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The Hegelian Inquiring System and Critical Triangulation Tools for the Internet Information Slave

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ABSTRACT

This paper discusses informing, i.e. increasing people's understanding of reality by providing representations of this reality. The Hegelian inquiry system is used to explain the nature of informing. Understanding the Hegelian inquiry system is essential for making informed decisions where the reality can be ambiguous and where sources of bias and manipulation have to be understood for increasing the level of free-informed choice. This inquiry system metaphorically identifies information masters and slaves, and we propose critical dialectic information triangulation (CDIT) tools for information slaves (i.e. non-experts) in dialect interactions with informative systems owned by supposed information masters. The paper concludes with suggestions for further research on informative triangulation tools for the internet and management information systems.

Keywords:

Internet, information trust, information services, Churchman, Hegelian inquiring system, rationality.

INTRODUCTION

Information is any meaningful representation (sign or symbol) of our physical or imaginary world, which people need in order to understand the world for problem solving and decision making (Stamper et al., 2000). Information interaction contexts can be split into well-defined and ill-defined contexts according to the levels of repeatability, complexity, controllability, and predictability of phenomena (Sterman, 2002, Blackler, 1995, Bonabeau, 2002). This results in substantially different human-computer interactions. Well-defined contexts enable codification of the information needs such that information can be part of a data processing system, which enables efficient ways of transforming certain information inputs into required information or action outputs without (much) human effort. Ill-defined contexts, however, are mostly unique, complex, unpredictable and only partially controllable. In ill-defined contexts, analyzing the context by applying a certain level of human expertise can be useful but mostly does not result

in the detection, with certainty, of an optimal solution (Mason and Mitroff, 1973). This is typically the case in many managerial and political decision making situations.

Regarding the "truth", most decision makers are laymen, and they will have to be advised by experts concerning what is the right information and what the impacts will be of certain decisions. This is true for political decision makers, who are mostly not (practicing) scientists in the field they have to decide about. This is even more true for voters and opinion makers in democratic societies, who have the responsibility to elect the right people in public decision making offices. They mostly lack the expertise for example to know what the right budget size should be in the interest of the longer-term wealth of a nation or in their own interest. This article wants to give participants in democratic decision processes (like voters) a better understanding of the human use of information so that as laymen they will be able to make well thought-through judgments by effective interactions with the many information sources available. So a key question is: How can the Hegelian inquiry system contribute to the development of capabilities of laymen to make the "best" decisions in ill-structured and political environments? We will study this challenge in three steps:

1. First, we explain the Hegelian inquiring system, and what this model has to offer for solving decision making in ill-defined contexts.
2. Next, we explain how the Hegelian model can be used for non-experts to empower themselves by providing effective information interaction means (named dialectic triangulation) and tools to triangulate messages from the Internet.
3. Finally, we discuss the possibilities for generalizing our findings and for further research.

THE HEGELIAN INQUIRING SYSTEM AND INFORMATION POLITICS

A summary of Hegelianism

We were originally pointed to the existence of the Hegelian inquiry system by Mason and Mitroff (Mason and Mitroff, 1973), who describe this concept for

information systems based on Churchman's classical book "The design of inquiry systems". Churchman describes the Hegelian inquiry system as a system for the purpose of finding knowledge by applying Hegel's dialectic logic. Churchman (1971) describes Hegel's dialectic logic as a three-step process of "thesis antithesis, synthesis". Churchman (1971) takes Hegel's view on thesis and anti-thesis as two different views about a single phenomenon, based on different interests and views (Weltanschauungen) people may have. To find truth in such cases is difficult, but there are two ways of solving the resulting conflicts (i.e. realizing a synthesis). One way is to appoint a master who decides like a referee, judge or expert, and the other way is finding a joint resolution.

