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## **As time goes by - The variability of social reality and its effects on survey research**

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### **1. Reality, science, causation, and explanation: A brief introduction**

#### **1.1 Discovering reality**

What scientists do, can be described as discovering, describing and explaining structures of reality (Roessing 2000). The first element, *discovery*, is an important part of science, since undiscovered facts cannot contribute to knowledge (this is sometimes ignored by dogmatic followers of falsificationism). The second element is a necessary condition for further research, because it must be completely clear what scientists are talking about, when they reveal a fact or a relation between facts. This is why biologists for example lay so much emphasis on the detailed *description* when dealing with newly discovered plants or insects.

Notwithstanding the importance of discovery and description, explanation is regarded by many scientists and philosophers of science to be the crowning glory of science. Moreover, the explanation of phenomena is often a challenge to the scientist. The finding for example, that all objects made of gold are electrically conductive is an important discovery and can be described in great detail using appropriate measures. Yet the question scientists have to answer is: *Why* is gold electrically conductive? (Lange 2000: 6 ff)

## 1.2 Causation and explanation

Explanations are usually based on causation. Explanations are sentences (Popper 1994: 31 ff; 62) in the form of theories and hypotheses that declare certain conditions to be causal of certain findings.<sup>1</sup> Causation usually consists of two components: (1) A primary condition that is believed to cause a consequence; (2) A set of marginal conditions that also contribute to the effect that is to be explained. This is referred to as the INUS Model of causation (Westermann 2000: 153-157). INUS is an acronym for the definition of ‘cause’ as an *insufficient but necessary part of an unnecessary but sufficient condition*:<sup>2</sup> C is a cause of event E if it is part of a set S of conditions and is alone insufficient, but necessary for E, whereas the complete set S is unnecessary but sufficient for E.

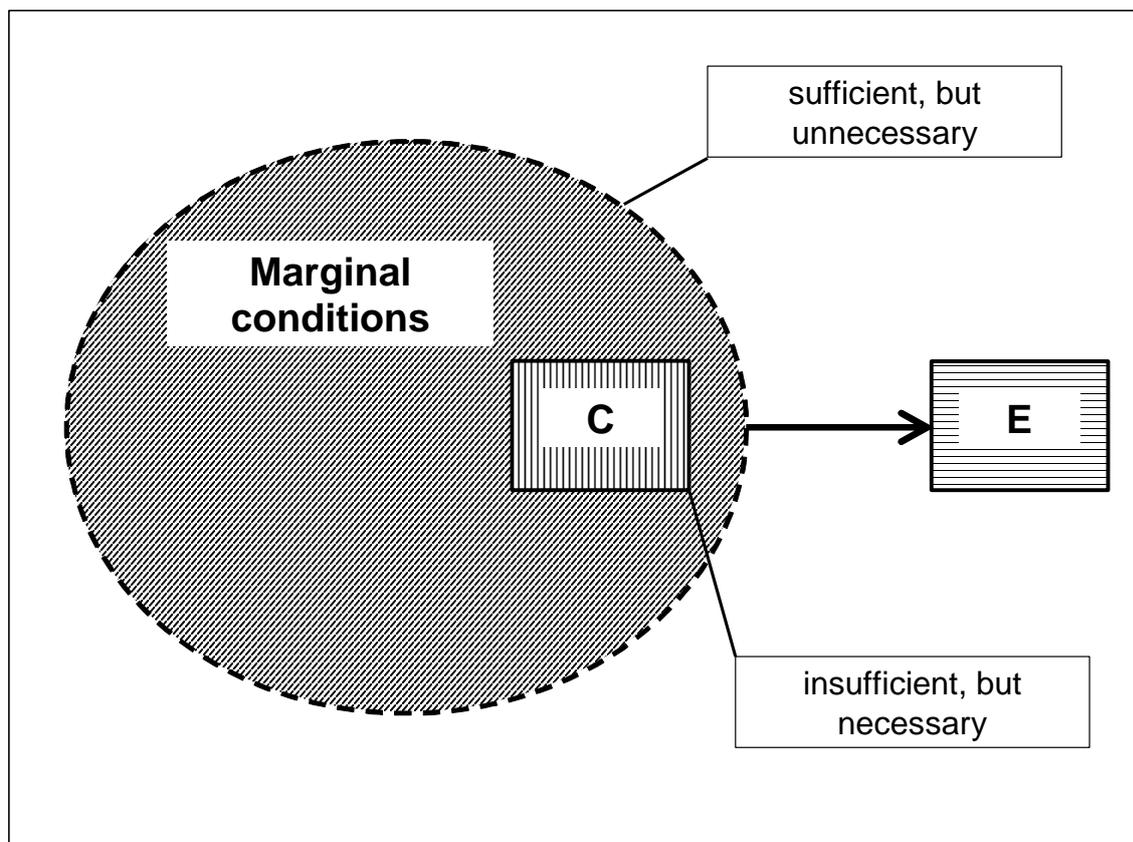
The following example is intended to provide clarification to the idea of INUS conditions (Roessing/Esser 2004; similar: Westermann 2000: 154): A lit match alone is insufficient for a fire. Only if oxygen and reduction agents like wood, paper or plastics are present, the whole condition (lit match *and* marginal conditions that support exothermic oxidation) becomes a sufficient cause for a fire (see also figure 1).

