Ideology and Information Systems

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Dissertation submitted in fulfillment of the requirements for the award of the degree of Doctor of Philosophy in the faculty of Economics at the University of London

February 1991

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Acknowledgements

I want to thank everybody for their contribution during the three years of research and to this dissertation.

Primus inter pares is Professor Ian O. Angell, my supervisor. The countless hours of intellectually stimulating conversation and the friendly support in all aspects of the research enterprise cannot be esteemed too highly. He comes as close to my ideal of an academic educator as is possible. The way in which he understood to support and challenge me at the same time is extraordinary. He can claim to have brought to bloom many ideas which I would never have seen on my own, and which would have wilted otherwise. Above all this, we have grown to be friends, which is the best of all!

Secondly, I want to express my gratitude to my girlfriend, Mayuri Odedra. Perhaps without knowing, she has contributed a lot over the years because of the challenge her different Weltanschauung has posed for me. Indeed her profound sense of reality, which has made me reconsider some of my more airy thoughts, is only surpassed by the warmth of her personal support.

Thirdly, I must mention the contribution of the Robert Bosch GmbH. Not only did my work for K/TDV in Schwieberdingen pay for fees and board, but also did the working experience greatly enhance my horizon, which gave me a much securer grasp for the limits and the relevance of my research. Especially the exceptional effort of Herr Dr. Kiel, Herr U.Müller, Herr Auerbacher and the IK-System team have made this happen.

Fourthly, I want to thank my family for their contribution, financially and otherwise. My mother, Frau Dr. Charlotte Straub-Blum, created from early on the intellectual environment that animated my interests and spurned their critical

development. She laid the foundation and supplied the background for my desire to do research. My brother Christoph has been my best friend over the years, and our relationship has given meaning to many of my undertakings. By coincidence, we hope to complete our Ph.D.s at the same time. My father, Dr. Otto Straub, has followed my way in every direction I took, and supported all of them. He always encouraged me not to neglect extracurricular activities, as is natural for him. I wish I had some more of his good nature.

Fifthly, my karate senseis John and Allen played a part in my development and consequently in the research enterprise. Beyond teaching techniques and tricks, they encouraged us to think about karate. Apart from the important effect this has had on my views, the karate sessions have always been great fun and a very good complement to the studying.

Lastly, I want to thank all my teachers, colleagues and friends in the department and elsewhere, especially Angeliki Poulymenakou, Dr. Ruth Hombach, Dr. Jonathan Liebenau and Jim Backhouse for reading various drafts and commenting on them. And last but absolutely certainly not least, our departmental secretary, Ilse Redpath, deserves special thanks for the opportunity to discuss the odd bits as well as the big troubles in such an exquisite atmosphere of cordiality.

Many thanks to everybody!

Abstract

Ideology is a political and a sociological term. Thinking about 'system' makes the results of sociological thought appear relevant. The understanding of information systems (IS) as social systems or as phenomena in a social context justifies, therefore, the use of the concept of ideology in the context of IS. As a consequence of this application a series of hypotheses can be formulated about IS and the study of IS. Some of these are taken up in a thought experiment. This experiment is presented in a dialectical mould, consisting of thesis, antithesis and synthesis. In the thesis, the application of the concept of ideology is advocated because it is seen as contributing relevant knowledge to the study of IS. In the antithesis, the above hypothesis is opposed, and consequently the application of the concept of ideology is not advocated. In the synthesis, the application of the concept of ideology is put into a different perspective, where the importance of knowledge is substituted by an emphasis on thinking. Thinking is introduced as the touchstone of relevant knowledge. Its elusive nature is responsible for the elusiveness of claims in systems-thinking and -practice.

