



KANDIDAT

**8151**

PRØVE

# MEE140 1 Philosophy of Science and Research Methods

---

Emnekode	MEE140
Vurderingsform	Hjemmeeksamen
Starttid	17.11.2021 10:00
Sluttid	24.11.2021 10:00
Sensurfrist	15.12.2021 22:59
PDF opprettet	25.08.2022 12:49

---

**Seksjon 1**

<b>Oppgave</b>	<b>Tittel</b>	<b>Oppgavetype</b>
<b>i</b>	Information	Informasjon eller ressurser
<input checked="" type="checkbox"/>	IMS - Standard forside /Standard Front Page	Skjema
1	Assignment	Filopplasting

**IMS - Standard forside /Standard Front Page**

**DET SAMFUNNSVITENSKAPLIGE FAKULTET**  
**Institutt for medie- og samfunnsfag**

Emnekode og emnenavn:

MEE140 Philosophy of science and research methods

Kandidatnummer (se StudentWeb):

8151

Antall ord:

3158

**Tillater du at besvarelsen kan brukes i undervisning og/eller  
forskningssammenheng?**  (Ja, Nei)

Dersom du ikke kommer i mål og vurderer «trekk under eksamen», velg å levere «blankt» istedenfor en besvarelse. Trekk per e-post og telefon er ikke godtatt.

For spørsmål rundt oppgaveteksten, kontakt faglærer.

Ved tekniske problemer underveis, send e-post til kari.riste@uis.no eller ring 51831535.

UiS minner om reglene for plagiering og fusk, som studentene har bekreftet på Studentweb, i sin utdanningsplan del 1, at han/hun har lest, husk spesielt på (jf. Forskrift om studier og eksamen ved UiS § 6-1):

1. Som fusk eller forsøk på fusk ved prøving regnes blant annet:

- Å ha ulovlige hjelpemidler tilgjengelig under prøving.
- Å presentere andre sitt arbeid som sitt eget.
- Å sitere kilder uten at dette fremgår i oppgaven ved bruk av anførselstegn, kursiv eller annen utheving av den siterte teksten.

- d. Å sitere eller på annen måte benytte eget tidligere innlevert arbeid uten tilstrekkelig henvisning.
- e. Å benytte kilder i skriftlige arbeid uten tilstrekkelige henvisninger.
- f. Ureglementert samarbeid mellom eksamenskandidater eller grupper.
- g. Å handle i strid med gjeldende regelverk eller retningslinjer for den aktuelle prøvingen.

2. Konsekvenser av fusk eller forsøk på fusk reguleres av lov om universitet og høyskoler og blir behandla av universitetets klagenemnd, jf. universitets- og høyskoleloven § 4-7 og § 4-8.

Viser til interne retningslinjer på studentsidene.

# 1 Assignment

## ASSIGNMENT

[MEE140 -Take Home Exam \(2021\)](#)

## PAPERS

[Flyvbjerg \(2002\)](#)

[Geels \(2014\)](#)

[Hopkins \(2001\)](#)



Din fil ble lastet opp og lagret i besvarelsen din.

 Last ned

 Fjern

 Erstatt

Filnavn: MEE140\_8151.pdf

Filtype: application/pdf

Filstørrelse: 226.7 KB

Opplastingstidspunkt: 23.11.2021 16:54

**Status:** Lagret

MEE140: PHILOSOPHY OF  
SCIENCE AND RESEARCH  
METHODS

CANDIDATE: 8151



## **Task 1: Naturalist and non-naturalist**

To answer this task, we need to recognize the important concepts in the literature, naturalism, non-naturalism, and social science. Naturalism can be understood as if both social- and natural science are aimed at discovering truths about social and natural facts by uncovering relevant causal connections (Bortolotti, 2008). In this view, a naturalistic scientist is responsible for explaining, controlling, and preventing social occurrences using natural explanations. This raises questions about what defines social science as science and how it should relate with natural science (Larsen, 2021c, slide 3). Some central tenets are that social science should be objective and value-free. Furthermore, social science should predict and explain social phenomena allusion to causal laws which increases the ability to control them. Hence should also social science be based on experiment and observation (Larsen, 2021c, slide 4).

