CHAPTER 9

On Thought Experiments in Sociology and the Power of Thinking

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How is the research object constituted in sociology? There exist a number of different approaches, from the more positivistic ones to those based on hermeneutics and related approaches. All of these agree on one point, however, and that is that the object of study is basically empirical in nature. The idea that the object can be totally made up is not entertained. Neither is the idea that this way of proceeding can in some cases improve the understanding of a phenomenon.

To proceed in this manner is, however, what is done when a thought experiment is carried out. Two of the most famous thought experiments throughout history are the following. The first was carried out by Galileo Galilei in the late 1500s and challenged Aristotle's theory of motion (Galileo, 1954: 63). According to Aristotle, heavy objects fall faster than light objects. Assume, Galileo said, that we tie a small stone to a larger stone. The small stone would now prevent the large stone from falling as fast as it normally would. But it would also fall faster since the two are heavier than the large stone. Hence the theory cannot be correct.

The second thought experiment comes from modern philosophy and is known as the Trolley Problem. Assume you are driving a trolley and are about to kill five people who are working on the track unless you decide to switch to another track. On this other track, however, one person is working who will be killed if you choose this option. "Is it morally permissible for you to turn the trolley?" (Thompson, 1985: 1395). Regardless of how you answer this question, it shows the disturbing fact that all people are ready to kill.

These and many other experiments of a similar type have led to a huge literature on thought experiments, especially in physics and philosophy (for overviews, see e.g. Sorensen, 1992; Häggqvist, 1996; Cohen, 2005; Brown and Fehige, 2017). An N-gram shows that, since the 1960s, the use of 'thought experiments' has increased many times, and that today that term is more common than the term 'critical experiment'.[1] The idea of thought experiments has also entered popular culture, as *The Left Hand of Darkness* (1969) by Ursula le Guin reminds

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1   It has been pointed out that the current notion of a thought experiment is part of the same discourse as normal experiments, that is the type of experiments that became the norm after

one. This book, which is a classic in science fiction, is described by its author as a thought experiment. The question it tries to answer is the following: what would human societies look like if there were no gender?

C9.P5   There has been considerably less use of thought experiments in social science than in natural science, and in sociology next to none (but see e.g. Ellsberg, 1961; Ylikoski, 2003; Thoma, 2016; Brownlee and Stemplowska, 2017). Why is this the case; and more specifically, why has there been so little interest in thought experiments among sociologists? Is there something about sociology that makes it less suitable for thought experiments? Does sociology leave no room for thought experiments through its strong emphasis on empirical facts? Or do there maybe exist thought experiments in sociology; but little known or of low quality?

C9.P6   This chapter will try to answer these questions. Before doing so, however, something should be said about what constitutes a thought experiment. The consensus in the literature is that the term 'thought experiment' stands for a fairly sprawling and not easily defined category (e.g. Häggqvist, 1996: 11; Brown, 1991: 1). According to Thomas Kuhn, for example, "the category 'thought experiment' is ... too broad and too vague for epitome" (Kuhn, 1977: 241).

C9.P7   Among the questions that have been asked about thought experiments and that have received different answers, are the following: Can you define a thought experiment as an experiment that is carried out exclusively in the mind of the researcher? Does conducting a thought experiment mean that the experiment cannot be carried out in reality; or alternatively, that it can be carried out in reality, but not just now? There is also the related argument by Ernst Mach that before any experiment is carried out, the researcher must run it through in his or her mind (Mach, 1972: 449).

C9.P8   Further diversity is introduced into the debate about the nature of the thought experiment by those who emphasise its element of narrative or suggest that it has the same structure as an argument (e.g. Brown and Fehige, 2017). Counterfactuals are sometimes seen as forms of thought experiments and sometimes not (e.g. Tetlock and Belkin, 1998; Florian, 2015).[2] The question has [AQ1]

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the 1500s and 1600s (Shapin and Shaffer 1985: 55). Before this time, there were "imaginary experiments" of the type that the alchemists conducted. Many of these were probably never carried out; they were also poorly described, with little thought of replication.

2   A compromise would be to argue that counterfactuals represent a special type of thought experiments. However, this question is solved, for an example of a counterfactual analysis by a sociologist that is called a thought experiment by its author, see Randall Collins' *Civil War Two* (2018). The author describes his work as follows: "In a way CW2 is the product of a great thought experiment, drawing on my understanding of history and human behavior, asking

also been raised if agent-based modelling, or simulation more generally, will not soon replace the thought experiment (e.g. Chandrasekharan, Nersessian and Subramanian, 2011). Some believe that the thought experiment is made possible by the inborn capacity of human beings to reason; others that it is best described as a form of mental modelling (e.g. Johnson-Laird, 1983; [AQ2] Nersessian 1999).