Churchman states that according to Hegel, each historic trend (thesis) has its counter trend (anti-thesis). These trends have their protagonists using data about the same phenomena to find evidence for their arguments. People may find arguments to reconcile the conflict called "whole" or "synthesis". This implies that information is part of a political-historic struggle. An issue here is that people are often intentionally manipulated (or more politely stated "convinced") and that this is done by difficult to detect data biases and intentional manipulation. Wijnhoven (Wijnhoven, 2009) states that information manipulation and politics are especially the case on the Internet, because the Internet is a free platform for anyone to deliver her/his information and views to anyone in the world, and the number of messages makes it difficult to know the quality of each message. In this context, information science should provide people with the tools to detect bias and create their own opinion via a critical analysis of data provided (Huff and Geis, 1973), i.e., the emancipation of the information slave.

In an introductory text on Hegel, Sinnerbrink (Sinnerbrink, 2007) states that Hegel is among the most difficult to grasp of all modern philosophers. Therefore, the reader must be aware that we will not give a full account of Hegelianism and our presentation of major issues will be based on the research of expert philosophers in this domain instead.

What we take from Sinnerbrink's (Sinnerbrink, 2007) and Beiser's (Beiser, 1993) introductions in Hegelianism are the following key lessons.

1. Hegel's work is an extension on Kant's "Copernican" turn in metaphysics which "...reversed the traditional assumption that we have direct cognitive access to things in the world" (Sinnerbrink, 2007: 6). This implies the phenomenological understanding that everything we "know" about the world is intermediated via a priori (i.e. independent of experience) conditions of cognition for us as finite subjects.
2. Following this, Hegel states that "our objects of inquiry are not "truth" or "meaning" but rather configurations of consciousness. These are figures or patterns of knowledge, cognitive and practical

attitudes, which emerge within a definite historical and cultural context ..." (Sinnerbrink, 2007: 16).

3. This consciousness or knowledge develops in a dialectic experience: "the movement from an initial pattern of consciousness, its inversion into an opposing position, and the reconfiguration of both within a more complex unity" (Sinnerbrink 2007: 18).
4. This insight in the dialectics of consciousness is not only limited to a person's understanding of facts and figures, but includes also people's understanding of their own position in a historical context. Hegel applies this for instance on the relation between masters and slaves. The slave will identify him/herself as dependent on a master, until his/her self-consciousness develops into an understanding of the important contribution s/he makes to society and the actual dependence of the master on the slave's efforts. This recognition may result in an "unhappy consciousness" and the need for a resolution of this conflict via a synthesized new perception of consciousness.

Accordingly, the consequence of taking the Hegelian inquiry system is that we approach information to serve (1) a phenomenological approach to reality, (2) the development of configurations of consciousness (like convictions and opinions), (3) via dialectic processes, and (4) in the context of the existence of masters and slaves and their mutual dialectics. We specifically will focus on *information* masters and slaves (Churchman, 1971: 160-161), which are respectively the producers of opinions and information and their followers. We believe that the internet offers many opportunities for information slaves to improve their self-consciousness as a reaction to masters' information. A systematic method to do so in the information age, as yet does not exist and is the core contribution of this paper.

What information masters do

The Internet has huge virtual piles of information. This results in substantial feelings of information overload or senselessness. Intermediating tools, like Google's search engine, can help people to find what they need. Consequently, we identify three possible roles for information masters on the internet

1. Technical information services, like search engines which automatically index files submitted to an Internet location and enable user-friendly information searching. Meta search engines aim at improving precision and re-call using results of multiple search engines. In addition, specialized search engines are currently offered to improve re-call and precision in specific areas (e.g. sports or social sciences), searching on region (e.g. limited to Indonesian or French resources), and searching on medium (e.g. music files or images).

2. Semantic intermediation, which consists of internet guides, whose content is indexed and structured by human editors. This means that the content and structure of the guide is based on a human evaluation of relevance. Although this may be a strong advantage over technical intermediation, it results in structures that are nearly never complete.
3. Expert services, which can help people find the right kind of information like: www.loc.gov/tr/askalib (a free service from the US Library of Congress), answers.google.com (in contrast to the previous expert services, this service helps to find an expert (not a librarian) who gives an answer, though this services is not for free), www.mediaresource.org/request.shtml (focuses on questions of journalists with regard to scientific issues), and www.madsci.org/submit.html; for questions aimed at scientists.

