RSM ERASMUS UNIVERSITY

Philosophy of Science

Summary

**Trimester 4 IBA**

Introduction to the Philosophy of the Management Sciences – Theo van Willigenburg



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**Chapter 1**

**Introduction**

Philosophy of science is a discipline of questioning the pretences of the natural and the social sciences.

Management studies are a species of social science: they do not examine natural phenomena, but social phenomena.

Empirical management studies collect data about the behaviour and beliefs of individuals, about the performance of companies and about the features of the environments in which companies operate.

Science aims at knowledge of patterns, structures regularities and laws.

In management studies we aim to gain knowledge about certain kinds of business and certain types of successful logistics management.

Generalisability is important because science has a clear goal: it wants to explain and understand phenomena.

Science is searching for general claims about law-like mechanisms that help us to understand and explain complex processes, events and phenomena.

The idea is that there are no clear mechanisms, regularities or laws that show us the path to successful management.

Scientific research is characterized by the fact that it can be tested. Scrutiny is the hallmark of science.

Trustworthiness of scientific results requires controllability and controllability requires repeatability.

**Five marks of scientific knowledge**

1. Generalisability: because we would like to explain and understand phenomena

2. Controllability: research had to be transparent and repeatable

3. Objectivity: scientific research aims to live up to certain criteria of objectivity. Scientific research should strive for independence

4. Use of valid methods of research: scientific research use research methods which are accepted as valid among scholars within a particular discipline. The trustworthiness of scientific research depends on the validity of the research methods used. Knowledge consists in justified true belief. Only a justification which refers to methods of research which are accepted as valid among the scholars within a particular discipline can count as sufficient.

5. Parsimony: scientific research aims at clear and simple models of explanation. Clarity and simplicity enhance the explanatory power of a theory and make it possible to test the theory in cases that are different from the cases which were used to build up the theory. Parsimony means that the simplest explanation that explain the greatest number of observations is preferred to more complex explanations. There are limits to the pursuit of clarity and simplification.

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**Misconceptions with regard to the methods of the management sciences**

**a. Only empirical research is scientific**

The first misconception is that only empirical research deserves the predicate scientific. Empirical social scientific research is research of phenomena using surveys, interviews, field studies etc. Social-scientific research should describe facts and calculate data as adequately as possible.

Without thorough conceptual analysis there is no thorough scientific research. We need some basic understanding of the concept of an organisation, before we can see the phenomenon grasped by that concept. There are all so called theoretical concepts which require thorough philosophical thought, in order to understand their exact meaning and the reality they refer to. The point is that there is no way of studying any entity or phenomenon whatsoever without a thorough discussion of the concepts with which we describe and grasp that entity of phenomenon. Every form of observation is shaped by conceptual presuppositions and a whole body of background knowledge. Careful reasoning is as important as adequate observation.

By good thinking and reasoning, one may reach results that empirically are much harder to attain. The philosophy of science shows that empiricism has always been a strong tradition in science, but also that it is deeply flawed. Positivists regard empiricism as the only correct position, but most philosophers of science nowadays agree that positivism is untenable.

**b. Results of scientific research are only descriptive, never prescriptive or normative**

With regard to observable phenomena or theoretical concepts, science is a purely descriptive

activity. Science can only *describe*. It cannot *prescribe*. Science is about how things *are*, not about how they *should be*. The management sciences should limit themselves to the facts, and not pretend to be able to say something about what is right or good.

Studies ultimately want to point out what types of organisation, governance and management are best in certain circumstances. What is *best* is mostly defined in terms of what is *successful*. One may object that what ultimately is to be counted as success is not something that can be determined objectively, as it depends on the preferences of persons which can vary considerably.

On the basis of thorough research we can draw scientifically valid conclusions about the acts, processes and structures that undermine or enhance the functioning of the market. This objection rightly points out that a functional norm like fair play derives its authority from the function it fulfils: its function is to enhance the well-functioning of a free market system.

In science, there are severe norms about what may count as good reasons and the reasoning processes should be fully transparent and reproducible, so that mistakes may be unveiled. Scientists want to know the truth, both in a factual sense and in a normative sense.

**Good reason model of truth**

Good reason model of truth, according to which a claim is true, if it is supported by the balance if reasons. If the reasons in favour of the claim decisively outweigh the reasons against the claim. Scholars have to weigh reasons and argue considerately when they try to draw a conclusion about a certain correlation or regularity, given the data they have collected.

*Argumentum ad ignorentiam*: one claims that something is true because there is no proof for the opposite of what one claims. Many arguments contain some hidden circularity or *petition principii*: the claim that one has to prove is secretly taken for granted is one of the premises. If the truth of a claim hinges on the balance of reasons for and against such a claim, then it is crucial that the

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arguments in which those reasons are used and weighed are crystal clear and valid. We cannot say that a good reason is a reason which supports a *true* claim or theory.

**“What  is  reasonable”**

**I. As** **methodological** **question: as a question about the correct methods of research and argumentation.**

The question what are best methods of research is of utmost importance. There is a long standing

battle going on between the adherents of a more quantitative *methodology* and adherents of a more qualitative approach. Quantitative methodology predominantly uses statistical analysis and data about the behaviour and opinions of people.

Most people reason according to a so called *representativity heuristic*: they take if that the more a person or situation seems to be represent the features of a particular type, the higher the chance that the person or situation indeed is of such a type, without looking at the statistical distribution of chances.

The famous *eureka*-moment can only occur if conscious deliberating about a problem had stopped or is in some sense made impossible. The idea of good reason in science is closely connected to what can be regarded as valid methods of research.

**II. As** **epistemological** **question: as a question about the status of acquired scientific knowledge, episteme means knowledge.**

Of utmost importance is thinking about what is reasonable and rational in science is the *epistemological* question:   what   is   the   status   of   the   ‘knowledge’   that   we   have   acquired? /Scientists hope that the *explanation* of a phenomenon (coming to understand its nature and origin) will provide for possibilities to come up with reliable *predictions*.

The  epistemological  question  is  important,  because  it  is  a  question  about  the  reasonableness  of  one’s  theoretical assumptions. As such it is a question about the rationality of the arguments which are based on that theoretical assumption. Theorists in economics and management are not always interested in scrutinising and testing the validity of the main assumptions of their approach.

Another way to defend the use of the *homo economicus* assumption, is to argue that theories grounded   in   such   an   assumption   prove   to   mirror   actual   behaviour   better   than   their   ‘nicer’  alternatives. The problem is that theories using unrealistic but powerful assumptions may turn out to be self-fulfilling. The point is that powerful assumptions may not only dominate much of management research, but may step by step come to dominate the worldview of managers and business people.

**III. As** **ontological** **question: as a question about the nature of (social) reality, ontos means**

**‘that  what  is’.**

*Ontological* assumptions; assumptions about the nature of the reality which is studies. In what way do entities and phenomena exist in reality? Are the presuppositions about their nature warranted? One might say that social reality is a different reality than the reality as it is studied in the natural sciences. The question is whether there really is such an essential difference between social realities and natural realities.