[Cp.P3]   In this chapter, a sociological thought experiment will be given a stipulative definition that is broad in nature, reflecting the general state of the literature. This will also make it easier to discuss different types of thought experiments. The suggested definition of a sociological thought experiment reads as follows: *an experiment that is carried out in the mind of the researcher, in which imaginary data are used, and where the unfolding logic is sociological.*[3] It is possible to distinguish between different stages in such an experiment: the initial social state (1); the introduction of a specified change (11); the social process now set in motion and worked out in the mind of the analyst (111); and the end state (1v). The term unfolding logic refers to the fact that sociologists typically study patterns of social behavior, and that these follow their own logic as they come into being and change.

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what would happen if another civil war happened in our near future [in the United States]." A synopsis of the volume reads as follows: "President Joshua Maccabee Jennings has just taken office, vowing to Make America Christian Again. When a Supreme Court Justice dies unexpectedly, the government falls into crisis, and secular states start seceding, soon forming the Coalition of Secular States of America."

3   By arguing that a thought experiment has to be carried out in the mind of the analyst and not by a machine, agent-based modelling and simulations more generally are by definition ruled out. There do exist reasons to argue the opposite, however, emphasizing the non-empirical nature of simulations and agent-based modelling (e.g. Macy and Willer, 2002: 146–150). Our reasons for *not* taking this position in this chapter are the following. First, simulation and agent-based modelling are already accepted methods in sociology; and to include and analyse them in this chapter would not entail anything new. More generally, it is hard for us to see what we add to our knowledge of simulation and agent-based modelling by simply calling them thought experiments. The empirical cases discussed by James March and co-authors in "Learning from Samples of One or Fewer" represent to our mind a more interesting case than simulation (March, Sproull and Tamuz, 1991). This chapter points out that organisations sometimes have to learn from only one or even no earlier experiences (e.g. "a military organisation has rarely fought in a battle. Yet it wants to learn from its history how to improve its ability to engage in warfare"). One could say that a hybrid kind of thought experiment is involved in this case, or one where imagination is mixed with a bit of experience.

C9.S1   1   **Do Thought Experiments Exist in Sociology?**

C9.P10   If you look at standard works in sociological theory or methods, you will not find any references to thought experiments. These are not even dismissed, say as a form of armchair sociology.[4] The closest you come to a discussion of thought experiments in sociology are a few articles in areas that look at the situation in fields that are close to sociology, such as organization studies and social studies of science (e.g., Folger and Turillo, 1999; Ylikoski, 2003).[5]

C9.P11   The lack of a discussion of thought experiments in sociology does not, however, mean that they have never been used by sociologists, be it in an embryonic form or in a more elaborate version. It is, for example, not uncommon for sociologists, as part of some general argument or analysis, to ask questions like, "If the facts were different, what would the outcome be?" (e.g., Hughes, 1945: 354–355; 1963: 888; Collins, 1981: 1007; Killewald, 2013: 110).[6] ⎡AQ3⎤

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4   Quite a bit of what belongs to theory in sociology has since World War II been labeled "armchair sociology" in mainstream US sociology (e.g. Sibley, 1971: 14; Rossi, 1986: 2; 1987: 370). By this term is meant a form of sociological analysis that is pre-empirical and pre-scientific. The situation is different, for example, in US economics, as exemplified by the positive response to Steven Landsburg's popular book from 1993, *Armchair Economist*. According to Landsburg, "Logic matters. It leads us from simple ideas to surprising conclusions ... Evidence matters too, but logic can be powerful all on its own" (Landsburg, 2012: viii).

5   Neither Latour (1998) nor Hill (2005) discuss what is usually seen as thought experiments, even if this term figures prominently in the titles of some of their articles (e.g. Hill, 1987, 2005; Latour, 1998). Instead they use the term "thought experiment" for such things as dystopias/utopias, novels and virtual societies. See also note 3. In a paper presented at the annual convention of the American Sociological Association in 2003, Gerald Markle and Frances MacCrea presented a paper entitled "What If? Thought Experiments in Sociology" (Markle and McCrea, 2003). Ideas similar to those expressed in this talk can also be found in Appendix B ("Thought Experiments") in their book *What if Medicine Disappeared?* (Markle and McCrea, 2008: 147–155). This book can itself be described as a thought experiment/counterfactual, which in some respects is similar to Nils Christie's *Hvis skolen ikke fantes* (1971) and Robert Fogel's *Railroads and Economic Growth* (1964).

6   The examples just cited in the text of this chapter have been located by going through sociological journals in JSTOR and typing in the word "imagine" in the column for "full-text." For some additional and also fuller thought experiments—by W.E.B. Du Bois, Jane Addams and Charlotte Perkins Gilman—see Hill (2005). One thought experiment by Gabriel Tarde has been summarised by Everett C. Hughes as follows: "He [Tarde] imagined a society in which men were all assured of plenty of food and other comforts with but a few minutes of labour each day; the economic friction was taken out of human interaction. He then gave his notions of what would happen to sex, music, the mind, and many other things. He even gave a gently satirical account, by members of that society, of a group called sociologists who had existed in some ancient time—Tarde's own time" (Hughes, 1963: 889). A more empirical and exploratory flavour characterises the thought experiment by Du Bois, which was located by Michael Hill (2005). In one of his articles Du Bois invites the white reader to make

Such questions, however, typically play a subordinate and marginal role in the overall analysis. Still, their existence does indicate that thinking in thought-experimental terms is part of the sociologist's repertoire, even if this is rarely acknowledged or mentioned.[7]

C9.P12   But there also exist some cases where sociologists have used thought experiments in a more conscious manner; and it is to these we now shall turn. The ones we have chosen can all be found in well-known sociological works. This feature makes them especially useful for the main purpose of this chapter, which is to introduce thought experiments into sociology.