Contents

The 'Intellectual Journey'

The 'intellectual journey' of this research was prepared in its content long ago, and the fact that it was more or less expected that I would embark on writing a Ph.D. made its realisation almost a matter of course. I developed, however, a real interest in the study of information systems as a consequence of the ensemble of three factors. Firstly, starting in 1983 I embarked on a Diplom-course in the faculty of Wirtschaftsingenieurwesen. This is a sandwich-course of university tuition and internships that integrates various disciplines that are relevant for the running of a business, in order to equip graduates with an understanding of the systemic nature of organizations. Secondly, I studied the theoretical aspects of information systems in an M.Sc.-course and a Ph.D.-programme. Thirdly, I sought employment relevant to my research during the Ph.D.-programme in order to complement the theoretical aspect of the research enterprise with a practical aspect of field work.

My education in Germany at the University of Karlsruhe in the faculty of Wirtschaftsingenieurwesen was very comprehensive for the kind of career a Diplom-Wirtschaftsingenieur is expected to pursue. Engineering (mechanical, electrical and chemical), business administration, economics, computing, operations research, law and management are the ingredients of this degree. The compulsory internships during this degree-course made it apparent that theory and practice where somewhat apart. As a consequence, I reflected about the value of this education and about the reasons for the discrepancy between theory and practice. Moreover, my interest was always very much attracted to philosophical and cultural issues, and the combination of these circumstances led me to develop a critical disposition toward theory and practice. Quite often I felt that the university education was a hindrance to holistic personal development, but I could not figure out particular obstacles. From a multitude of motives I chose to go to

England. I decided that my horizon was still too limited to come to terms with these problems. In a way going to England was a "*Flucht nach vorn*".

More by luck than by design I managed to get a place on the M.Sc.-course in analysis, design and management of information systems at the London School of Economics and Political Science. For the first time during my educational 'career' the subject matter took over a substantial part of my interest, and consequently of my working time. Two topics were mainly responsible for this change. On the one hand, there were the lectures in Organizational Theory and Behaviour and in Information that opened up new fields of interest to me. On the other hand, the subject of 'system' and 'information system' became a marvellous catalyst for my earlier thinking, developed in Karlsruhe.

The influence of the LSE on my thinking was nothing if not profound. Organizational Theory and Behaviour opened the perspectives which I needed, at least from a theoretical point of view, to comprehend the apparent clash between theory and practice as I had experienced it during my first degree. Besides, I also started to understand this lecture course as itself subject to a similar dilemma as my previous degree; that is an incongruence of theory and practice. The lecture on Information, on the other hand, was an entirely different animal. It encouraged the application of sociological theory; a field which I had previously looked upon with prejudicial contempt. At the end of the master-course I consequently felt that my academic education had after all given me the required techniques as well as academic freedom to find my way of thinking in order to make my way in business.

That I did not go to business at the end of 1988 had three reasons. Firstly, I still thought about doing the 'big' thing; that is writing a Ph.D. I still had this idea of the Ph.D. being the real academic touchstone, rather than my Diplom-course and the master-course. Everybody counselled me to do it then rather than to wait, for

various probably correct reasons. Secondly, I did not want to leave my girlfriend behind. Thirdly, I had developed ideas about information systems that seemed to lead in a meaningful direction as far as my understanding of the complexity of information systems was concerned, and I wanted to express them. I felt very flattered when my inquiry about a Ph.D. at the LSE was received positively, and I think that settled the matter.

For obvious (embarrassing) reasons I will not say what my proposal for carrying out the Ph.D. was. Let it suffice to say that it was half-baked, with a lot of big words about 1992, business and information systems in it. Nevertheless, in November 1988 I started reading in the library about various things, some related to the proposal, some related to research in general and some unrelated to it following some questions the M.Sc.-course had left open. Relatively quickly questions of research method, scientific method and epistemology occupied my research more than others. At about this time the attendance at the weekly RISA-seminars of the LSE information systems department made me think for the first time about ideologies that characterised the different stances taken in the discussions. The idea of ideology had struck me because of the alacrity of the debates. Before I could make a reassessment of my research proposal, I went to the Robert Bosch GmbH for the first time, from February to June 1989. This first spell of practical work with the Robert Bosch GmbH was intended to clarify issues which I had addressed in my research proposal. As it turned out, the field work supported the change in direction which my research had undergone in the previous months.