**Idealism vs realism**

Idealism is the position that, ontologically speaking, all natural phenomena are nothing more than mental representations / ideas.

Upon the basis of the awareness that these sense-data provide, one concludes that there is an

object, though the object as such cannot be sensed.

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Idealists believe that this argument implies that objects and phenomena only exist as long as they are observed or experienced. Most philosophers think that there is something important in the idealistic idea that the reality which exists independent of us, in some sense borrows its existence from the ideas that we have of that reality.

Realism, what they see is real, but it is only real for them. A form which acknowledged that reality is always observed by us in a pre-shaped way.

We distinguish and order phenomena and events in a particular way. This capacity to individualise is based upon an even more fundamental capacity: the capacity to order phenomena in time and in space.

**Kantian idealism**

Reality not in our mind but pre-shaped by our mind. Causality is a scheme of thought with which we structure and come to understand what we see in our world. Our intelligence consists of a whole body of such structuring schemes with which we grasp and understand reality. Observation is a preformed activity.

Kant presents his view as an epistemology theory, a theory about how we gain knowledge of reality. The reality that we observe is always a reality for us. The concepts with which we categorise reality are always imperfect. A reality that we will never know, because we can only know what we see through the spatiotemporal lens with which we observe the world. What one sees is studying reality is dependent on the categories with which one tries to grasp reality.

**We need more than one perspective and approach in studying natural and social phenomena**

The lesson to be learned from this is that there is not one privileged way of studying reality.

Quantitive approach vs social-psychological analysis: this does not mean that all ways of looking scientifically at reality are equally valuable.

Whether a particular way of categorising and methodology provides a trustworthy picture of the

natural and social reality is subject to reasonable discussion.

**Extra**

**The ontology of money**

According to antirealists, social phenomena only exist because people think that they exist. According to realists the existence of social phenomena is not only dependent on the collective acceptance of their existence. Whether something exists is not only dependent of what we think of it.

The existence of concrete money, like coins and banknotes of various currencies, is to a high degree dependent on our collective acceptance of those coins and banknotes. The value of money is in an important way a social construct, which supports the anti-realist position.

The acceptance of a banknote as money does not cause the note to become money. The relation is *not causal but constitutional*: the attitude that we take towards money as a phenomenon is partly constitutive of the existence of the phenomenon itself.

Still, people can be collectively mistaken about some social fact, for instance when they all believe that a counterfeit is a real banknote. The production and appearance of notes and coins of different currencies is dependent on all kinds of conventions, which again is an argument in favour of an anti- realist position.

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The existence of the *phenomenon money as such* is less dependent on conventions. We would have to think away this whole complex of practices and institutions in order for money to cease to exist, which is hardly thinkable. We, therefore, can take a realistic position with regard to the existence of money as such, without denying that money as a social phenomenon only exists in a instantiated way: there is no Platonic world where phenomena and ideas exist.

**Sophism and fallacies**

The good reasons approach sees scientific debate as a form of truth astuteness. The good reasons approach opposes any kind of sophism, according to which only winning a debate is important, no matter what means used to reach that goal. The sophists were not, technically speaking, philosophers, but, instead taught any subject for which there was a popular demand.

Hence   our   word   ‘sophistry’:   the   use   of   fallacious   arguments   knowing   them   to   be   such.   *Sophistès* literally   means   ‘expert’,   but   the   term   has   gained   an   contemptuous   meaning.   Sophism   is   now  understood as the use of a specious argument with the aim of deceiving someone. Many of so-called fallacies are studied and analysed. Fallacies are defects in an argument – other than false premises – which cause an argument to be invalid, unsound or weak. In a deductive argument, the existence of a fallacy means that the argument is not valid.

A *formal fallacy* is a defect which can be identified merely by looking at the logical structure of an argument   rather   than   any  specific   statements.   An  example   is  the   so   called  Deductive   Fallacy:   ‘If   the  Hague is the capital of the Netherlands, then it is in the Netherlands. The Hague is in the Netherlands,   so   The   Hague   is   the   capital   of   the   Netherlands.’   It   is   a   fallacious   argument   because   it  mixes a *modus ponens* way  of  reasoning  (‘p’  *plus* ‘if  p  then  q’  *implies* ‘q’)  with  a *modus tollens* way of reasoning  (‘if  p  then  q’  *plus* ‘NOT  q’  *implies* ‘NOT  p’).

*Informal fallacies* are defect which can be identified only through an analysis of the actual content of the argument rather than through its structure. An example of an informal fallacy is the so-called *argumentum ad hominem* (‘argument   which   addresses   the   man’).   It   consists   of   replying   to   an  argument or factual claim by attacking or appealing to a characteristic or belief of the person making the argument or claim, rather than by addressing the substance of the argument or producing evidence against the claim.

It is most commonly used to refer specifically to the *argumentum ad personam*, which consists of criticizing or personally attacking an  argument’s  proponent  in  an  attempt  to  discredit  that  argument. Another subtype is the *ad hominem circumstantiae*, an attack which is directed at the circumstances or situation of the arguer.

The *ad hominem tu quoque*, which objects to an argument by characterising the arguer as acting or arguing in accordance with the view that he is arguing against.

*Argumentam ad hominem* is the inverse of  *argumentum* *ad* *verecundiam*, in which the arguer bases

the truth value of an assertion on the authority, knowledge or position of the person asserting it. The

*ad verecundiam* argument makes an assertion plausible by praising the person who makes it.

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**Chapter 2**

**Introduction**

Comte  wanted  to  develop  a  ‘positive  science’  for  the  study    of  social  phenomena,  in  order  to  resolve

special   problems   in   a   ‘scientific   way’.   Such   a   positive   social   science   should   only   base   itself   upon

‘positive  facts’;  upon  observable  phenomena  and  events.

Positivism preached a strictly empirical epistemology: only knowledge based on observation and experience was to be counted as scientific knowledge.

Positivism  is  the  source  of  the  thought  that  only  empirical  research  may  bear  the  mark  ‘scientific’  and  also of the thought that normative beliefs cannot be backed scientifically, because science supposedly can only describe.

**Enlightenment as a source**

1. Rationalism: we can attain synthetical a priori knowledge about the mechanism and laws underlying the observable reality

2. Empiricism: science should be based solely on observation and experience

Modern science originates in the period of the Enlightenment in Western thought in the sixteenth and seventeenth century. Kant formulated the slogan that is characteristic  of  Enlightenment:  ‘sapere  aude’,   which   is   Latin   for   ‘dare   to   think’.   Have   courage   to   use   your   own   brains.   Luther   preached   the  emancipation of the ordinary believer.

Holy Scriptures, said Francis Bacon, may teach us a lot about our faith, but knowledge of the world can only be gained by using two central human capacities: the capacity to think rationally and the capacity to learn from observation and experience. The Enlightenment period marks the emancipation   of   one’s   own   power   of   reason:   nobody   else   can think for you, you have to think for yourself!