C9.P13   The thought experiments that will be discussed come from the following works: Émile Durkheim's *Rules of Sociological Method* (1895), Max Weber's *Economy and Society* (1920–21), C. Wright Mills' *Sociological Imagination* (1959) and Robert K. Merton's *Social Theory and Social Structure* (1968).[8]

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the thought experiment of imagining what it it would be like to live on the other side of the colour line: "Let me take you journeying across the mountains and meadows, threading the hills of Maryland, gliding over the broad fields of Virginia, climbing the blue ridge of Carolina and seating ourselves in the cotton kingdom. I would not like you to spend a day or a month here in this little town; I should much rather you would spend ten years, if you are really studying the problem; for casual visitors get casual ideas, and the problems here are the growth of centuries ... Were you here in person I could not easily take you across the line into the world I want to study. But in spirit let me lead you across ..." (Du Bois, 1904: 297–298; Hill, 2005: 9).

7   According to sociologists Gerald Markle and France MacCrea, who define a thought experiment as an answer to the question "what if?", "sociologists routinely pose this question, in teaching, in research, or in the privacy of their own thoughts" (Markle and MacCrea, 2008: 147). They continue, "In posing such questions, social scientists are really engaging in 'thought experiments', without the label and, as a consequence, *without theoretical or methodological rigor*" (Markle and MacCrea, 2008: 148; emphasis added).

8   To what has already been said about thought experiments by sociologists, the following can be added. There exists an interesting thought that is based on the ideas of Tocqueville, known as "the spiral of silence." The basic argument is as follows: if all who are against some decision by the government do not speak out against this decision, the rest who oppose it will get the impression that the decision has a stronger support than it actually does—which in its turn will encourage even fewer people to oppose the decision openly, and so on (see e.g., Noelle-Neumann 1993 for discussion and empirical verification). One can also find a number of thought experiments in the work of Georg Simmel. The most famous of these is intended as a rebuttal of Nietzsche's argument about the eternal return (for a discussion, see e.g. Sorensen, 1992: 13–14). This thought experiment is however philosophical in nature, not sociological (similarly, see e.g. Simmel, 1895:40–41). The sociological thought experiments we have found in Simmel's work are, however, not accompanied by much of a discussion and hard analysis to distinguish it from non-empirical assertions of the armchair type. They are nonetheless numerous in number and often very interesting, as e.g. a reading of Simmel's work on the quantitative aspects of groups (Simmel, 1959). The affinity that exists between

C9.S2   2   The Four Sociological Thought Experiments

C9.P4   We will begin the discussion of these four thought experiments by citing the original passages in which they can be found. Since several of them are quite difficult, we will then explicate these passages. This will be followed by a general discussion of their individual merits as well as some concluding remarks about the applicability of thought experiments in sociology.

C9.P5   In Ch. 3 of *The Rules of Sociological Method*, Durkheim discusses the function of crimes in society. As part of his argument, he presents a thought experiment about a society of saints. He begins his description with the word *imagine* (*imaginez*). The section reads as follows:

C9.P6   Imagine a society of saints, a perfect cloister of exemplary individuals. Crimes, properly so called, will there be unknown; but faults which appear venial to the layman will create there the same scandal that the ordinary offense does in ordinary consciousnesses. If, then, this society has the power to judge and punish, it will define these acts as criminal and will treat them as such. For the same reason, the perfect and upright man judges his smallest failings with a severity that the majority reserve for acts more truly in the nature of an offense. Formerly, acts of violence against persons were more frequent than they are today, because respect for individual dignity was less strong. As this has increased, these crimes have become more rare; and also, many acts violating this sentiment have been introduced into the penal law which were not included there in primitive times.

C9.P7   DURKHEIM, 1964: 68–69

C9.P8   Let us now proceed to the second case. Ch. 1 *Economy and Society* contains a section in which Max Weber explains how to go about verification in interpretive sociology. In some cases, he says, you do not know the motives of the actors and therefore have to conduct a 'mental experiment' (*'gedankliches Experiment'*).[9] The full passage, which is hard to follow, since it is written in Weber's usual compressed style, reads as follows:

Simmel and thought experiments may be related to his focus on formal sociology, in combination with a lack of interest in grounding his arguments in empirical data.