Non-naturalism, or anti-naturalism as Popper would term it, is on the other hand the naïve and overly simplified positivistic methodology according to Popper (Bortolotti, 2008). Non-naturalism can be understood as a branch of social science that differs from natural science in that social facts must be explained in terms of purpose, interpretation, and meaning rather than causal relationships and natural laws (Bortolotti, 2008). An interpretivism approach to non-naturalism is that social phenomena are different from natural phenomena because they have a meaning (Larsen, 2021c, slide 5). Words and actions, for example, have meaning because humans have given them meaning (Douglas, 2011). As a result, the goal of social science is to comprehend rather than to explain and forecast occurrences (Larsen, 2021c, slide 5). Social science is not value-free, and it should not be either, according to a critical theory approach to non-naturalism (Larsen, 2021c, slide 5). The point is that it should support human liberation. To do that it can identify social and political structures, ideologies, and oppressive economics. In addition, a postmodernist view of non-naturalism can be that social orders are power regimes, a system of regulation and power (Larsen, 2021c, slide 5).

Shortly, the understanding in this question of social science is a term that encompasses all sciences that empirically investigate societal conditions and human relations (Berg, 2021). The methodological approach to social science can be placed between humanities and natural science. Social science can use both qualitative and quantitative research (Gorton, 2014), and are therefore placed between those two approaches.

As previously mentioned, these two concepts; naturalism and non-naturalism, emerge from Popper's theoretical view, where he distinguishes two approaches between social- and natural sciences. For this question's purpose, I have chosen the paper from Hopkins (2001) *Was Three Mile Island a "Normal Accident"*. The paper is going to be discussed whether it uses a naturalistic and non-naturalistic view of the nature of social science, and if the paper uses an explicit or implicit expression.

The paper can be seen as using an implicit naturalist view of social science. Implicit can be defined as something implied and it can be understood even if it's not said directly (Nilstun, 2021). This can be found in Hopkins (2001) paper because he discusses Perrow's "normal accident" theory. The article's central argument is a critique of Perrow's normal accident theory, and he uses the Three Mile Island accident as an example to prove that it doesn't have to be a "normal accident", and that the accident can relate to Turner's "man-made disasters" theory. In regard to what can be an implicit naturalistic perspective of Perrow's argument in this paper is that he says that a normal accident is inherent in the characteristics of tightly coupled, complex systems and cannot be avoided (Hopkins, 2001). Indeed, a tightly coupled system is highly interdependent where each part is linked to many other parts, that means that failure of one can rapidly affect the status of others. The nature of the accident can be said to be incomprehensible to those seeking to control it. This shows that the paper can implicitly express a naturalistic perspective on the nature of social science, because in a normal accident the inspectors try to control a tight coupled system. In the view of naturalism one characteristic is that social science needs to control social phenomenon's which in this case is a technological system in an organization. It can also be discussed whether in a naturalistic view there are causal conditions, and in this paper through Perrow's theory it is clear that one failure in the system leads to another failure. This shows that there is a causal condition in the system.

The paper can also be seen as using an explicit non-naturalist view on social science. Explicit can be defined as directly, clearly, and distinctly expressed (Nilstun, 2019). First Hopkins (2001) is subjective in his arguments in the paper, and that can be argued to be a form of explicit non-naturalism. Popper made a partial list of some factors that distinguish and show the gulf between social- and natural science where one of these factors is objectivity (Bortolotti, 2008). Popper argues here that the subject attempting to provide an explanation of



a social fact is not placed outside of that fact but is often embedded in it (Bortolotti, 2008). Hopkins (2001) expresses explicitly that “This is an important issue that I have canvassed in detail...” (p.71). This shows that he is not objective in his paper, because Hopkins (2001) as one author is embedded in his explanation and expresses his meanings and that can make it non-naturalistic. According to Douglas (2011) scientific researchers can increase their objectivity if there are more experts in the scientific field that are involved, for example in a paper. In this case, Hopkins (2001) is the only author who makes it less objective, and he expresses his own meaning from a scientific perspective. In contrast to Perrow’s presentation in the paper, Hopkins (2001) tries to understand the Three Mile Island accident. It can be argued that Perrow only tries to predict and explain the accident with his normal accident theory, because he explains that certain technologies make major accidents inevitable, no matter how well managed an operation may be (Hopkins, 2001). Hopkins (2001) argues that this is an unashamedly technological determinist argument. Hopkins then tries to understand and see the Three Mile Island accident as a social phenomenon explained through a less deterministic meaning. For example, Hopkins (2001) goes through the process of failure in detail and tries to understand where the failure was predictable and hence could be prevented, therefore it also can be said it is non-naturalistic.