Causality is not something that we observe, but something to which we conclude if we think about the way we observe and experience the world. This means that, according to rationalism, we can have a priori knowledge of  the  world.  ‘A  priori’  means  ‘preceding  experience  and  observation’.

What was special about rationalists like Kant, however, is that they did not only believe that we can gain *analytic* a priori knowledge, but also *synthetic* a priori knowledge: knowledge which transcends what is implied by a strict analysis of concepts and definitions, and which is not dependent upon observation but only on pure thinking.

Rationalists think that behind most phenomena such a sequence of cause and effect is hidden and that we can come to know that hidden mechanism, even if we cannot observe it as such: we can have synthetic a priori of knowledge.

Rationalists thought that the goal of science was to unravel and unveil the complete configuration of causal mechanisms which is hidden behind the appearances. They believed that one can find out that hidden  reality  just  by  relying  on  one’s  capacity  to  think  rationally.

Kant believed that the knowledge that we gain independently of our experience and observation of reality is *limited*, but *essential*. A priori knowledge is essential, because it is knowledge that is directly of influence on the way we observe things.

Distinguishing *in* that sequence particular causes and effects is, according to Hume, nothing but a *psychological association*. The appearances are all we have, because it is only the appearances that we can empirically observe. According to Hume, there is no reality beyond the appearances. Such

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positivism holds that we can only believe what we can observe, which implies that a lot of

‘knowledge’  was  denounced  as  pseudo-knowledge or bogus.

**Positivism**

Positivism is an extreme form of empiricism. It claims that science should be based solely on observation and experience. According to the manifest (Vienna Circle), there are only synthetic claims a posteriori, claims directly or indirectly based on empirical observations. Claims not based upon what is empirically observable are nonsense-claims, the positivists thought. There is no deeper reality hidden behind what is observable. What cannot be observed or what cannot be based on what is observed, simply does not exist.

We can only observe instantiations of the effects of laws, but the working of the laws itself is unobservable. Such a position is close to the idealism of Bishop Berkley (chapter 1). The difference is that the positivists did not think that reality only exists in our minds. They thought that observable elements exist independently of us in reality.

Only knowledge that can be traced back to observational data (via steps of logical reasoning) can be qualified as scientific knowledge. Such a position is usually labelled as logical positivism.

Positivists deny the possibility of scientifically justified normative claims, because they believe that the only reason for accepting or rejecting a scientific claim as true or false is to be found in the empirical observation or experience upon which that claim is based, directly or indirectly.

**The induction problem**

The idea that only empirical data may count as good reasons for defending scientific claims result in a fundamental problem that undermines any form of empiricism or positivism. This problem is known as the induction problem.

Induction is the opposite of deduction. Deduction is a form of reasoning in which one deduces form general claims or laws more particular conclusions. There is a basic deductive scheme of reasoning called   the   syllogism:   “All   A’s   are   B   (major   premise),   P   is   an   A   (minor   premise),   so   P   is   a   B  (conclusion).”

It is the ideal of science to discover such general principles or laws which we can use to derive numerous more particular claims. This ideal is embodies in the so-called deductive-nomological model of science: we have a law (*nomos* in Greek) and from that we deduce (*deductio* in Latin) our conclusions. This is the model which positivists want to propose and defend.

The problem: how do we find the general laws and principles that we need as a starting point of the argument? The question is, whether it is possible to start with a necessarily *limited* set of observed phenomena of type A, and end with a general law which applies to *all* phenomena. In inductive reasoning one starts with a set of particular observed phenomena and draws a conclusion about a general law applicable also to phenomena which have not (yet) been observed.

This is the induction problem. Out of a limited set of observations we can never with full certainty infer a general principle or law, no matter how large the finite set may be. The problem for the empiricist is that it is opaque how one might induce from *observations* (necessarily observations of a limited amount of phenomena or events) a *law* that applies to all phenomena or events of that sort. One may say that if one has observed a great amount of phenomena, the majority of which has the same characteristic, then it is at least *probable* that most of the phenomena of that sort have the observed characteristic. Most positivists have reacted to the induction problem by introducing such an idea of probability. But one cannot say anything without knowing something about the whole set.

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This leads to the conclusion that induction *as such* is impossible. For positivism, such a conclusion is the deathblow, as it is precisely positivism which preaches that scientific knowledge should be separated  strictly  from  faith,  and  should  be  based  on  ‘hard  facts’  only.

Therefore, philosophers of science have developed an adjusted model of science. In such an adjusted model, the production of scientific knowledge is regarded as a developmental process in which through small failures and small successes a trustworthy body of beliefs is built up.

**Two models of truth**

**Correspondence model of truth**

Positivists use a so-called correspondence model of truth. According to such a model, a claim is true, if it corresponds (exactly) with reality. Positivists hold that we can test these claims by counting and measuring. We use an array of parameters that we try to measure in some way or another. We have both observational and theoretical concepts (chapter 1).

The problem with the correspondence model of truth is that it is often not easy to determine whether the content of a claim corresponds to what is going on in reality. There is no automatic connection between the phenomena that we would like to *examine* and the phenomena we can *observe*.

In order to argue for a relevant relation between observable phenomena and phenomena which are referred   to   by   theoretical   terms   like   ‘economic   recession’,   we   have   to   presuppose   a   lot,   and   these  presuppositions should be backed by arguments.

For a good theoretical concept there are three general criteria:

a. **Robustness** : a concept should be useable in more than one context, which may mean that it

will probably cover a set of phenomena which have family likeness

b. **Fit:** the claims that one makes using these concepts, should fit into a more general theory

c. **Predictability:** using a particular concept, one should be able to make trustworthy predictions about the occurrence of the phenomenon referred to by that concept

**Coherence model of truth**

The coherence model of truth says that additional consideration should support each other or otherwise hang together in a reasonable way. According to the model, there will always be many reason-giving consideration that support the truth of a particular claim. There is a plurality of factors which contribute to the assurance of the truth of a claim.

Coherence is a function of cohesion *and* mutual support. A claim is not just supported by observations, but also by arguments about how the core concepts in the claim should be understood and operationalized. The stronger the coherence between experimental outcomes, theoretical insights, and successful predictions, the stronger will be the trustworthiness of the claim.

The coherence model has an answer to the induction problem, at least a partial answer. The coherence   model   acknowledges   that   the   evidential   correspondence   between   one’s   claims   and observations reports is of utmost importance, but it adds other reasons for believing the claim, reasons which make it very probably that those observation reports are not accidental. The coherence, therefore, avoids the induction problem.

One can at most say that with ups and downs we are able to make more and more trustworthy claims about reality. Such is the goal of scientific research. Analytic claims are true if they can be

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derived from various other claims on various levels of abstraction. The truth of synthetic claims is checked by observing reality.