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<sup>1</sup> The concepts of explanation and causation and the idea of causality itself are controversially discussed among philosophers of science. Since this paper is not primarily intended to contribute to philosophy of science, according discussions are not reported in greater detail here (cf. Wilson 1985; Salmon 1998, Lange 2000: 3-11).

<sup>2</sup> Necessary condition: An effect can only occur if the condition is given. Sufficient condition: An effect always occurs if the condition is given.

**Figure 1: INUS-Conditions of an event E including an insufficient but necessary Cause C and additional marginal conditions.**



Source: Personal drawing.

Explanation is a deductive process of the identification of a cause or a set of causes and the necessary marginal conditions of a fact or a finding (Popper 1994: 31; cf. also Popper 1989; Wilson 1985). Scientific theories are systems of sentences about reality that try to explain the world in terms of conditions and causation (Popper 1994; 1989). What makes a theory scientific and distinguishes it from mere speculation is its testability: Every scientist with the appropriate equipment and education, should be able to corroborate other scientists' theories (Popper 1994: 65) or to give detailed instructions on how an explanation can be repeatedly be proved to be wrong (Roessing 2000). This is because scientists usually strive to find laws (*'nomothesis'*); and laws would not be laws, if they are arbitrarily applied at one time, but fail at another occasion.

To fulfil the requirement of replicability, explanations must be stable over time. This means, that there should be neither changes in the relation between the cause (C) and the event (E), nor changes in the marginal conditions over time (*'ceteris paribus'*; e.g. Schiffer 1991),

because they are a necessary part of any causation (Roessing/Esser 2004). For that reason many natural scientists have to give detailed information about the environment variables of their theories, their explanations, and experiments, e.g. temperature, pressure, surrounding atmosphere, and electromagnetic fields.

## **2. Nomothesis in election and communication research**

Unlike the subjects of natural scientists, the social reality, into which not only survey researchers delve, is undergoing many changes over time. Additionally, findings made at the same time may vary from place to place, from society to society. This last notion of variability in scientific findings is well known to the scientific community, whereas the changes of reality over *time* are rarely discussed (the *ceteris-paribus* problem; cf. Schiffer 1991). At least researchers striving for *nomothesis* (Popper 1989), i.e. for the identification of general rules of social life, should pay some attention to this problem. A reality that changes under the hands of the researcher constricts both the development of valid and reliable methods and the interpretation of results, and this renders theories susceptible to falsification. A few examples from the history of election and communication research shall throw light on these problems, and on the chances of finding enduring explanations in the social sciences.