The five months at Schwieberdingen were very instructive. My initial work assignment was to compile a history of the decisions that led to the launch of the Information and Communication System (IK-System) at Schwieberdingen. The first eight weeks started like the internships during my Diplom-course. I did miscellaneous things and was not assigned to something of major importance to

operations. During those weeks, though, I had the chance to get to refresh and increase my knowledge of IS-practice, and I used it. The department at Bosch in which I worked does technical data processing. A wide variety of services are rendered to other departments of Bosch. CAD, office automation, scientific programs, failure mode and error analysis, etc. are done there. I talked to as many people as possible, and my perspective on information systems got updated in a very good way. After two months came a big change.

With immediate effect I was assigned to the IK-System as project support. For various reasons the project needed a caretaker of some kind. Even though I was only assigned temporarily, considerable responsibility was placed upon me. I had still too little knowledge of the working of the IK-System to understand it. Moreover, I had not been involved in the day to day operation and, thus, was neither familiar with the people nor the technicalities involved. I learned an awful lot very quickly; well, I had to. The theory of 'socio-technical systems' or of the four tiered differentiation of 'pragmatics, semantics, syntactics and empirics' which I had come across during the M.Sc.-course took on an entirely new meaning. I also saw the curriculum of my Diplom-course in a new light. It was a time of a profound shift of relevance, or as we say in german: "*Erstens kommt alles anders, und zweitens als man denkt*".

Returning to the LSE found me back at square one with my research. During conversations predominantly with Professor Ian O. Angell and in brief essays which I wrote in short succession I reconditioned what I had done before Bosch and what I had experienced at Bosch. As an undercurrent I always thought of systems ideologies, as this topic exerted an ever stronger appeal on me. Partly, because the concept fascinated me, and partly, because I saw it as a valid scientific idea which was worthwhile to investigate. By late autumn I had gone so far towards systems ideologies that I felt reasonably firm that this would be my Ph.D. topic. What had happened?

From the early contact with the concept of ideology during 1988 I had kept an interest in this area. I had bought some books on the subject, and when I had the time to read them in the summer of 1989 my work on other topics was appearing less relevant. The concept of ideology seemed to me to explain the events in the RISA-seminar as well as other ideas and incidents I had come across during the Diplom-course, the internships, the M.Sc.-course and my work at Bosch. My contact with and my investigation into the concept of ideology was still too new in order to criticise it. This was the time when my mind was occupied by an argument as it is demonstrated in the thesis of this dissertation. I recognised personal development as an individual process that creates personal realities on the basis of processed information. I recognised the study of phenomena as an approach that processes information. And I recognised the systemic nature of the connection between personal realities, scholarship and the complexity of IS-practice.

By the time my second year started I assumed that I would write a dissertation with the purpose of showing the power of the concept of ideology for information systems. Yet, already before 1990 came, I had developed some doubts. A RISA-seminar which I gave in early 1990 did not go all too well, and as a consequence I was thinking about how I could concisely say what I felt I had to say. As a result I started to write a paper which over time grew and grew until I finally used it in June 1990 as an 'embryo' for my dissertation. Before that, though, writing the paper required me taking an aloof stance in order to formulate a coherent understanding of my ideas. This aloof stance allowed me to see some holes in my argument as well as in the concept of ideology which I had not seen before. In the time between November 1989 and February 1990 I investigated these holes and tried to get clear about why they occurred. As a consequence an understanding grew that multiple perspectives were appropriate and that none of these could be taken without compromising the others. These months were months of intense exchange with Professor Ian O. Angell, and his refreshing comments, suggestions

and incursions made these months a time of intellectual bliss like I had never experienced it before.