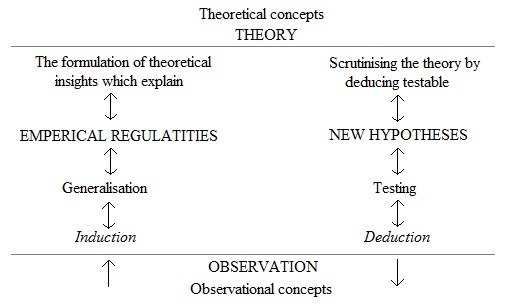
If a claim is rejected, this is usually so because it does not cohere well with those other claims in the surrounding set. But also it implies that if a claim coheres well (it is mutually supported by other claims on various levels of abstraction) and it is evidently shown that the claim is false, then the whole system of claims is under threat. It means that if a claim is falsified, this may affect the same surrounding set.

**The standard model of sciences**

The coherence model of truth forms the basis of what is generally called the *standard model of the sciences*. This standard model is much less one-sided and much more process-oriented than the model of science defended by the positivists. It still has its weaknesses.

The model proposes a kind of empirical cycle which combines phases of induction and deduction:

The process starts at the lower left. Based upon and observation, one tries – by way of on-going generalisation (induction) – to detect certain empirical regularities and laws. The next step is to explain the regularities and laws which are induced, by relating them to other regularities, laws and general theories which explain what is going on. Having step-by-step developed a theory out of observations and generalisations, one may reasonable hold that such a theory has a high degree of plausibility: we have lots of reason to suppose that the theory informs us correctly about the way reality is. Still, there is a need for tests. We can do so by deriving from the theoretical insights new hypothetical empirical regularities. We can test such a hypothesis by performing experiments. If the observations are as predicted, the hypothesis is supported, which provides support for the theory on which the hypothesis is based.



In the standard model, scientific knowledge is always provisional knowledge. We are never done testing. We need to go on seeking confirmation of our general claims and theories.

**Popper’s  critical  rationalism**

Popper argued that the induction problem is not really tackled by introducing a coherence theory of truth. Coherent sets of observations, empirical generalisations and theoretical insights may put us on the wrong track. Popper stresses that the induction problem is absolute.

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If one strives for claims that one can be sure to be true, one will be inclined to claim as little as possible, because any, more substantial claim is more likely to be falsified by the facts. The pursuit of the highest degree of assurance will lead to the defence of claims with limited content. The less one claims,  the  greater  the  chance  that  one’s  claim  will  survive.

Popper stresses that such cannot be the purpose of science, because the more substantive claims are much more informative and thus interesting. Science should strive to *falsify* those claims and theories. Scientists should not focus on confirmation, but on *falsification*. Good scientific research requires  that  one  is  as  critical  as  possible  towards  one’s  own  theories.  And  if  a  theory  keeps  score, in spite of severe scrutiny, one has really gained something.

Popper’s  approach  is  called  critical rationalism, because he believed that the main task of scientists is to purify science by searching for false claims and ideas. We can never exclude the possibility that we encounter evidence that falsifies the theory. Therefore, scientific knowledge is essentially unreliable. Falsifiability is the criterion with which we can distinguish scientific knowledge from non-scientific knowledge. The validity of a scientific theory rests upon its capacity to resist falsification. Still, we can never bridge the gap between a limited array of observations on the one hand, and a general claim or theory on the other.

Critical rationalism meets the same problem as positivism, which seeks to confirm general claims and theories only by looking for particular observations. Whether such observations really falsify a claim or theory, however, cannot be determined independent of supplementary theoretical consideration.

**Scientific paradigms and scientific revolutions**

Scientific development is not as smooth as the standard model seems to presuppose, mainly because the falsification and denouncement of a scientific theory is not just a question of searching for counterexamples  and  critically  testing  one’s  claims.  There  is  a  clear  pattern,  though.  In  the  first  phase  of the development of a scientific disciple, we see that there is a lot of discussion about the methods used, and about ontological and epistemological presuppositions.

The disagreement usually culminates in the emergence of various schools of thought, which host different ways of answering the fundamental methodological, epistemological and ontological presuppositions.

Different schools will exist next to each other and will produce different, sometimes even contradictory explanations and theories about the phenomena studied. If a discovery appeals to the imagination, other scientist may go over to the successful school and other movements and school will gradually disappear.

The breakthrough discovery usually amounts to such an impressive scientific achievement that it shows the way into new ways of studying reality and reaching for new and more scientific success. One could say that the paradigm gradually evolves to include:

- Fundamental theories that all scientists agree to

- More breakthroughs, which like the original paradigm, will function as standard examples

(*exemplars*) of new theories

- Shared scientific values, like the value of transparency of method and openness about test

results, or the value of independence of political interest

- Shared methodological prescription (example: the rule that one can only investigate the effects of new drugs in double blind trials with placebos and real medication)

If such a system functions well, we are in a situation of *normal science*. In such a situation more and more problems are solved and there is a steady growth of scientific knowledge. Normal science

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upholds certain clear norms about what is scientifically valid or not, and these norms are no longer under discussion.

It may be that scientists, within a dominant paradigm, are confronted with a nagging problem that refuses solution, or with an astonishing observation which in no way can be accounted for by the existing theories. There was an *anomaly*. Scientists give all their efforts to solve the anomaly within the framework of the existing paradigm.

Only if all efforts fail, new ways of looking at the problem are investigated that may lead to *scientific revolution*. It is a period of scientific revolution which the jigsaw pieces of the new paradigm had to fall together to create a completely new framework, after which a new period of normal science could begin again. Scientific development sometimes comes with surprises, even for the scholars who are involved.

**Extra**

**Verification, falsification, context and background**

The discussion about the coherence model of truth made clear that any statement based on observation presupposes other statements that have no experimental content. That here is no dichotomy between analytic and synthetic statements. The consequence of this is that it is never possible to test and check a scientific claim in isolation from other claims or contexts. In case of conflict between theory and observations we cannot summon and scrutinise individual claims; whole sets of claims and presuppositions must be put under scrutiny.

Quine’s  thesis  implies  that  verification  of  a  scientific  claim  is  never  a  simple  all-or-nothing check of a theory against observational data. If an observation clashes with the theory, we can solve the problem by disqualifying the observations, by interpreting it differently, or by adjusting parts of the theory.

Sir Karl Popper argued that falsifiability and not verification should be the criterion with which we distinguish scientific knowledge. Only claims that can be refuted can legitimately be said to be scientific. Scientific progress does not rest in cumulative growth of theories built on observations, but in on-going processes of conjectures and refutations, says Popper.

Falsification meets the same problem as verification. Popper thinks whenever facts turn up that falsify a theory such a theory should be ruthlessly rejected. But he neglects the fact what in such a case is not clear whether we should disqualify the observation, reinterpret the observation or adjust our theory. The falsificationist has to admit, together with the verificationist, that there are no indubitable observations, and that there are no clear criteria for deciding when a theory has to be rejected or when a theory is verified.

**Truth as correspondence with reality**

According to the correspondence theory of truth, truth consists in a relation of correspondence to reality.   ‘Truth   bearers’  are  for  example,  propositions,  sentences,   statements,   but  also  of  the  beliefs,  thoughts ideas and judgements they express. Truth bearers are true if they in some sense correspond to some portion of reality, be it facts, states of affairs, situations, events, objects or properties.