### **2.1 The people's choice**

The first example is Paul F. Lazarsfeld's famous panel study conducted in Erie County in 1940 (Lazarsfeld/Berelson/Gaudet 1965). Its central findings included the Two-Step Flow of Communication, i.e. the suggestion, "that ideas often flow *from* radio and print *to* the opinion leaders and *from* them to the less active sections of the population" (Lazarsfeld/Berelson/Gaudet 1965: 150, italic in the original). The setting of the study supported the researcher's objective to find out, why people voted as they did; but Erie County was not a 'typical' county for the U.S. (Lazarsfeld/Berelson/Gaudet 1965: 10). The county is described as family-oriented and the town of Sandusky as a "church town with the church as the core of social life" (Lazarsfeld/Berelson/Gaudet 1965: 11). The setting of the study was also influenced by the fact that "Hitler's blitzkrieg was in full swing" (Lazarsfeld/Berelson/Gaudet 1965: 13). Unfortunately, the Two-Step Flow finding is highly susceptible to alterations in the marginal conditions. If the social structure (e.g. families or religion become less important), the range of available media, or people's media use change, the function of opinion leaders is directly affected. There are indeed empirical findings that suggest a modification of the Two-Step Flow approach due to a change in people's television

use (Noelle-Neumann/Petersen 2005a: 178 ff). Interestingly, Paul F. Lazarsfeld was fully aware of this problem with his findings: In the second edition of “The People’s Choice”, the authors explicate the challenge, social scientists are confronted with when formulating generalisations: “We are frequently warned that the results of a specific study are valid only for the time and place where it was conducted” (Lazarsfeld/Berelson/Gaudet 1965: xiv). The authors propose repetitions of studies as well as comparisons with similar analyses, to achieve three goals: (1) *corroboration*, if the findings of two studies are the same; (2) *specification*, if results differ, but the considerations of the specific conditions of each study lead to the same general conclusions; (3) *clarification*, if a new study adds new findings (Lazarsfeld/Berelson/Gaudet 1965: xv). The present paper will return to this point later.

## **2.2 The spiral of silence**

In 1965 and 1972, Elisabeth Noelle-Neumann and her Institut für Demoskopie in Allensbach discovered a phenomenon during elections campaigns that was known to philosophers and intellectuals for thousands of years (e.g. in Confucianism; c.f. Roessing 2005), yet in the social sciences it had been somewhat neglected: The force, fear of isolation can exert on people and public opinion. This force is based on people’s impression of the climate of opinion and their subsequent behaviour (Noelle-Neumann 1984). The social psychological theory behind this phenomenon strictly demands certain marginal conditions to be present in order to be applicable to certain social phenomena: moral loading (emotional potential), a controversial conflict, and a change in the climate of opinion over time. This makes the theory of public opinion extremely susceptible to changes in the social environment and thus complicates explanations of those social phenomena by the means of this theory: Without detailed knowledge of the marginal conditions, fear of isolation explains nothing – for the reason that it is an INUS condition in a rather complex world.

Noelle-Neumann analysed the Federal Elections in Germany in 1965, 1972, 1976, and 1980. In 1965, a spiral of silence occurred against the Social Democrats (SPD). In 1972, a spiral of silence worked for the SPD and against the Christian Democrats (CDU/CSU). In 1976, the effects of public opinion were actively tackled by the campaigners of the CDU/CSU (Noelle-Neumann 1984). So far, the general theses of the spiral of silence theory proved to be predictive and therefore explained the observed phenomena. But some years later, first in 1980, then again in 1994, something unexpected happened: No effects of public opinion occurred – due to a lack of emotional potential during the campaign (Noelle-Neumann 1994).

In other cases, the explanative power of the spiral of silence was tied to very particular conditions of certain election campaigns: The “Popularity in a Freefall” (Katz/Baldassare 1994), Katz and Baldassare observed in 1992, was possible due to a certain bias in the media coverage on the U.S. economy (Ladd 1993). In 2002, the German Federal Election was loaded with emotion by a massive flooding in Southern and Eastern Germany and an intense media coverage of the destruction, victims, and efforts to fight this flood (Noelle-Neumann/Petersen 2005b; Kepplinger/Roessing 2005). Most elections seem to happen under certain – often unexpected – circumstances that render certain theories for the explanation of voting behaviour either applicable or useless.