Overall, the Paper is written by Hopkins (2001) and can therefore be said that it can have an explicit non-naturalistic view of social science. Even though the paper can be argued to have elements of implicit naturalistic view, because the paper brings up the theory of Perrow’s normal accidents, which has been discussed above. There has been a debate for ages about the proper approach to investigate the social world and the lack of consensus has resulted in a methodological pluralism (Gorton, 2014).

## **Task 2: Logical positivism and Popper’s critical rationalism**

This task shall delve deeper into the concepts of logical positivism and Popper's critical rationalism. Important to mention here is the demarcation problem, that is how we distinguish science and non-science (Bortolotti, 2008). There are different views of how a statement can be scientific. There are different kinds of statements; *synthetic* and *analytic*. Synthetic statements are statements about which we may determine whether they are true or false simply by considering their logical structure or the meaning of the terms they contain

(Bortolotti, 2008). On the other hand, we have analytic statements which are either true or false in virtue of their logical structure or the meaning of the terms contained in them (Bortolotti, 2008).

The logical positivist view of the demarcation problem is provided in the criterion of verifiability as a factor for meaningfulness of statements (Bortolotti, 2008). Thus, a statement is cognitively meaningful only if it can in principle be verified (Larsen, 2021a, slide 4). Logical positivism is also known as logical empiricism (Bortolotti, 2008). The “positivist” label refers to scientific knowledge as the only legitimate type of knowledge, and the “empiricist” label refers to their view that knowledge about the world is not possible to obtain without relying on experience through empirical tests and observations (Bortolotti, 2008). If a statement is synthetic and can be proven through experience, or if it is analytic, it has meaning (Bortolotti, 2008). To tell that the statement is verified they show that the statement is true by the basis of the observation (Larsen, 2021a, slide 4). The aim for the logical positivist is to find the objective truth and the method that is used is testing a hypothesis against data with a view to verify them (Larsen, 2021a, slide 6).

Karl Popper has a view on the demarcation problem where he believes that science is the rational enterprise “par excellence”, and he looks for a genuine strategy for telling scientific theories apart from theories that are non-scientific (Bortolotti, 2008). As a critical rationalist, Popper believes that general statements cannot be verified, but that they can be falsified (Larsen, 2021a, slide 9). As a result, Popper's demarcation criteria are falsification. We can falsify a statement by demonstrating that it is false through observation. Therefore, a statement is scientific if it only can be in principle falsified (Larsen, 2021a, slide 10). It is science according to Popper if we test a hypothesis against data with the perspective to falsify them. It is a scientific progress where the aim is to falsify a hypothesis. Evidence would be accommodated to match non-scientific theories, preventing the theory from being falsified (Bortolotti, 2008). Based on all this we can see that Popper uses deductive logic (Dr. McLeod, 2020). The following statements are going to be analyzed if it fits a logical positivist view or Popper’s critical rationalism view.

*Statement a.* This statement is a known statement in metaphysics, scientist as I. Newton and A. Einstein did express metaphysical views and worked under explicit metaphysical assumptions like this statement (Bortolotti, 2008). This kind of statement brings forth the logical positivist view on metaphysics. Their view is that most metaphysical claims have no

meaning whatsoever and are misleading. These statements use words that frequently refer to objects we can experience with our senses to describe objects that are often outside or beyond that experience by definition (Bortolotti, 2008). In this sense we can't observe that "all" events are caused by previous events, and that makes it not analytic because they receive no evidential support from experience. Furthermore, it depends on the individual who is asked about the statement, and that person will use his or her consciousness and that makes the statement subjective. Therefore, this statement is not scientific according to the logical positivist view. According to Popper's critical rationalism this statement is scientific because, in principle this statement can be falsified, because in the future the scientific research on the field may be more explored which can falsify the statement. Perhaps, in a few years, scientific research will prove that everything began in one location before the "big bang," and that one event was not triggered by a prior occurrence. Nevertheless, we haven't seen every event in the universe.