The consequence of these exchanges was the foundation for the synthesis. By the time I went back to Bosch (apparently my performance was satisfying) I had written a fairly comprehensive document of the research that led to the idea of system ideologies and of the thesis. While at Bosch I enjoyed being back in business and doing different things. It was the time when I started thinking about the time after the Ph.D. Should I continue doing research in academia or should I go into business for real? No decision was made then, and when it finally was made it was rather under different circumstances. The importance of this episode lies somewhere else. It was the start of ideas that led to the antithesis. Soeffner's book which I had bought in Germany at that time almost by coincidence together with my study of the literature of scientific method came to form the background of the antithesis. That it also became part of the dissertation is a result of me sitting down in June 1990 to think about writing up the dissertation.

When I started writing up the dissertation in June 1990 I had no idea how long , in terms of thousands of words, it would become. Nevertheless, I had a rough idea of how long it would take. Three months, I thought, should be enough to write draft version zero, and another half year should suffice to reedit this version several times in order to produce a dissertation. Nine months all in all should be enough to deliver my baby.

At the time, I gathered my ideas and thought about the meaning of writing a dissertation and its relevance to my development and the research. I came to conclude that an argumentative dissertation was the best fit to catch the 'mood' of the research enterprise. From there to the dialectical structure was but a small step. Thesis, antithesis and synthesis almost fell into place as the different perspectives I developed and held during the previous months. While writing some

changes in the argument were made, but the overall direction was so clear that only minor changes had to be made to the structure during writing up (one of which is this preface describing the intellectual journey). Writing the dissertation has been an enriching experience. Out of the many possible ways to put an argument together and across to the reader, one has evolved and been chosen. Even though the ideas of the dissertation were to a large extent 'there' only waiting to be presented, the argument had to be tailored gradually. This whole process, though different from the previous parts of the research, was nevertheless very exciting and rewarding as the dissertation could be seen to grow daily.

With submitting the dissertation in February 1991 my work is finished so far. The dissertation reflects my experiences which I had with information systems. My involvement with computers, computer programs, organizational mechanisms and procedures, systems thinking, systems analysis, design and management and a general curiosity about the way things are, have all contributed to this text. I feel confident that I have built a foundation for my future work and I look forward to defending my dissertation in the viva voce and the interesting discussions I am going to have.

Bernhard Straub
London, 25th of February 1991

Part I: Introduction

1. PROLOGUE

Why is it that the study of information systems (IS) is still thoroughly connected to computers in the public mind, when not even the study of computing is exhausted by its occupation with the computer? From within the study of IS this grievance is usually attributed to the ignorance of outsiders, whereas we insiders all know that the study of IS is concerned with computers plus systems analysis plus organizational behaviour plus systems-thinking and -practice, etc. After all, the hall of fame of the study of IS is full of creditable acronyms such as AI, MIS, SSADM, EIS, KBS, HCI, 4GL, etc. that prove the commitment to a wide range of problems beyond a mere concern with machines.

Indeed, I thought for a long time myself that information systems are about effective organization of unorganized human interaction. However, the persistent misunderstanding of information systems for computers has prompted me to imagine that it might be a mind-set which let me see the study of IS in the vanguard of societal or at least economic progress. The controversial reception information systems get in public might after all not just be a matter of ignorance or luddism. Looked at from an 'ignorant' perspective, it is quite peculiar to see how research programmes in information systems receive a tremendous amount of *Vorschuß-Lorbeeren*. This *ex ante* credit carries along research programmes like decision support systems or executive information systems before they have to show their effectiveness. The almost compulsive confidence with which a tidy array of computers with happy operators and successful engineers and managers is advertised as a world of intelligent information systems prompts questions not only of feasibility but also of desirability.