***The reduction problem***

The correspondence theory of truth is generally regarded as the most plausible one because of its simplicity and its intuitive attractiveness. The theory is mainly plausible as an ontological account of truth. As an epistemological account the correspondence theory of truth is plagued by some nagging problems.

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Ontologically, correspondence of a truth bearer with reality consists in some sort of *isomorphism* between a proposition and a relevant portion of reality. Epistemologically, this relation has to be operationalized, which can be done in many ways, using a variety of concepts.

Every statement, model or theory about reality will always involve some kind of reduction. We *model* reality: we draw lines which signal roads and we use other symbols to represent houses, lakes or railway tracks.

The problem for a correspondence theory of truth is that it has to account for these kinds of considerations, which confer on the concept of correspondence a complexity not entailed by the intuitive idea.

***The checking problem***

But also the application of the intuitive idea of correspondence meets a nagging problem. Checking whether the proposition that it rains is true, seems easy, but with more complex claims or theories we have a problem. Theories and models provide for a certain perspective on reality: we cannot examine and study reality without taking some perspective.

Direct experience, like observations of the world around us, gives us immediate entrance to reality, but social reality of business life cannot be observed without having and understanding a set of concepts that creates our lens on reality. Our observation of reality is in some ways always

‘theoretically   coloured’   (*searchlight theory of observation*). Such an idea of a web of considerations

on various levels of abstraction, is the starting point of the coherence theory of truth.

**Truth: coherence of models, theories and observations**

According to the coherence model of truth a scientific claim is true if it is supported by a coherent network of observations, analyses, arguments and theoretical insights. Coherence is a multi- dimensional concept.

The coherence of a set S of observations, generalisations and theories is a positive function of:

- The logical consistency of the elements in S (they do not contradict each other)

- The number and strength of the inferential connections between the elements of S (how many elements are implied by other elements and how strong is the evidential relation between those elements?)

- The probabilistic consistency of the elements S (there is no element which is strongly improvable)

The coherence of a set S of observations, generalisation and theories is a negative function of:

- The measure up to which S is divided into subsystems

- The presence of inexplicable anomalies

The avoidance of divisions in subsystems does not mean that in science everything should correspond with everything.

*Ampliative* justification is an important concept in the coherence theory of justification. A claim is not just true when it is inferentially justified; when it is logically implied by other justified considerations. If a theory offers a good explanation for our observations, is able predict new observations well, and fits into an overarching theory, then we can be surer that the theory brings us the truth than if the theory  is  not  in  this  way  ‘embedded’.

***The problem of trustworthiness***

A claim or theory may be part of a strongly coherent set of supportive reasons, and still be false. We may both observe a strange phenomenon and also observe that we both observe it, and still our observations may be incorrect. There is a tendency in the coherence theory to explain anomalous observations   or   theoretical   results,   as   ‘occasional’   mistakes.   Coherentists   try   to   tackle   this   problem

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by formulating criteria for handling anomalies (the rule that anomalies should be taken seriously, and we should be careful in dismissing them as mistakes).

***The problem of circularity***

The possibility of having coherent but false theories is due to the circularity that is part of every form of coherentist justification. The elements of a coherent set support each other, and there is no independent and self-evident criterion or point of departure, because no element of the set is self- justifying.

Coherentists try to solve the problem of circularity by enlarging the circle of coherence and include other considerations. Coherentists claim that such a circularity is not disastrous. The larger the circle of considerations, the less chance that mistakes are not detected.

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**Chapter 3**

**Level and nature of analysis in the social sciences**

The four types of research in the social sciences are brought about by the fact that we can always ask two profound questions:

**1. At which level of analysis is the research performed?**

a. The level of individual acts (micro level)

b. The organisation or system (macro/meso level)

**2. What is the nature of research we conduct?**

a. *Explaining* phenomena (*Erklären*), for instance by examining their causes

(perspective of the spectator)

b. *Understanding* phenomena (*Verstehen*), for instance by examining the reasons for action individuals have or the social meaning of what happens (perspective of the participant)

The answers to these questions determines the type of research we conduct.

Individuals’   behaviour   is   considered   not   to   be   determined   by   society.   It   is   the   other   way   around:  individuals determine the way society is. Such an approach is called methodological individualism, which is, generally, based on ontological individualism, the doctrine which comprises the idea that in reality no supra-individual entities exist. Only individuals and individual actions are real.

Next to the difference in level of aggregation of scientific analyses of social reality, there may be a difference in the character of such research. Difference in character implies two main types of research. First, we can examine the behaviour of individual actors at the micro level by, for instance, looking at psychological or social *causes* of their behaviour, or by trying to expose a *statistical link* between   individuals’   behaviour   and   other   phenomena.   In   these   cases,   we   can   assume   the perspective of the spectator.

Second, we could also try to understand why people do things; which *intentions* and which *reasons* they had for their behaviour. In doing so, we assume the perspective of the participant. Not only do we *explain* their behaviour, we also try to *understand* their behaviour by momentarily assuming the actors’  viewpoint.

**Hermeneutics**

Sociologist Max Weber has tried to explain the difference between explaining and understanding (Erklären and Verstehen). In doing so, he extended the work on hermeneutics by philosopher Dilthey. Hermeneutics is the art of interpretation, the art of understanding meanings. Hermeneutics tries to unveil meaningful explanations for a phenomenon by understanding underlying meaning.

The goal of science is not   only   to   predict,   but   also   to   understand   people’s   behaviour.   We   have   to  assume the perspective of the participant and we have to examine what the meaning is of phenomena. Therefore, we try to interpret their aims and find their reasons (hermeneutics). Because this kind of hermeneutical research is incredibly complex, researchers try to stick to a particular unchanging   model   of   actor’s   motives.   By   simply   assuming   particular   knowledge   and   motives,   it   is  possible to obtain a clear analysis of human behaviour and interactions.

**Rational choice theory**

Rational choice theory is one way of applying methodological individualism. Rational choice theory is a method through which we can try to understand social institutions and social changes as resulting from the actions and interactions of rational individuals.

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Rational choice theory considers society to be a cooperation of individuals who tune their behaviour, because it is the best way for them to fulfil their goals. Rational choice theory assumes that all individuals act as perfectly rational beings. This is a three-part assumption:

I. People’s  preferences  are  ordered  according  to  priority

II. Individuals do have all information about all options and results

III. They are capable of calculating the best mix of results.

In order   for   perfectly   rational   choices   to   be   made,   rational   choice   theory   assumes   that   people’s  preferences can be precisely ordered and that the figures of the results can be calculated. By calculating the expected utility of every option, we can determine the optimal option.

**Game theory**

Game theory is one of several applications of the rational choice theory. Game theory analyses situations  in  which  the  individuals’  choices  are  interdependent: the results depend on more than one individual. The   results   of   their   own   behaviour   depends   on   the   other’s   behaviour.   That   is   why   you  should   anticipate   the   other’s   behaviour.   This   is   called   *strategic rationality*:   you   anticipate   others’  choices *as best you can*, because in some situations there is a level of strategic uncertainty about which choice the other(s) will make. This requires strategic thinking.