Critical dialectic information triangulation for emancipating information slaves

What masters mostly do not do is to help information consumers to build their own opinion on basis of conflicting information sources. For this purpose, we propose critical information triangulation. Denzin (Denzin, 2009) was the first to propose triangulation as a research strategy. He outlines four types of triangulation, namely data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Triangulation aims at confirming the truth of possibly true statements by comparing the results of different data, investigators, theories and methods. In contrast, we apply triangulation to falsify presumed true statements from information masters. As such, we aim at a *critical* use of triangulation.

Data triangulation

Denzin (2009) defines data triangulation as the affirmative use of different data sources. These data can be criticized by searching for comparable material in different places in time and space. Triangulation of this kind can be done in two ways. One way is to give the information searcher evidence through alternative media, like photos, movies, data, and text, so that the evidence can be compared and checked for (in)consistency. The other way consists of giving the information searcher opportunities to track and trace evidence through space and time, so that original sources can be checked. A plagiarism detector can do both at the same time for a documents received from a presumed master. One of them is Viper (<http://www.scanmyessay.com/viper-plagiarism-scanner.php>), and www.plagiarism.org provides several descriptions and references to other detection tools.

Investigator triangulation

Investigator triangulation is the involvement of other investigators in the research. Investigator triangulation on

online news can be realized by including articles from different investigators (journalists and correspondents). With “different”, we mean people with different affiliations and background. There are two ways of detecting the background of “investigators”:

1. Check the identity and background of investigators via their social network presentations in tools like LinkedIn and Facebook, and
2. Check the background of site owner via the “who is” tool (<http://www.kgbpeople.com/>).

Theory triangulation

Theory triangulation (also called theoretical triangulation) involves using multiple perspectives or theories to interpret a single set of data. Theory triangulation of information on the Internet can be done by defining the perspectives you want for theory triangulation. This could be economic, human, cultural, political, or technical. Via a word cloud application, one can detect if certain issues and approaches are more dominant in a message than others are. Via this, one can detect the theoretical bias of a document. One can systematically search for alternative documents by adding lacking keywords to another query and check the word cloud again. A useful word cloud tool is www.wordle.net.

Methodological triangulation

Methodological triangulation (also called method triangulation) refers to the use of different methods to examine a phenomenon. Research methodologists have widely discussed the different types of evidence that can be collected and the different conclusions that can be drawn on basis of this (Mingers, 2001, Yin, 1999). These methodologies may be:

1. Empirical: Focusing on the collection of data or measurements.
2. Interpretive: Focusing on what people think and have in their mind, which can be found by personal interviews and in-depth interviews. These data can be found in newspapers, especially background articles.
3. Historical: This involves finding evidence to explain people’s so-called “genuine because motives”, which are often not what they say why they do certain things but by finding joint histories and shared believes (Schutz, 2002). Historians and political scientists often provide these data.
4. Critical: Focusing on finding opinions and ideas for change. This can be collected by document research (e.g. political party programs and public statements of politicians and chief executives).

Any document found on the Internet can be analyzed on the presence or absence of these four data modes via a visual inspection of the documents. Additional, documents can be checked on their validity by assessing indicators of scientific rigor, like propositions, measurements, tests, and replications.

THE CRITICAL DIALECTIC INFORMATION TRIANGULATION METHOD

We implement the mentioned critical triangulation methods in successive steps to realize Hegelian dialectics as follows:

1. First formulate a thesis and on basis of this create a query.
2. Data triangulation: Insert a document (e.g. the highest ranked) found via the query under scrutiny with a plagiarism detector, such as Viper. Check if other sources say the same. Check the shared background of the sources.
3. Investigator triangulation: Check personal homepages of the author, and network sites, such as LinkedIn and Facebook, and the owner of the publishing site via “who is”. Any links from the document may also indicate affiliations. Are the investigator and the site linked to specific ethical communities?
4. Theory triangulation: Create a word cloud of the document, for example with www.wordle.net (based on word count). What are the main issues and to what extend is there a bias?
5. Methodology triangulation: Assess the document on empirical evidence, interpretive grounding, historical grounding, critical view, and scientific rigor (measurements, propositions, testing, replications).
6. If the document seems to survive the four critical triangulations, maintain it as thesis. If not, modify the thesis and triangulate again, or reject the thesis and stop further dialectic analysis.
7. When a thesis is maintained, formulate an anti-thesis, create a query, and perform the triangulation of a found document. Note that an anti-thesis is not just another complementary view on the same topic, but a deadliest enemy to the thesis (Churchman, 1971: 172).
8. If the anti-thesis cannot survive critical triangulation, reject it or modify it and triangulate again. If the anti-thesis survives critical triangulation, compare thesis and anti-thesis and formulate a synthesis. Such a synthesis should integrate thesis and anti-thesis in more all including consciousness.