In this scenario, the study of IS plays the part of the expert that takes care of this difficult matter of information systems. How many students like myself have gone through an education that teaches them the methods and methodologies that

underpin the study of IS. Many, like myself, will have experienced the joy of the first successful run of their first own BASIC-program or of the versatility of methods of systems analysis. Many will have fallen for the excitement of building information systems that are 'intelligent' or that run nationwide or even internationally. That this excitement is spoilt by set-backs and disasters such as accidentally dropped bombs, ghost-trains on monitors and crashing passenger jets [Neumann, 1990b] is seen by many only as a challenge to double efforts in the study of IS.

However, the study of IS has not shrug off its computer-legacy. The technological orientation of the machine-metaphor dominates much of the study of IS. This legacy is not just apparent in the razzmatazz of glossy advertisements and in the tuition of various issues surrounding the relationship of the computer to information systems and its appropriate treatment. This legacy is also a cornerstone of a quest for solutions that are brought about through the power of the computer. The unrelenting pursuit of the ideal solution to problems leads many to the assumption of 'fighting the last battle'; if only computers were treated appropriately, then the obstacles to an organized treatment of information systems will be achieved. Yet, that this last battle creates new and unanticipated problems indigenous to the current IS-thinking and -practice goes often unnoticed. The confidence to be within reach of solutions clouds the recognition of the fallacy of 'the last battle'. The conviction to be in possession of the key to solutions creates a tunnel vision that prevents reflection. In such a secluded world the messy reality of information systems must appear as a nuisance, which would rather be eliminated. Peter Neumann, thus, comes to the conclusion that "People are the ultimate problem" [1990a].

Something has gone terribly wrong! The rather unreflected support that information systems receive, has not prompted a critical investigation of information systems, but an establishment that denounces the 'outsiders' as the

'ultimate problem'. It is not surprising that the outsiders are reminded of a brave new world where self-appointed experts try to dominate a despised public. Quite apart from a professional and scientific debate, feelings are articulated that question information systems as the virtuous paradigm it is often portrayed to be. Yet, this uneasiness is not met by a staunch defence of well-grounded theory. Indeed, within the study of IS a frantic succession of acronyms with corresponding research programmes struggles to come to terms with what is called 'information system'. Respectability is preserved by pretending that the newest developments are, like 'the emperor's new clothes', indeed magnificent. But, I think they are not. I question the way in which information systems are paraded. I question the casual treatment of information systems in the study of IS, as if a theory of information systems had been established and only further refinements and new areas of application had to be found.

Information systems are a recent addition to society. A conscious treatment of information systems as such has emerged only within this century, even though some theories imply that information systems are a matter of identification and, thus, have always been with us. Because of the penetration of the economy by computerised information systems, there is a tendency, though, to mistake installations, products and services as all there is to 'information systems'. As a consequence, information systems are often seen as something objectively existing. They are explained to be computer networks, or computer networks plus a social environment, or social systems with technical components, etc. It is not surprising that no general consensus about the meaning of 'information system' has evolved. One of the tasks of the study of IS is to take account of this ambiguity of interpretation, to recognise developments, to organise experiences and to formulate theories in order to come to terms with a future that reverberates with the consequences of today's thinking and practice.

The history of mankind is full of examples where transformations of society were impending, as with the introduction of fire, stone-tools, iron-melting and also more recently the clock, the steam-engine and electricity. The uncertainty about the consequences of these transformations invariably led to speculations about possible future scenarios. Prophesies of doom as well as glory were aired, as for instance when it was believed that travelling on a train makes women pregnant or that electrical shocks can increase potency. Yet only with hindsight can an assessment be attempted that gives perspective to events. However, even these *ex post* assessments are subject to re-interpretation, and, therefore, just as much liable to disproof as those explanations that were given at the time of transformation, as for instance in the case of the re-emergence of (interest in) cargo ships driven by sails.