9   Weber also uses the same term in one more place in *Economy and Society* (but this time without the quotation marks he used to insert in order to indicate that he used the term in its common [scholarly] meaning and not according to his own definition). The second example is not particularly interesting. Weber argues that a socialist state would be as ruthless in its economic dealing with subordinate states, as a capitalist state (Weber, 1978: 919–920). Finally,

C9.P19   More generally, verification of subjective interpretation by comparison with the concrete course of events is, as in the case of all hypotheses, indispensable. Unfortunately, this type of verification is feasible with relative accuracy only in the few very special cases susceptible of psychological experimentation. In very different degrees of approximation, such verification is also feasible in the limited number of cases of mass phenomena which can be statistically described and unambiguously interpreted. For the rest there remains only the possibility of comparing the largest possible number of historical or contemporary processes which, while otherwise similar, differ in the one more decisive point of their relation to the particular motive or factor the role of which is being investigated. This is a fundamental task of comparative sociology. Often, unfortunately, there is available only the uncertain procedure of the 'imaginary experiment' ('*gedankliches Experiment*') which consists in thinking away certain elements of a chain of motivation and working out the course of action which would then probably ensue, thus arriving at a causal judgment.

C9.P20   WEBER, 1978: 10

C9.P21   This passage is followed by another, similarly dense passage of about the same length, in which two examples of this type of 'mental experiment' are presented (Weber, 1978: 10–11). One is Gresham's Law or the tendency for bad money to drive out good money. The other is the Battle of Marathon, which was decisive for the emergence of Western culture. If the Persians had won, the course of the West would have been very different (see also Weber, 2012: 174ff).

C9.P22   The next example of a thought experiment is considerably easier to understand and comes from the appendix on intellectual craftsmanship in *The Sociological Imagination* by C. Wright Mills. One of the ways in which sociologists can stimulate their sociological imagination, Mills says, is by positing 'an imaginary world':

C9.P23   The release of imagination can sometimes be achieved by deliberately inverting your sense of proportion. If something seems very minute,

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It is not known why Weber used the expression "*gedankliches Experiment*" and not the term for thought experiment that Ernst Mach had popularised in the German-speaking world, *Gedankenexperiment*. Weber was well aware of Mach's writings, even if it is not known if he had read his famous essay on thought experiments from 1897, "Über Gedankenexperimente" (later republished in a somewhat different form in a book from 1905, *Erkenntnis und Irrtum*; Mach, 1972; e.g. Scaff, 2011: 157).

imagine it to be simply enormous, and ask yourself: What difference might that make? And vice versa, for gigantic phenomena. What would pre-literate villages look like with populations of 30 millions? Nowadays at least, I should never think of actually counting or measuring anything, before I had played with each of its elements and conditions and consequences in an imagined world in which I control the scale of everything. This is one thing statisticians ought to mean, but never seem to, by that horrible little phrase about 'knowing the universe before you sample it'.

C9.P24   MILLS, 1959: 215

C9.P25   The fourth and last example comes from the work of Robert K. Merton (1948, 1968). The description of his thought experiment reads as follows:

C9.P26   It is the year of 1932. The Last National Bank is a flourishing institution. A large part of its resources is liquid without being watered. Cartwright Millingville has ample reason to be proud of the banking institution over which he presides. Until Black Wednesday. As he enters his bank, he notices that business is unusually brisk. A little odd, that, since the men of A.M.O.C. steel plant and the K.O.M.A. mattress factory are not usually paid until Saturday. Yet here are two dozen men, obviously from the factories, queued up in front of the tellers' cages. As he turns into his private office, the president muses rather compassionately: "Hope they haven't been laid off in midweek. They should be in the shop at this hour."

C9.P27   But speculations of this sort have never made for a thriving bank, and Millingville turns to the pile of documents upon his desk. His precise signature is affixed to fewer than a score of papers when he is disturbed by the absence of something familiar and the intrusion of something alien. The low discreet hum of bank business has given way to a strange and annoying stridency of many voices. A situation has been defined as real. And that is the beginning of what ends as Black Wednesday—the last Wednesday, it might be noted, of the Last National Bank.

C9.P28   Cartwright Millingville had never heard of the Thomas theorem. But he had no difficulty in recognizing its workings. He knew that, despite the comparative liquidity of the bank's assets, a rumor of insolvency, once believed by enough depositors, would result in the insolvency of the bank. And by the close of Black Wednesday—and Blacker Thursday— when the long lines of anxious depositors, each frantically seeking to

salvage his own, grew to longer lines of even more anxious depositors, it turned out he was right.

C9.P29   MERTON, 1948: 194; 1968: 476

C9.S3   3   Explication of the Four Thought Experiments

C9.P30   There exist different reasons why it is necessary to explicate each of the four thought experiments. In the case of Durkheim, the reader needs more information to be able to follow his argument. The example of crimes in a society of saints is part of a more general argument in *Rules of Sociological Method* about the functional role of crime in society. Durkheim's thoughts on crime are also quite complex, and to some extent unclear.

C9.P31   In Durkheim's well-known formulation, crimes are 'useful' for society (Durkheim, 1964: 70). One of the reasons he thinks so is that people's reactions to crime keep the values of society alive; and no society can exist without strong and vibrant values. There also exist two other reasons why crimes are useful. A society without crimes would leave no room for progress and change. Many groups in a society are also at different stages of their development, something that prevents uniform behavior from emerging.