*Statement b.* This statement, according to the logical positivist, is scientific even though it is under the metaphysics. That is because individuals today can observe atoms in the lab through a microscope. This isn't something we can simply see with our senses to explain; it's something scientific that can be seen under a microscope, which makes this statement analytic. According to Popper's critical rationalism this is a scientific statement, he observes that metaphysical hypotheses have had a significant influence on the evolution of scientific hypotheses (Bortolotti, 2008). The scientific progress on atoms has been through a long testing of hypotheses against data, it all started in the ancient Greeks and since then it has been discovered new data on the research field of atoms. Therefore, we can say that scientific progress never ends because scientific research develops. Thus, the statement is scientific according to Popper because it can in principle be falsified. On another note, we haven't seen everything in this universe, so we don't know if it is made of atoms or something different.

*Statement c.* According to logical positivism this statement is not scientific. First, this statement is subjective because it is dependent on the individual who examines it. I can say that Donald Trump is the worst president in US history, but a Trump supporter would say the opposite. Therefore, it is not the objective truth. Second, we can't observe that something is "worse". The statement can be said to be an ethical statement where these kinds of statements cannot be verified by appealing to experience. They have normative dimensions, there are only preferences that are ultimately subjective and often clash with the preferences of others

(Bortolotti, 2008). In accordance with Popper's critical rationalism this statement is not scientific. That is because to falsify a statement we need to show that it is false based on observation, and it is impossible to observe “worse”. Therefore, it can't be scientific according to Popper's view. Individuals have different thoughts about Trump as a president which makes it subjective in the sense of science.

*Statement d.* According to the logical positivist this statement is not scientific. This statement can be said to be very complex and not cognitively meaningful because humanity can't know for sure that climate change is only man-made. Furthermore, individuals can't observe that climate change is only man-made, but there exists scientifically proven evidence that says that humans are affecting climate change in a negative direction. On the other hand, we can't be certain that it is only “man-made”. Individuals have different opinions about this topic which makes it subjective. In accordance with Popper's critical rationalism this statement is scientific because it can in principle be falsified. The empirical consequences can show that the climate change is man-made, and the data material can say the same, but also say the opposite; “climate change is man-made” and “climate change is because of natural changes in nature”. As a result, the statement can in principle be falsified which makes it scientific.

*Statement e.* This statement according to logical positivism is not scientific. Statements about human behavior in the logical positivist view can be seen as behaviorism, that is the perspective that all aspects of human life can and should be described in terms of observable behavior (Larsen, 2021a, slide 7). We have no way of knowing for sure that the observation of Paul's neurotic behavior is a result from an unresolved Oedipus complex, it can also be because of a traumatic experience, for example he could have been sexually assaulted. In accordance with Popper's critical rationalism the statement is not scientific. The statement can't be falsified since we see Paul's neurotic behavior, but we can't see that it's caused by the Oedipus complex. There could be other causes for Paul's behavior, and it's impossible to know exactly that it's due to the Oedipus complex. Thus, it is possible to observe people's “neurotic” behavior, but it isn't possible to observe what caused the behavior, therefore the statement is not scientific.

### **Task 3: Institutional facts and deontic powers**

This task looks further into Searle's (2006) understanding of the institutional facts. Searle's (2006) aim is to determine the essential nature of social reality. Institutional facts are

something that exist in a society with certain collective conventions, norms, and rules (Blackburn, 2008). Searle (2006) looks at institutional facts as any fact obtained by virtue of the assignment of status function, which is bearers of social power (Larsen, 2021b, slide 6-8). Collective intentionality is shared by different people, where people share beliefs and desires (Searle, 2006). This is the foundation of status functions which are the vehicles of power in the society according to Searle (2006). A part of the status functions are deontic powers which are a collective agreement of a series of obligations; duties, rights, permissions, and responsibilities (Searle, 2006). Searle (2006) emphasizes language, where the human species language is built as a symbolization capacity, and we give things a meaning other than what it physically is. Searle's (2006) perceptives shall be applied to the statements mentioned in the task.