Game theory tries to explain why societies have made up all kinds of rules. So game theory is the cause of conventions; regulating our society.

In every game, at least four results or solutions can be distinguished. When an equilibrium is possible, all players will get to this solution. Such an equilibrium is called a Nash equilibrium. Pareto optimal results are those combinations of choices in which none of the players can benefit from changing their choice without harming (at least) one of the other players.

Hobbes   and   many   game   theoreticians   building   on   Von   Neumann’s   ideas   assume   a   *conflict model*: people’s  interest  may   coincide,   which  makes  them willing to cooperate in their mutual interest, but when able to benefit at the cost of others, people will seize the opportunities to do so.

Rational choice theory claims that, in the long run, preferring particular patterns of behaviour is profitable to other patterns.

**Agents and actors**

Rational choice theory offers an elegant *explanation* of the emergence of social phenomena and of the behaviour of individuals. On the basis of game theoretical analyses, one may produce reliable *predictions* of  people’s  behaviour in situations of interdependence choice. Even so, game theoretical analyses show some serious disadvantageous which have to do with the bleak picture of the human psyche which is assumed.

The real problem with rational choice theory is that, on the one hand it examines human behaviour from  the  spectator’s  perspective,  but  on  the  other  hand  it  draws  all  kinds  of  conclusions  about  what  people prefer from their first person perspective. Rational choice theory can only make claims about the behaviour of agents, but at the same time it draws conclusions about actors.

Intentionality  is  not   solely  based  on  the   urge   to  satisfy  one’s   preferences.  The  reduction  problem  as  such is no real problem, if rational choice theory can come up with helpful explanations and reliable predictions. The problem is, however, that game theoreticians give the impression that they really can say something sensible about the human mind and volition as we experience it from the first person view. Our volitional life has a hierarchical structure. We can have reasons not to follow the lead of particular preferences and not to satisfy them, however strong they may be.

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The idea of a weighing of preferences assumes that people strive for a maximisation of preference- satisfaction, and, therefore, it is assumed that when someone does not want to satisfy certain preferences, there must be other, competing preferences the fulfilment of which will give him more satisfaction.

If welfare economists study the choices of subjects, they use a behaviourist conception of preference: subjects choose what they prefer, so their choices reveal their preferences. But if welfare economists examine what gives people most satisfaction or wellbeing, they use a mentalist conception of preference: subjects prefer what they find most agreeable and what gives them most pleasure. But if we ask people about their motives, we will see that there is much more that motivates individuals then only that which gives them satisfaction (in a mentalist sense). Rational choice theory seems to deny this fact, wherefore it sketches a defective picture of the human psyche. The reasons people have for their choices are not limited to the maximisation of their happiness or wellbeing.

People are not only agents, but also actors with their own motives and reasons for actions.

**Four types of research in the social sciences**

Research in the social sciences, including research in the management sciences, can be performed on two levels (micro and meso/macro) and from two different perspectives (explaining and understanding). In this chapter we have focussed on the micro level, starting with the behaviour and motives of the individual subject.

Table of levels and perspectives:

|  |  |  |
| --- | --- | --- |
|  | **Micro level**  Individual | **Macro-/meso level**  Collective |
| **Explaining**  First person perspective | *Rational choice theory*  *(agents)* | *Systems theory*  *(functions)* |
| **Understanding**  Third person perspective | *Interpretation of reasons*  *(actors)* | *Social meanings theory*  *(norms or rules)* |
| **Extra** |  |  |
| **Five basic games** |  |  |

1) The Coordination game

2) The  Prisoner’s  Dilemma

3) The Chicken game

4) The Battle of the Sexes game

5) The Assurance game

***The Coordination game***

In game theory the problem of coordination is modelled by imagining the interaction of two individuals as a coordination game. Two walkers want to turn either left or right. The priorities are exactly the same: both want to make the same choice. Therefore: both walkers want to know one another’s  choice.  Both  can  give  out  signals  for  example  by  keeping  to  the  left  or  right.

***The  Prisoner’s  Dilemma***

Within the   P ri so ner’s   D i lemm a , two prisoners are given a choice. They do not know what the other will choose. They can choose to deny or to confess. If one confesses, and the other denies, than the one who confesses will gain twenty years of imprisonment, the other goes free. If both deny, they will have both two years of imprisonment. If both confess, they will have both ten years of

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imprisonment. They can never really reach the highest possible without harming the other, without consulting, which is out of the question. So, what do you do?

***The Chicken game***

Chicken is a model that takes its name from a dangerous game of teenagers who drive in each other’s   direction   on   a   collision   course:   one   must   swerve,   or   both   may   die   in   the   crash,   but   if   one  driver swerves and the other does not, the one who swerved will be called a *chicken*, meaning coward. The principle of this game is that while each player prefers not to yield to the other, the outcome where neither player yields is the worst possible for both players.

The special thing with the Chicken game is that it is worth to *threaten* the other party by driving

through  and  staying  on  one’s  track,  or  by  building  up  a  reputation  of  fearlessness  and  bravura.

The Chicken game can also be applied to some market situations, when parties – just by threatening with sanctions – can stop other parties from doing the same.

***The Battle of the Sexes game***

The Battle of the Sexes game models the situation in which two partners would like to go out together, without being able to make an agreement about where to go. Which choice is made will depend on convention or the balance of power or other aspects. In market situation, one party can be so powerful that other parties follow in order to avoid a worse scenario.

***The Assurance game***

The Assurance game is also known under the name Stag Hunt in which two individuals go out on a hunt. Each player must choose an action without knowing the choice of the other. In order to attain the optimal equilibrium players should be able to trust each other; they have to be sure that the other party will not cheat (even if this would be expensive for the other party too).

***Rational choice theory***

Rational choice theory: explanation and prediction on the micro-level from the perspective of the spectator. Rational choice theory assumes motives and beliefs.

Rational choice theory models society as a sum of mutually advantageous cooperation agreements. i. Coordination problems explain the emergence of conventions, rules and institutions.

ii. Problematic interaction as modelled in the *Prisoner’s  Dilemma* (PD) explains why authorities and sanctions may be necessary to force cooperative behaviour. Repeated PD interactions explain the emergence of trust as a better basis of cooperation than the threat of sanctions.

The problem of rational choice theory is that it identifies an assumed reduced picture of the human psyche with the psychology in terms of reasons and motives as we know it from the first person perspective.

Rational choice theory (explanation and understanding interdependent decisions from the perspective of the spectator) has an important function next to the hermeneutics of individual motives (perspective of the participant). *Erklären* and *Verstehen* are both necessary.

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**Chapter 4**

**Introduction**

Methodological individualism regards individual actions as the determining factor in the explanation of social phenomena like markets and companies. Methodological individualism is based on the ontological premise that social reality cannot be determined by supra-individual factors (factors that go beyond what individual do) (ontological individualism or atomism). We take the perspective of methodological collectivism. Also methodological collectivism is based on an ontological premise, the premise that individual phenomena are determined by the structure in which they are imbedded.