C9.P32   Keeping these arguments in mind makes it easier to understand Durkheim's thought experiment. It is set in a society, in which a certain number of crimes are committed. The whole population is then exchanged for one in which everybody is a saint. The result, however, is not what you might have thought, namely that crimes would now disappear. There will still be crimes, Durkheim says, but of a different nature. The reason for this is that a society cannot exist without values, and values cannot exist without crimes. The function of crime, to phrase it differently, is to keep alive the values in which the great majority of the people believe and thereby also help to reproduce them.

C9.P33   In Durkheim's view, a crime is not defined by a certain type of behavior, say the act of theft or committing a murder but by the kind of values that exist in a society. Being rude or blasphemous is not a crime in modern society, but in a society of saints it might very well be criminalised. Durkheim would in other words have sharply disagreed with James Madison's famous statement in *The Federalist* (1788): "if men were angels, no government would be necessary" (Madison, 2017).

C9.P34   Weber's thought experiment is hard to penetrate; it may also seem that his '*gedankliches Experiment*' does not belong in a discussion of thought experiments. Thanks to Carl Hempel's discussion of Weber's '*gedankliches Experiment*' it has, however, become part of the standard literature on thought

experiments.[10] In the next section we shall also try to show that if you expli-
cate Weber's argument and explain what place it has in his overall approach to
sociology, it becomes more accessible.

C9.P35   According to the principles of interpretive sociology, as outlined in Ch. 1
in *Economy and Society*, the action of an individual is driven by a motive. An
action has two parts, each of which is indispensable: an 'outer' behavior and
an 'inner' meaning that fits the behavior.[11] To verify the nature of an action, the
sociologist needs solid facts about both ('evidence'). It is usually harder to get
evidence about the meaning than about the behaviour.

C9.P36   In an experiment the sociologist can control both the behaviour and the
meaning that goes with it. In most analyses of real life, however, experiments
cannot be carried out, and the sociologist has to resort instead to the method
of comparison. Here one tries to locate two examples which differ on one
point, say the element of meaning.

C9.P37   In some situations in real life, however, the comparative method cannot
be used, Weber says. This is the situation in which the type of action is very
uncommon, in the sense that no other action that is similar in nature exists.
In such a case, the sociologist has to resort to a special procedure, namely, to
make the mental experiment of removing one part of the complex chain of
motives (*Motivationskette*) that drives the action and see what happens when
this is done. The different course in action that results from this way of pro-
ceeding, shows the effect of the removed element. Weber emphasises that the
result of carrying out this type of mental experiment does not provide solid
proof; he also argues that there exists no other way to proceed.

C9.P38   Let us now see how Weber's argument fits the definition of thought exper-
iments that is used in this chapter: (1) you begin with an initial state, (11) in
which a specified change is introduced, (111) setting off a social process that is
worked out in the mind of the analyst according to the logic of a sociological
analysis, (1v) until the end state has been reached). The unique phenomenon to
be explained in Weber's case constitutes the initial state. One link in the chain
of motives that has created this situation is then removed, setting off a pro-
cess that ends up with a different outcome. The difference in meaning-motive

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10   According to Hempel, Weber's "imaginary experiments" are "intuitive" in nature and not
"theoretical" (Hempel, 1952: 73–77). In theoretical thought experiments you make deduc-
tions from covering laws. Weber's intuitive thought experiments, in contrast, are based on
a kind of empathetic understanding which is faulty. As a result, they can only be heuristic
in nature, that is, they can be used to suggest, but not prove hypotheses.

11   "Action" is "behaviour" invested with "meaning" for Weber. For details, see the explanation
that follows on Weber's definition of sociology in *Economy and Society* on pp. 4–24.

accounts for the difference in social action and outcome. Or to be more precise, it *probably* accounts for the outcome, according to Weber.

C9.P39   Take, for example, the Battle of Marathon. The initial situation consists of the development of Western culture, in which Greece has played a crucial role. Remove now the element of Greek culture by imagining that the Battle of Marathon had been lost and that the Persians had conquered the Greek city states. In this case a process would have been set in motion that would have resulted in a different type of culture in the West. The reason for this is that the Greek city states would probably have been incorporated into the Persian empire and its authoritarian culture. This would probably have changed not only Greek culture but also what we today know as Western culture. This conclusion is reasonable—but we cannot be sure since it is the result of an imaginary operation.

C9.P40   In the case of Gresham's Law, we begin with European society in the Middle Ages, where we know that coins with a small amount of valuable metal (due to the clipping of coins) were more often in circulation than coins with larger amount. We do not know why this was the case, but let us assume that one of the motives involved was a rational attitude to money making. In short, people clipped the more valuable coins, and traded with the less valuable ones, because they wanted to make money. This constitutes the initial situation for Weber. Let us now make the mental experiment of removing the rational intention and replace it with, say, a more traditional economic attitude, or one in which people did not feel free to clip coins for personal gain. The more valuable coins would then have remained in circulation. The following conclusion is likely: if people have a rational intention toward money-making, bad money will drive out good money. The conclusion is likely, but you cannot know this with any degree of certainty.