To reduce the theory of public opinion to the hypothesis that people fall silent if they believe to hold a minority opinion is wrong and dangerous. The theory gains its predictive and explanative power not until the whole picture, including marginal conditions and extraordinary events, is considered. In contrast to the natural sciences, the social scientist is continuously confronted with new realities and completely unexpected and unpredictable events. This is, why it is so difficult to test the power of a complex theory like the theory of public opinion: The predictions and explanations of the theory have to be either so general that they are of little value, or so precise that they inevitably fail, due to changes in the social environment.

### **2.3 Agenda Setting**

So far, this paper has drawn a somewhat discouraging picture of the social sciences. Is *nomothesis* possible at all, or are social scientists forced to limit their theories to post-hoc explanations? The attention will now turn to an example of a potential for a law (“*nomos*”) of communication research.

The agenda-setting function of the mass media was discovered and described in the early 1970s for the first time. McCombs and Shaw (1972) as well as G. Ray Funkhouser (1973) analysed the effect with regard to certain issues at certain times and in certain places: The study of McCombs/Shaw was set in the Presidential Election of 1968 in Chapel Hill in North Carolina. The Authors did not delve into *the* effect of *the* media, but into the effects of the Media available in Chapel Hill on voters in Chapel Hill (McCombs/Shaw 1972: 178). Funkhouser analysed the relationship between some indicators of real developments, answers to a certain survey question, and the coverage of three weekly news magazines (Funkhouser

1972: 64). At that time, the prediction of the public agenda by the content of the mass media was far from being a *nomothesis*.

More than 30 years later, thousands of studies in various places and under various conditions have corroborated the finding that the mass media have the power to influence the public agenda (at least for unobtrusive issues). Additionally, studies aiming at unsolved problems and failures of the agenda-setting theory added to its explanatory power. These studies did not weaken the agenda-setting approach, they contributed to its *clarification* - a point that has been discussed before in the present paper: The preface to the second edition of the "People's Choice" anticipated developments like these in the field of agenda-setting research with its call for specification and clarification where additional studies cannot corroborate previous findings.

Today, agenda-setting theory is very complex and far from being complete. But its explanative and predictive power is stable in such a way, that it is not too adventurous to call it a candidate for a law of communication research.

#### **4. Discussion**

If a chemist had heated crystals of copper sulphate in 1940 in Erie County, he would have found the salt losing its blue colour (this effect appears because the heat drives the water of crystallization out of the crystals). Another chemist heating copper sulphate in Cold War time Russia, would have come to the same results, as well as chemists heating the salt in Chapel Hill or in West Germany in 1972 or in Orange County in 1992. Heating causes copper sulphate to lose its colour at all times in every place. Unfortunately, the subjects of survey research rarely behave in such a uniform way.

The examples discussed in this paper illustrate two points that are important for the methodology of the social sciences: First, changes of reality over time do constrict nomothetic research. Second, findings from different times sometimes share some commonalities that could be used to distinguish general from singular findings. To say it in the words of Lazarsfeld et.al. (1968: viii):

"Results should be checked and rechecked under both identical and varying conditions. The complexity of social life requires that the same problems be studied many times before basic uniformities can be differentiated from transitory social occurrences."

Three measures can be regarded as necessary for approaches to formulate nomothetic theories of human behaviour:

1. Commonalities of social reality at different times must be analysed in detail, e.g. to separate public opinion effects which appear to be stable over time from those which are not.
2. Theories should be evaluated with respect to their ability to explain findings in different times. Marginal conditions deserve special attention in this process. There are no isolated causes that can explain structures of reality. Every cause must be considered as an INUS condition together with the appropriate marginal conditions.
3. Survey researchers should keep in mind the problem of changing realities, e.g. when revising questionnaires, documenting methods, procedures and findings, or interpreting results.

Another measure – which has little to do with survey and empirical research and is therefore not discussed in greater detail here – is the use of historical studies to find indicators of durable structures of social reality. Historical studies on public opinion, e.g. in Ancient China (Roessing 2005), cannot prove the spiral of silence theory true. Yet, they can provide valuable information to the question which parts of the theory could be ‘basic uniformities’ rather than ‘transitory social occurrences’.

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