Individual actions are determined by what is available in the contextual whole (ontological holism). Individual behaviour is to be explained as determined by the structure and culture of society in which individuals operate. Social facts – the way a society develops or reacts to crises – can only be explained by other social facts. If we apply this to management sciences, holism holds that a company’s   action   are   not   determined   by   individual choices, but by the structure and culture of a company.

Not the intentions of individuals are significant here, but the *social meanings* that explain the behaviour of groups of people. These social meanings can only be understood from the perspective of the participant. Instead of looking for social meanings, one may also search for functional explanations. One can scrutinize the functioning of systems, without resorting to the meanings behind these systems.

**System theory: functional explanations**

A functional explanation illuminates why a part behaves in a particular way, by looking at the function of such behaviour within the contextual whole. Functionalism focuses on the system and the role a phenomenon plays within such a system.

Causality assesses events preceding a phenomenon and functionality assesses the goal a phenomenon serves. Both goal and cause may provide for an explanation of a phenomenon. Of one explains a phenomenon in terms of the function it serves, one has to make clear   who   ‘owns’   this  goal.

For functionalism, it is always the conservation of the system that explains why certain elements within the system act in a certain way. Functionalistic explanation are always system explanations: they ask what is necessary for system to survive and function well, and explain individual behaviour by showing how such individual serves this systemic goal.

**A functionalist explanation of crime**

Crime is not a pathological phenomenon, but an ordinary feature of societies, needed for the society to   stay   ‘healthy’.   Increasing   crime   will   elicit   collective   sentiments   of   solidarity   that   reinforce   social  integration. It is also important that criminals are pictured as *evil*.   Only   if   we  can   create   such   a   ‘we’  against  ‘them’  polarity,  society will exhibit a flourishing solidarity. That is why public trails are of the utmost importance. They are not one of us. Therefore we separate them and put them behind bars for a long time.

If Durkheim is right, delinquency can be diminished, but not extinguished because it plays an important role in our society: it is instrumental in reinforcing solidarity in an otherwise disintegrating society. Crime, thus, is functional: it is needed to keep our society together. A functional explanation does not examine why people become criminals, but examines the positive function criminality has in our society.

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**Two problems**

**The presumption that systems have goals is based on an unwarranted organic view** The *first problem* is related to the presumed goal of social phenomena like criminality. Durkheim assesses  this  as  the  pursuit  of  a  ‘healthy’  society:  a  society  in  which  there  is  sufficient  coherence  and  solidarity.  Durkheim’s  ideas  about  mechanisms  seeking  for  balance  should rather be regarded as

ontological *assumptions* that make a functional explanation possible, rather than as having an

independent empirical basis. Durkheim presupposes an organic view without proving it. The organic view regards organisations and collectives as organisms that have their own function, goal and life cycle. In this view, collectives, like organisms, try to attain an equilibrium with their surroundings.

There is not an antecedent goal that is served by natural selection. There is no plan of efficiency. We only have coincidental processes of gene selection. Asking what these are *meant* for is useless. So why would asking what it is *meant* for be valid if one tries to explain coincidental processes and dynamics in a society?

**Functional explanations are teleologically metaphysical**

Even more nagging is the *second problem*. Functionalism explains phenomena by assessing the goal these phenomena serve. These explanations are teleologically metaphysical: they assess the goal of a phenomenon as the explanation for a phenomenon to exist. They do not assess the cause of a problem. Causal explanations are causally metaphysical: they assess preceding causes as the explanation for the emergence of a phenomenon. The problem is that teleologically metaphysical explanations are useless, if we cannot point out the mechanisms that cause a phenomenon to fulfil a particular function within a system.

What is the causal feedback mechanism that connects an unbalance in the system? A functional explanation can be tentative, but remains speculative if no explanation for the causes is provided. A functional explanation is valuable, because it provides some insight in the workings of social phenomena. These explanations are incomplete though. A full and adequate systemic explanation has to point out causal feedback mechanisms too. We need to know what causal mechanisms make a system fully operative.

**Symbolic interactionism**

Apart from attempting to (causally or functionally) explain social phenomena, one can try to *understand* them by assessing the symbolic interactions that bring them about. According to symbolic interactionism, such reasons are often related to the social meaning of behaviour within a group. Meanings and norms within a group determine the motivations of individual actors in it.

Participating in social practices is the only way to find out and learn to understand what people consider to be important. The most important *premise* of   symbolic   interactionism   is   that   people’s  choices and behaviour are largely (if not solely) determined by norms within a group, even though people’s  choices   and  behaviour  also  contribute   to  the   production  and  development  of  these  norms.  *Reasons* are rules, the authority of which is determined at a supra-individual level.

**Following rules**

Wittgenstein’s   rule   following   theory   shows   that   in   order   to   understand   the   authority   of   norms   as  having a supra-individual origin, one should examine the role of *interpretation* (hermeneutics) in following rules. He showed that there is an important difference between *following rules* (rule- following behaviour) and *acting in accordance with rules* (regular or patterned behaviour).

You can only be guided by a rule or norm, if this norm is a reason for you to act in a certain way. If you accord your behaviour to a rule (or norm), there is always a possibility to fail: you could break

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the rule. Therefore, normativity always presupposes fallibility: you are not guided by a norm, if there is no possibility to deviate from it. Rules only function as norms if you can fail to obey them.

**Interpretation: significant patterns and social meaning**

The problem is that a finite number of examples can be interpreted as the application of an *infinite*

number of rules.

It appears that children are more capable of solving specific kinds of riddles than adults, because they are less inclined and less pre-shaped than we are.

Apart from universal meaning, there are numerous meanings that are confined to a particular culture. Such meanings exist, because a certain habit was introduced and subsequently adopted by others.

**Symbolic interactionism: finding the norms (norma) behind the normal**

How do we come to understand the correct code or rule? This is the central question of symbolic interactionism. Behind everything we consider normal, a norm can be found. By conforming to what is considered to be normal, people may exhibit extremely irrational behaviour. Instead of creating meanings and norms ourselves, we (unconsciously) absorb meanings that are dominant in a particular group or culture. In most cases this is not problematic, because many social meanings are fed by experience.

**Extra**

**Free will**

Symbolic interactionism explains phenomena like market behaviour by revealing the intentions and reasons people have for their actions. People are sensitive to the normative expectations that surround  them  and  they  try  to  accord  to  such  expectations:  they  try  to  ‘follow  the  rule’.

Recent research in neurobiology and psychology has, however, questioned this presumption of free will. It has been shown that most of our actions are not preceded as a conscious moment of decision, let alone a conscious moment of will based upon a weighing of reasons. We form opinions about other people, about events, and even about politics without being aware that we are taking a position. Reasoning is mostly a post-hoc activity.

In reality there is no such thing as free will. If so, then the intentional explanations presented by symbolic interactionism are bogus. However, the fact that a lot of what we do is not preceded by some conscious act of will does not imply that we do it involuntary. Free willing does not require a conscious moment of decision preceding  one’s  choice.  And  even  if  there  is  such  a  conscious  moment  of willing, then we should not be surprised that also this moment is preceded by neural activity of which we are not aware.