C9.P41   Compared to the complex thought experiment of Weber, that of Mills is simple and easy to grasp. It is crucial for sociologists to be imaginative, according to Mills; and there are many ways in which you can exercise your imagination and make it work for you. One of these is to change the number of people in the cases you study. Take, for example, small pre-historic societies, and assume that instead of having very small populations, they have 30 million inhabitants. What changes will this lead to?

C9.P42   The initial situation in this thought experiment is a number of small societies, with one set of institutions. The population is then dramatically changed, something that sets off a series of changes in the structure of these societies. Some institutions may become more complex, to fit the new population; others may split into several new institutions; and so on.

C9.P43   Note that Mills does not spell out which changes will come about; this is something that he wants the reader to do. The point of his thought experiment is in other words *heuristic*, in that it enables the sociologist to discover something new. The purpose of this type of thought experiment is not to prove a specific point but to help the sociologist to come up with new ideas and in this way theorise better. It also has a playful quality to it, that makes it come close to what has been called a thought game (*Gedankenspiel*; Seel, 2018).[12]   AQ4

C9.P44   Merton's analysis of the bank going bankrupt is well-known in the sociological literature, where it is usually seen as an example of how a social mechanism operates. Merton himself, however, referred to it not as a thought experiment but as 'a sociological parable' or the kind of story with a sociological moral attached (Merton, 1968: 476; see Jaworski, 1990). A parable is typically defined as "a usually short fictitious story that illustrates a moral attitude or a religious principle" (Merriam-Webster, 2017). In Merton's sociological parable, the moral message is that a run on a bank damages society and can be stopped through legislation (in the form of deposit insurance).

C9.P45   Whatever Merton's intentions may have been with his example of The Last National Bank, it does have the structure of a thought experiment. Merton begins the analysis by positing a stable, hypothetical situation. He then introduces a change, which he closely follows until a new stable state has been established. In the initial state, the people who keep their savings in the bank feel that their money is safe; and so it is. A change is then set off by a false rumor that the bank is unstable, something which makes some people withdraw their savings. This makes even more people do the same, since they see other people taking out their money. And in the end the bank goes bankrupt, since it has lent out some of the deposits and cannot suddenly give people back their full savings.

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12   Seel differentiates the thought game from the thought experiment on the ground that it has nothing to do with argumentation (Seel, 2018: 15). This seems restrictive in our view. A mention can also be made in this context of Henshel's suggestion that artificial experiments in sociology may have a heuristic quality that is valuable (Henshel, 1980). The key idea is that you make a number of severe assumptions, similar to the way things are done in natural science experiments; and then try out the results in reality, to see if they are sound or not.

C9.S4   4   Exploration of the Individual Cases

C9.P46   Can one say that the four examples of Durkheim et al. are good thought exper-
iments and that they are still relevant? Do they prove some analytical point, or
do they rather raise some interesting issues? Can the ideas around which they
are centred be generalised? These are some questions that are relevant for all
thought experiments.

C9.P47   Starting with Durkheim, it is clear that it is only possible to accept his
thought experiment with a society of saints if you also accept his ideas about
crime and how society works. His ideas on both of these topics, however, are
controversial; they also lack empirical support. This leads to the dilemma of
having either to discard Durkheim's example or to keep it, because it has vir-
tues other than those that were intended by its author.

C9.P48   Regardless of how this issue is decided, it should be pointed out that there
exists at least one very important quality in Durkheim's thought experiment.
This is that it is distinctly sociological in nature. The process that is set off by
exchanging the normal population in a society for one exclusively of saints
does not follow just common-sense logic, but also one that is based on a spe-
cific sociological theory.

C9.P49   Let us, however, return to the question whether one should discard
Durkheim's thought experiment or whether it still has some merit. One obvi-
ous answer would be to argue that Durkheim's example can be useful for heu-
ristic purposes, even if this is not how it was originally intended. If you take
some organisation (or society or institution) and change its whole population,
what will happen?

C9.P50   A move of this type is similar to what Mills suggests, and it does have its value.
Our view, however, is that what is most valuable about Durkheim's example is
something else. It is, to state it once more for emphasis, that Durkheim, in his
discussion of what happens in a society where everybody is a saint, depicts a
process that follows a distinctly *sociological* logic. This is a very fine quality, we
argue, of Durkheim's thought experiment.

C9.P51   There exists, to repeat, a certain affinity between the thought experiment of
Durkheim and that of Mills in that both are heuristic; that of Mills is explicitly
so, while that of Durkheim implicitly so (with the help of the reader). Both are
also focused on the structure of society, but again in different ways. Durkheim
argues that structure trumps individual phenomena, and that a crime is not
defined by its content. Mills suggests something else. If you change the num-
ber of actors, society's institutions will probably also change. What works in
a small society for how to make, say, political and legal decisions, is not likely

to work in a huge society.[13] In a pre-literate society, the group of elders may decide many issues that in a modern society are decided with the help of the state and the legal system.