This process is described in more detail in Figure 1.

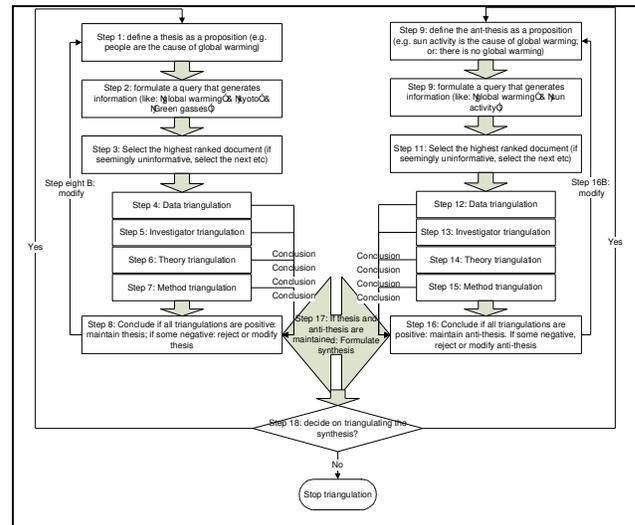


Figure 1: Critical dialectic information triangulation method in a Hegelian dialectic algorithm

DISCUSSION AND CONCLUSION

Trying to answer the research question as to how the Hegelian inquiry system can contribute to the development of capabilities of laymen to make the “best” decisions in ill structured and political environments, we identified that information sources do not give a single answer to a question. Even if we would have answers, the information gained does not always imply that we know what intervention or decision is best. Unfortunately, many informative contexts are like these, and two ways out are given based on the Hegelian inquiry systems, namely: 1) adopting a master and believing what this master says is best, or 2) emancipating oneself by using critical information triangulation tools.

The critical dialectic information triangulation method is not a tool for finding truths, but can unmask bias. This may seem quite unsatisfactory, but critical thinking of non-expert slaves is necessary to avoid the masses being guided toward futures that are biased and not in their longer-term interest. Some fear for freedom (Fromm, 1941) has to be coped with in democratic societies and criticism is the basis of the growth of knowledge and self consciousness in political debate (Popper, 1980, Popper, 2002). The essential elements that the information science discipline can offer to such a debate are:

1. Dialectic information interactions frameworks by which slaves can uncover the disguised biases of putative masters, and
2. Efficient critical triangulation tools as part of search engines and information retrieval systems.

Research in both directions is currently absent and should be funded and started soon. The results are important not only for political and democratic debates, but for any situation in which decision makers are confronted with not-fully-defined contexts that require these tools to support the different types of non-routine control. These

situations are more common than routine control situations (Hofstede, 1981).

We now may be interested to think about the question if the Internet in a moderated form, like Wikipedia, has sufficient abilities to realize truth. Well, here, we have to disappoint the reader as truth may be not reachable (Popper, 1980), but moreover we do not always need it fully anyway. The progress of science is better served by criticism of the what-we-think-we-know (the belief structure) than by being happy about what we have achieved, because the latter may quickly descend into dogmatism and totalitarian thinking (Greenberg, 2009, Popper, 1944). The development of the syntheses may require the development of an alternative thesis that reconciles the different visions and information. This is a consciousness development process, in which information science cannot help much, but when such a synthesis is found, information systems can be employed again to check the validity of the claims of such a synthesis. In the end, this may result in a better understanding of reality.

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