The reason that we commonly connect free will to conscious deliberations is that we associate actions that are non-deliberate and blatantly unreasonable with forced or in other ways involuntary

‘choices’.  The  studies  in  neurobiology  and  psychology  mentioned  above  do  not  invalidate  the  idea  of  free will as it is commonly understood. They do not invalidate intentional explanations as are being presented by adherents of symbolic interactionism. Such explanations may provide for a fruitful analysis and clarification of social phenomena.

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**Social meaning of money**

***The dominance of money***

In our society, money has a significant social meaning. The converting power of money exists because it is dominant in our capitalistic society. It enables the possessor not only to dominate the market,   but   also   other   social   ‘spheres’.   Our   primitive ancestor relied more on dominating physical power: the strongest member of the group could protect himself better and acquired more food and women. Ever since the industrial revolution, money is the most important means for the fulfilment of one’s   desires. In the future, it might even be that physical appearance will become the dominant factor.  Good  looks  are  an  increasingly  important  asset.  However,  money’s  dominance  still  prevails.

***Restrictions***

All kind of constructions can be found to limit the power of money, like anti-trust laws. The most important of these are the social rules that prevent certain goods from becoming eligible for sale. That is why society has to develop norms to restrict the dominance of money in other social spheres. The reason why a society restricts the power of money is because we want to keep and uphold certain social meanings.

Politics: the political profession is not for sale. Therefore, the government has restricted the amount of money from lobbyists a candidate can spend on a campaign.

Education: diplomas are not for sale. Even so, financially fortunate people are able to give their children better and more education and in some countries expensive private schools offer better education than government-funded schools. That is why a society is inclined to develop rules in order to help intelligent but poor children by way of scholarships or by rendering trade in academic titles illegal.

Health: we should not be able to buy health. Many countries have laws that guarantee citizens equal access to healthcare.

***Relative wealth***

Even *if* everything would be for sale, possessing much money would not be all there is, because wealth has no absolute value. Wealth has only relative value. The relativity of the value of goods is related to their shortage. Shortage creates value, because precisely those goods that are not readily available to all of us are the ones we desire to possess. Wealth can only be wealth in comparison to a shortage of wealth, because the value of social goods and possessions is created by shortage.

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**Chapter 5**

**Symbolic interactionism seems to imply that truth is relative to culture** Without knowing we adopt and apply the values and meanings that are dominant within our peer group. If our beliefs are heavily determined by social norms and meanings, we may wonder whether the truth claims of science itself are also relative to a particular society or culture. It seems to be,

then, that the conclusions of a scholar are determined by the reasons and criteria which are

dominant in a particular culture at a certain moment. In this way, scientific truth becomes relative to culture, which is a disturbing thought, because generally we regard scientific claims as universally valid.

Science aims at revealing the truth about the natural and social reality, not what people in different cultures think about the natural and social reality. In what way can we both acknowledge that scientists are part of a particular group and culture, the social meanings of which in important ways determine their beliefs, and uphold the claim that scientific knowledge is universally valid (and not

‘culture’  bound’  in  such  a  way  that  there  would  be  various  scientific  truths,  dependent  on  culture)?

In order to answer that question we have to distinguish three forms of cultural relativism. Descriptive relativism pictures the deep differences between cultures, which purports to make it impossible to speak about one truth, because we are confronted with radically separated isles of meaning. Methodological relativism holds that the distinction between truth and falsehood is itself an untenable distinction, because we have no viable method to make such a distinction. Normative relativism, finally, holds that all culture-relative truths are equally valuable (they are all equally true), and that we should therefore be tolerant towards other systems of norms and values.

**Three forms of relativism**

**Descriptive relativism**

Adherents of descriptive relativism point out the deep differences in the way in which people in different cultures give meaning to things. People in different cultures use sometimes very different explicit or implicit criteria to distinguish what they regard as normal or abnormal. One may still wonder whether such a difference may lead us to the conclusion that there is not one truth, but only *truth indexed for culture*.

The problem with such an indexation of truth is that it pictures cultures too much as isolated isles of meanings. Between cultures there are always *bridgeheads of shared basic beliefs and inferential norms*. In all cultures, there are forms to express these meanings; forms that may differ, but that express more or less the same experience and value.

In addition, in all cultures people have to deal with the same natural reality. If people seek to know the truth about things, one may presuppose that, irrespective of their cultural; background, they seek the same, because they want to know whether what they think about the world and about each other is correct.

Descriptive relativism is untenable because it pictures cultures too much as isolated isles of meaning, whereas in reality intercultural dialogue is possible (bridgeheads of meaning). For pragmatic reasons and out of sheer curiosity, people want to know how things really are. Critical thinking and emancipation belong together. Critical thinking is the source of our emancipation.

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**Methodological relativism**

Methodological relativism acknowledges that cultures are not to be regarded as isles of meaning, and that fruitful communication across cultures is possible. Even so, this does not mean that we can make a meaningful distinction between true and false beliefs. There is no convincing method to make such a distinction, and therefore, the whole idea that we can distinguish truth from fiction itself is fictional.

One way to think this view is by thinking about the famous movie: The Matrix. The film describes a future in which reality perceived by humans is actually the Matrix, a simulated reality created by sentient machines in order to pacify and subdue the human population. What is real? What is the real reality?

According to Baudrillard, reality as we observe it, is its own simulacrum: a perfect copy of which there is no original. If one claims that truth is an illusion because we cannot distinguish true from false images of reality we cannot determine whether this claim itself is true or not. If postmodernists are wrong, then we can make a distinction between right and wrong claims and we see that the postmodernist story is fraud.

Methodological relativism undermines itself: if there is no distinction between true and false theories (because the distinction itself is an illusion), then we have no reasons to believe that the story of the methodological relativist (or postmodernist) itself is true.

**Normative relativism**

According to normative relativism, we can derive from descriptive relativism and methodological relativism one central message: we have to acknowledge that different people in different cultures have different images of reality. It requires that we acknowledge that there is not one overarching set of convincing reasons, and therefore we must respect other beliefs, even those who radically differ from our beliefs.

If one holds that there is no overarching norm or truth, why would we care a straw for the norm of tolerance? Normative relativism denies that there are universal truths or values, but poses a universally valid norm: be tolerant!

Normative relativism undermines itself: if there is no overarching truth or universal value, then the norm of tolerance itself is also culture bound and has only limited application.

**Sciences and values**

All three forms of relativism appear to be untenable. The upshot of this is that we do not need to be afraid that the claims of science are only valid relative to some culture or society. We want to relate to reality in such a way that we can live well, which means that we need to know reality as it is.

Science is bound by internal values and norms which enhance a reliable search for truth, like transparency, generalizability, publicity and fair competition between research groups.

Science is valuable for society. Science touches upon values, interests, and expectations concerning:

1. The choice of research subjects

2. The choice of methods of research and the specification of essentially contested concepts

3. The way results of research can be used.

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