C9.P52   Note, however, that Mills' thought experiment is not very much developed; it says, for example, nothing about the sociological process that will probably be set off by a change in number. Different institutions also change in different ways. To exaggerate a bit: Mills' example is like an experiment where you just toss something into a petri dish to see if anything will happen. This illustrates both the strength and the weakness of a heuristic thought experiment: something will happen, but you have no idea what. Serendipity rules.

C9.P53   A sign of a useful thought experiment is that it can be generalised. Is this also the case with Mills' thought experiment? Mills himself suggests so. He argues that every time a sociologist looks at a population, the first thing that he or she should do is to decide what the number of actors means for the institutional structure. Again, the reason for doing this is heuristic. Will a minority population, for example, develop one type of institution, if it is size X, but another if it is size Y? The same kind of question can be asked about the majority—and perhaps about any group or society.

C9.P54   Can also Durkheim's thought experiment be generalised? The answer is "yes", at least at one level. The idea that you can replace the population in an organisation or society with a very different population, and see what happens, is clearly useful. What, for example, would happen if all the soldiers in an army were female? This is obviously not what Durkheim had in mind, but proceeding in this way allows you to benefit from Durkheim's thought experiment without having to accept his very special view of sociology.

C9.P55   If we now switch to Weber and Merton, also here there exist some similarities as well as some differences between their thought experiments. Both, for example, focus on the role that the element of *meaning* plays for the unfolding of the social process, as described in the thought experiments. For Weber, paying attention to meaning is central to his project of an interpretive sociology; for Merton, it is something that should be done according to the dictum that people's definition of the situation has consequences for their behavior. To cite from his example of The Last National Bank, "Public definitions of a situation

13   This argument is common in the social science literature. For a more elaborate discussion of the point, see the work of Simmel on the impact of number of actors on the social structure (Simmel, 1959). An isolate differs from a dyad and a triad. This essay also contains several other examples of how the number of actors influences the social structure. An aristocracy can by definition not be too large; the type of democracy that is possible depends on the number of inhabitants; and so on.

... become an integral part of the situation and thus affect subsequent develop-ments. This is peculiar to human affairs. It is not found in the world of nature" (Merton, 1968: 477).

C9.P56   But there also exist differences between the thought experiments of Weber and Merton; and these as well have to do with the role assigned to meaning. For Weber, meaning is absolutely central to what constitutes sociology, while this is much less the case for Merton. Weber often wrote on the theme of how social science differs from natural science, in that the former has to take the subjective intention of the actor into account. As we know from *Economy and Society*, Weber also tried to work out exactly what role is played in a causal sociological explanation by the element of meaning. Merton, on the other hand, was much less interested in the notion of meaning. Making a general reference to the definition of the situation was usually enough for him.

C9.P57   In the cases of Gresham's Law and the Battle of Marathon, Weber uses the thought experiment as a tool to construct an explanation in situations when this is especially difficult. In certain cases neither comparisons nor experi-ments can be used, according to Weber; and this means that you have to pro-ceed in a very special way. This is to remove one part of the chain of motives (*Motivationskette*), replace it with another part, and then see what happens when this is done. The result of proceeding in this way, Weber notes, is never definitive; the suggested explanation is at best a probable one.

C9.P58   Merton's thought experiment is different from that of Weber in that it is less technical and also modelled on a common social situation, namely a run on a bank. Ultimately, this has to do with what has already been mentioned, namely that Weber constructed a version of sociology in which the element of meaning plays a much more central role than in that of Merton. Nonetheless, Merton's thought experiment is very well constructed and exemplary in many ways. He spells out the initial hypothetical situation with precision, as well as the sociological process that is set off by a hypothetical change. The reader also gets to follow how the situation changes step by step, which is a sign of a fully developed and well-constructed thought experiment.

C9.P59   Merton also generalises from his single example and, as part of this, suggests a new social mechanism: the self-fulfilling prophecy. This represents a major accomplishment. Other examples where this mechanism operates are cited and discussed by Merton. Black workers in the United States, for example, are not by nature strike breakers, as some white workers claim. They may, however, become strike breakers in that they have been excluded by white workers from joining unions. The idea of the self-fulfilling prophecy has been used also by other social scientists in a huge number of empirical studies (e.g. King, 1973;

Farrell and Swigert, 1978; Merton, 1982: 103–104; 1988: 300–301; Timmermans and Sudnow, 1998).

5   Discussion: Thought Experiments and Thought Exercises

Two key questions remain to be addressed in this chapter: What would a good thought experiment in sociology look like; and What are the advantages of using thought experiments in sociology? In Table 9.1 we have tried to list some of the qualities that a good sociological thought experiment should have. They should, for example, be analytically sharp (analyticity) and have a minimal structure. The process that is described should be well developed, transparent and clearly follow a sociological logic. There should ideally also be a surprising quality to the result.