*Statement a.* This statement is an institutional fact according to Searle (2006). That is because humans have a collective belief about what the University as an institution is. We founded it 17 years ago, and the concept of time is collective agreement we humans have defined. University is nothing without humans' shared definition about what it means, and we have given it meaning through language. Universities have a status function, where some of the deontic powers can be that; students pay semester fee, students need to go through an exam, teachers have obligations to teach students in class, students have certain rights when they go to a university, students and teachers have responsibilities and expectations towards them (i. e. doing homework and teach the right topic). Furthermore, the language of humans has given the university its rights, without it, it would only be a building.

*Statement b.* This statement is not an institutional fact according to Searle (2006). The universe happened before human species knew about, it and therefore it isn't an institutional fact. Nevertheless, humans weren't a thing when the universe came into being, therefore this statement exists independently.

*Statement c.* This statement is not an institutional fact. Searle (2006) distinguishes between humans and animals, where humans are the only species that have a "social contract" between the members of society. That wolves hunt in packs has something to do with wolves, it is not humans that give the hunting in packs meaning. Hence, humans have another social reality than animals (Searle, 2006). Further, we know that wolves don't have language like humans, and therefore the statement isn't an institutional fact. Because wolves cannot

recognize deontic powers, and therefore they cannot represent the status functions that carry the powers (Larsen, 2021b, slide 9).

*Statement d.* This statement is an institutional fact. Language is the precondition of the existence of other social institutions, which makes this statement institutional (Searle, 2006). It is a collective agreement in the language of the Norwegian people. Therefore, the Norwegian word “ulv” means wolf in Norwegian, because the Norwegian language has given the animal that name, and the name has deontic powers related to it. As Searle points out in his article, language has some restricted capabilities for performing speech acts due to the structure of meaning and speech, and this already endows it with a set of deontic powers (Searle, 2006). That offers the rights, duties, and obligations that come with making a statement, a promise, or a request, thus the theory of speech acts already has the essential structure (Searle, 2006). Hence, language in itself have deontic power.

## Literature list

Berg, O. T. (2021). Samfunnsvitenskap. I *Store norske leksikon*.

<http://snl.no/samfunnsvitenskap>

Blackburn, S. (2008). *Institutional facts*. Oxford Reference.

<https://doi.org/10.1093/oi/authority.20110803100005359>

Bortolotti, L. (2008). *An introduction to the philosophy of science*.

Douglas, H. (2011). The SAGE handbook of the philosophy of social sciences. Chapter 27:

Facts, Values and Objectivity. *SAGE*, 513–529.

Dr. McLeod, S. (2020). *Karl Popper—Theory of Falsification*. *Simply Psychology*.

<https://www.simplypsychology.org/Karl-Popper.html>

Gorton, W. A. (2014). *The Philosophy of Social Science*. *Internet Encyclopedia of*

*Philosophy*. <https://iep.utm.edu/soc-sci/>

Hopkins, A. (2001). Was Three Mile Island a ‘Normal Accident’? *Journal of Contingencies*

*and Crisis Management*, 9(2), 65–72. <https://doi.org/10.1111/1468-5973.00155>

Larsen, T. M. (2021a) Lecture 7: The Nature of Science. [Powerpoint-slides].

<https://stavanger.instructure.com/courses/9097/files/folder/Part%202%3A%20Philosophy%20of%20Science?preview=1057832>

Larsen, T.M (2021b) Lecture 10: The Domain of Social Research. [Powerpoint-slides].

<https://stavanger.instructure.com/courses/9097/files/folder/Part%202%3A%20Philosophy%20of%20Science?preview=1081378>

Larsen, T. M. (2021c) Lecture 11: The Scientificity of Social Research. [Powerpoint-slides].

<https://stavanger.instructure.com/courses/9097/files/folder/Part%202%3A%20Philosophy%20of%20Science?preview=1090722>

Nilstun, C. (2019, juni 26). *Eksplisitt*. Store norske leksikon. <http://snl.no/eksplisitt>

Nilstun, C. (2021, november 7). *Implisitt*. Store norske leksikon. <http://snl.no/implisitt>

Searle, J. R. (2006). Social ontology: Some basic principles. *Anthropological Theory*, 6(1), 12–29. <https://doi.org/10.1177/1463499606061731>