foundation either. And then the question is: How do we stand when it is rationality itself which must be the foundation of the political freedom in a democratic order?

This question has two dimensions. The first concerns whether rationality, logically, is even able to justify itself – and to justify the democratic ideal. That is the real philosophical questions. And that is the question that I have answered in my transcendental deduction of the conceptual conditions for every possible description of reality (cf. chapter 5), and in my following deduction of how pure reason should unfold itself in the ethical and in the political. It follows from this that rationality is in principle able to bear the burden that the modern democratic order concretely imposes on us humans. The question is then only whether we – as most of us actually are – are able to live up to the demand of rationality.

This is the second dimension of the question of how we stand, when it is rationality itself which must be the foundation for political freedom in the democratic order. It is the question of whether we humans in general have sufficient rationality to actually be able to live up to the principled – and principled valid – demand of rationality. This question is not philosophical. It cannot be decided by consistent conceptual thinking. It must be decided based on how human beings in general actually think. Do they think well enough that together they can ensure the continued maintenance of democracy?

This question has no clear – logically correct – answer. As democratic citizens, we ourselves participate in the political exchange of ideas, which should enable us to jointly keep democracy on track. In this process, the universities play a special role because they

are institutions whose special task is to ensure that the best thinking about the world and our situation in the world can be given the opportunity to unfold. Therefore, the universities must also help ensure that the ordinary citizen can get real information about the problems which democracy faces, so that the citizens are thereby enabled to fulfill their democratic role. That is why it is very important that the universities are not trapped in prejudices, but that they provide the citizens with real knowledge of the reality in which they must act politically. So that the citizens can act realistically in relation to the maintenance of democracy.

The status quo is not looking good. Of course, one cannot expect completely unequivocal answers to complicated social problems from the universities. They themselves are subject to the requirement of rational research, and thus there is also room for disagreement. But when that has been said, we must state that the universities appear to a frightening extent as a source of irrational prejudice.

From the universities originate philosophical – or really anti-philosophical – fashion trends which deny the very possibility of a universal rational obligation, and which therefore implicitly denies the rational basis of democracy itself. They demand incessant criticism of the existing order but do not understand that democracy cannot possibly be sustainable if it is always positive to criticize the existing order. In that they deny the universal obligation of rationality, they do not place their own thinking under this obligation. And therefore, they have no criteria that they might be wrong. They have put themselves in a position where they are automatically right. But if you are placed in that position, then there are only two things that are certain: One is that you are almost impossible to argue with, and the other is that you are wrong.

On the part of the universities, we have also experienced a lack of understanding of the relationship between religion and politics. The universities – especially represented by jurisprudence and religious studies – have primarily stood for the position that rationality requires the democratic state to be neutral in relation to religions. Thus, one has implicitly assumed that all religions are in principle equally compatible with a secular democratic order. But this premise is irrational. Whether a religion is compatible with the conditions

of a secular democratic order can only be determined by examining its content and its historical dynamics. That a dominant part of university research has misunderstood what the requirement of freedom of religion entails has been to great detriment for our democratic discussion of immigration policy. This has meant that one has wanted to impose on our democratic state to have to relate equally to the religion – Protestant Christianity – which has historically and dogmatically contributed to the development of democracy, and to a religion such as Islam which has historically and dogmatically stood in the way of a democratic development in the countries where it has prevailed. Something more irrational must be difficult to imagine.

Finally, the dominant school among university economists has also presented the public with economic theories which are based on an irrational concept of rationality (which does not go beyond the individual's preferences), and which assumes that the market automatically strives towards a socially optimal equilibrium. This has led us to shift the emphasis between politics and the market in favour of the market; and it has thus also led us to fail the necessary democratic formation of character. As democratic citizens, something is required of us for which the dominant economic theories have no understanding at all: That we "get behind" our immediate preferences and relate to what the democratic community as a whole needs. And that we are able to do so, we must ourselves ensure through our democratic education. If we simply allow the dominant economic theories to prevail then we fail the character formation which is necessary for the continued maintenance of democracy. Then we do not create active citizens, but passive consumers. Then we fail the economically weak in favor of the strong.

If democracy is to survive – not continue to undermine itself – then the universities must be made to understand their multiple failures. Whether it is possible is an empirical question.

Conclusion: The absolute truth

When you have thought through the book, you have to deal with it on two different levels. Firstly, and most importantly, on the purely principled level. Can one agree with the very answer to the philosophical question that the book set forth? Can one agree that *what is so necessary that it under no circumstances could be otherwise,* is the system of mutually defined basic concepts for describing reality – and for our description of our situation as persons – which can be derived by a transcendental deduction from the principle of contradiction and its implicit theory of meaning? Does one understand what is meant by this, and can one accept that therein lies the answer to the question of what is thus necessary that it must apply to every possible world?

If one has thus first considered the book's fundamental message about how the philosophical question should be understood and answered, then one must next consider whether the answer also in detail has been carried out correctly and in accordance with the specified method. Once one has understood that the task is to carry out a transcendental deduction (from the principle of contradiction and its implicit theory of meaning) of the system of basic concepts which must be presupposed by any possible description of reality, then the next thing must be to understand whether the deduction on all the specific steps has been carried out correctly. Or as well as it is now possible. Can it be concretely shown that there are some places where I have made things too easy? Is my deduction of the space, time, and causal concepts, for example, carried out correctly – with all the necessary steps? And what about my deduction of the conditions for the possibility of conscious beings? Where are there conceptual connections that should be clarified?

While I am convinced that the basic idea of the book is right, I am more uncertain about

the concrete implementation. It is quite possible that there are conceptual developments that I have made too easy for myself and that I should have thought through for greater clarity.

In any case, it must be understood that the validity of the thoughts that the book puts forward is completely independent of whether they are generally accepted. The validity does not depend on the degree of concurrence, but solely on whether the presentation complies with the inner conceptual compulsion of the transcendental deduction.

But to understand this, one must be able to rise above the spiritual horizon of our time. Because it is so narrow-minded that it cannot see the possibility of an absolute truth. The book's task is to be the ladder which the individual can use in his own attempt to think himself up to the absolute truth. A ladder which does not undermine itself and that one therefore does not need to throw away once one has climbed it.

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Bibliographical Note

We also list here the books [7, 8, 9, 12] that lead up to the present book [13].

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