Granted that thought experiments are useful also in sociology, how do you create a good one? As we were writing this chapter, we had this question very much in mind and tried to come up with a few good thought experiments of our own. To do so, we felt, would illustrate the fact that it is easy to construct, and use thought experiments in sociology. To create new sociological thought experiments, however, turned out to be much harder than we had thought. The model we first tried to follow was that of Durkheim and Merton, which we regard as the 'classical' model and best suited for sociology (that of Weber seemed too special and that of C. Wright Mills a bit flimsy).

After a number of attempts to create a few good thought experiments we were forced to admit failure and gave up. We could not create even one. This bothered us since the reason for writing this chapter was not so much to advocate the use of thought experiments by brilliant sociologists as to show that the average sociologist might find it useful to use a thought experiment now and then in his or her research and teaching.

At this point we took a second look at C. Wright Mills' argument and decided that it had one very good quality, namely that it was pretty easy to come up with similar ones. It was, however, also clear that Mills' thought experiment was of a special type. While he advocated carrying out an argument in your mind, he did not specify what the result of the experiment would be. His thought experiment, in brief, was, as mentioned earlier, *heuristic*.

We therefore concluded that besides the conventional type of thought experiments, there also exists one that can be called *a heuristic thought experiment*. This is a thought experiment that is used to suggest ideas to the researcher, not to prove a specific point. It is also private in nature, since it will not to be published but used exclusively to come up with ideas during the research process.

C9.T3 AQ5 TABLE 9.1 Qualities of a good thought experiment in sociology

	A Society of Saints (Durkheim)	Gresham's Law/ Marathon (Weber)	Reversal of Proportions (Mills)	Run on a Bank (Merton)
Relevance to sociology	Yes	Yes	No	yes
Analytically sharp	No	No		Yes
Quality of surprise	Yes	Yes	Yes	Yes
Meaning included	No	Yes	No	Yes
Minimalist structure	Yes	Yes		Yes
Transparent process that follows a sociological logic	Yes	Yes		Yes
Generalisability	No	Yes	Yes	Yes
Sparks discussion	Yes	Yes	Yes	Yes
Empirically confirmed	No			Yes
Used by others	No	No	No	Yes

Note: Merton's and Durkheim's thought experiments come the closet to what may be considered the conventional or "classic" thought experiment. Weber's experiment is focused on missing information in one part of what is needed for the causal argument; and Mills' thought experiment lacks a determined end state.

C9.P6s If you in this way eliminate the idea of having a fixed result in the thought experiment, is the term "thought experiment" still applicable? An experiment that can end up in just about any way is definitely not a good experiment according to existing standards. Still, there is a non-empirical quality to Mills' way of proceeding that sets it apart from ordinary empirical research in sociology. A better name for Mills' way of proceeding than thought experiment might therefore be *a thought exercise*, to use a term suggested to us by David Fasenfest. You assume that something will change in a situation you are interested in analysing, and you try to figure out what the result will be in order to get some good ideas for the main, empirical part of the research— that is all.

C9.P66   If we for a moment forget about thought experiments and instead focus exclusively on thought exercises, it would appear that these can also be used by sociologist in a few other situations s. Take, for example, theorising. Karl Weick, whose specialty is organisation theory, has suggested that the process of theorising can be viewed as a series of 'imaginary experiments' or 'thought trials' (Weick, 1989: 519–523). When you theorise, he says, you try to come up with 'conjectures'; and this means that you have to 'simulate possible scenarios' (Weick 1989: 520).

C9.P67   Weick does not specify exactly how you simulate these possible scenarios, so a few examples may be helpful. When you theorise, you may for example, want to try out several different social mechanisms in order to see which one can best explain the phenomenon in which you are interested. Or you may want to work through a few different ways of establishing the research subject, in order to get a good handle on it. Or you may want to try out different directions in which to generalise, once you have established the research object (or the result).

C9.P68   Thought exercises can also be carried out just to train your mind as a sociologist or to improve your knowledge of the society in which you live. What we have in mind here are predictions, but not predictions of the individual type (will Trump be reelected?) or of the technological type (will there soon be driver-less cars?). Predictions of a *sociological* nature are about something else, namely patterns of behavior, as illustrated by cases such as the following: Will a certain type of crime increase/decrease over the next few years? Will the structure of the family remain the same in the near future?

C9.P69   Making predictions about this type of pattern is useful for sociologists for a number of reasons. For one thing, they make you aware of the assumptions that you bring to an analysis and of the limits to your knowledge about certain topics. In cases where reality proves you wrong, you will now be able to better pinpoint which factor(s) you failed to take into account and that help to explain your failure. This gives a distinctly pragmatic flavor to this kind of thought exercise: you incorporate your errors, as shown by experience, into the next prediction. To cite Peirce, the father of pragmatism: "Experience ... says: *Open your mouth and shut your eyes/ And I'll give you something to make you wise*" (Peirce, 1997: 160).

C9.P70   Finally, both thought exercises and thought experiments, point to the importance of one factor that is usually ignored in sociology. This is *the power of thinking*, or that much work in sociology is not empirical in nature but depends on the power of thought that you bring to an issue or a problem. To train this power strikes us as crucial, both in practising sociology and in teaching it. In fact, much of the future of sociology may depend on it.

C9.S6

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