The history of the recent rise of information systems is similarly characterised by uncertainty about possible consequences and insecurity about choices which can be made. What is an information system, how should we deal with it, is it a matter of definition, etc. When a lap-top computer is stolen, as happened recently in the case of an army officer briefing the British Government about military strategies in the Persian Gulf, is this incident to be considered as a part of an information system, is it a problem that can be foreseen, are break-downs a necessary property of any information system, or is such an incident a human weakness outside the scope of the study of IS? When a computerised information system goes down, who is accountable: the user, a hacker, the operator, the designer, a virus? When it became apparent that the ambition of the Japanese Information Processing Developing Center to launch the creation of the Fifth Generation of computers did "not come to much" [Manchester, 1991], what light did that shed on information systems? Were the goals wrong, did the engineers fail, was co-ordination mismanaged, did the funds not suffice, was the entire project ill-conceived or based on inappropriate assumptions?

No obvious answers can be given to all these questions. Neither at the time of action nor with hindsight can a general explanation be given. However, opinions exist concerning these incidents, and they are seen as being dependent on assumptions, beliefs, Weltanschauungen, cognitive maps, etc. A whole series of social issues is cited whenever the success or failure of information systems are concerned. Questions of the social construction of technology as well as systemic considerations about the interdependence between equipment and the corresponding 'working' of its social environment are discussed. By extension information systems are seen as social systems where technical components play a part, but not necessarily a decisive one. Many methods in the study of IS try to accommodate social issues, making the study of IS appear to be a simple mix of hard science with some ad-hoc soft science.

But Liebenau and Backhouse claim that "casual borrowings, cavalier attitudes and amateurish eclecticism, resting uneasily on the solid but inappropriate foundation of computer science" [1989] are not enough to make the study of IS a discipline in its own right. What is needed is a study of "the context of information, problems of meaning, appropriate syntax, and information handling and digesting capabilities" [ibid.]. They advocate sociology and semiology to tackle those tasks, because these disciplines seem to yield the most appropriate results. The claim to appropriateness of these disciplines stems from the proposition that information systems are social systems, and that social interaction and organisation are the hallmarks of the exchange of information. They see the misguided emphasis on technological aspects as a reason for a critical failure of the study of IS.

The study of IS, they argue, has to address and analyze issues that are of concern to social interaction and organisation in order to make valid statements about what happens in information systems. It is claimed that only an analysis by means of the sociology of knowledge, which gives insight into what, how and why people know, and by means of semiology, which explains what, how and why they

communicate information, can achieve this. This proposition entails that explanatory frameworks of technological provenance are to be complemented or even replaced by those of sociological and semiological provenance. This shift from a technological to a sociological study of IS would amount to a change of scientific foundation. The means by which scientific knowledge is derived in the study of IS would be changed. The 'can-do' attitude of technological optimism would be exchanged for a sociological assessment of what can reasonably be expected from a social whole. The design of brilliant machines that support apparent needs would be subordinated to the analysis of human behaviour, of the social construction of meaning and needs, and finally the assessment of how technical equipment can support a desired system of human behaviour. With this change, the study of IS has the chance to assess its own epistemological basis.

Technological and sociological epistemology have a different tradition. In this research, these traditions are relevant rather than particular disciplines that evolved from these traditions. Technological theory does neither refer, in this dissertation, to mechanical engineering nor to computing, but to an approach that stresses the objective nature of the human predicament. Sociological theory, in turn, does neither refer to sociology nor to anthropology, but to an approach that stresses the social nature of the human predicament. The change in epistemology does, therefore, not refer to the difference between an epistemology of mechanical engineering versus sociology, but between an epistemology of a technological versus a sociological study of IS.

This dissertation will introduce the concept of ideology to the study of IS, because it is seen as a meaningful consequence of the proposition that information systems are social systems, as well as a means of coming to terms with the notion of 'information system'. As mentioned above, many social issues are being accommodated into the study of IS as a consequence of the move to account for empirical evidence that is relevant, but supposedly intractable by a technological

approach. This development, though, has not led to a coherent re-orientation of the study of IS. The concept of ideology could be a tool for such a re-orientation, because it is a comprehensive concept that can account for the multitude of social issues that are relevant to information systems without 'borrowing casually' or being 'eclectic'. Consequently, it can be used to attempt a general assessment of the power of the heralded re-orientation of the study of IS. The novelty of this attempt lies, therefore, not in pointing out new empirical evidence, but in the comprehensiveness with which empirical evidence can be discussed.

Together with the introduction of the concept of ideology to the study of IS comes a body of literature that dates back further than the current literature on social issues in information systems. This literature is developed professionally in the sociology of knowledge, but also in related disciplines such as the philosophy of science and anthropology. A result of the application of this comprehensive wealth of scientific knowledge is that aspects of the concept of knowledge will be discussed that are foreign to technological theory.

The fact that sociological investigation in itself reflects the investigator to some extent draws attention to the reflexivity of such scholarly activity. In a sociological approach to information systems, knowledge cannot be treated as an object, represented as being input or output. Reflection within a social whole has to be acknowledged to influence knowledge within as well as about information systems. It has to become part of the study of IS, in order to account for the feed-back to which the study of IS is subjected in all its attempts to come to terms with information systems. The supposedly inappropriate certainty of a technological study of IS is replaced by the supposedly appropriate uncertainty of a sociological study of IS. As a consequence, it will be argued in this dissertation, that knowledge, whether technological or sociological, has to be complemented with nihilistic thinking in order for us to come to terms with information systems.

Nihilistic thinking, it has to be said, refers in this dissertation to an established body of philosophical thought. Contrary to the british usage of the word which conjures up images of bomb-throwing russian radicals, the german usage of the word refers to its philosophical meaning. The central position it gives to the idea of *transvaluation* is its most distinguishing feature. As such it addresses a variety of arguments that are relevant for the synthesis.

A discussion of the notions of 'information', 'system', 'information system' and 'ideology' will indicate the position taken in this dissertation. The notion of 'information' has a very wide meaning. Independent from conceptualisations which try to link up information within an arbitrary hierarchy of data, knowledge, wisdom, etc. [e.g. Stonier, 1983], it is understood to be a term that allows discourse about the effect of human interaction within social organization. Homologously, the notion of 'system' is not unnecessarily caged in order to attain a meaning which is free from definitive limitations and which can be sustained in the face of evidence. 'System' is not a mechanistic, organismic or social network of structure, but rather an abstract and philosophical term, which enables discourse about ill-understood phenomena of a quality beyond human comprehension, that are addressed as a 'whole' [Straub and Angell, 1990]. The particular case of an 'information system' is, then, not a sub-system, as the motor might be considered to be a sub-system of a car, but rather an ill-understood social organization (as interpreted by the effects of human interaction, of a quality beyond human comprehension), that is to be addressed as a 'whole'. In this dissertation, 'system' and 'information system' will be used almost synonymously, because the differentiation between system and information system borders on the arbitrary when considering how discourse about both concepts evolved. The tradition of 'system' is bound up with the explicit treatment of information, and the tradition of 'information system' is bound up with the explicit treatment of system. They share a systemic nature, yet they differ in the way in which an information systems

will be treated as a manifestation of human interaction, while system will refer much more to a theoretical concept.

Finally, the notion of 'ideology' renders a vehicle for human comprehension, that makes discourse (about information systems) meaningful. As will be argued in chapters three and four, the concept of ideology can be taken to account for the constitution of knowledge. This is particularly interesting and relevant in the study of IS, because of the critical position of knowledge. On the one hand, knowledge *about* information systems is discussed in the study of IS. On the other hand, knowledge is a pivotal issue *within* information systems. The connection of ideology with information systems reconciles the difficulty that one does not 'really' know what 'information', 'system' and 'information system' are, with the fact that we all have our own implicit 'working definitions' of these terms. Ideologies allow us to connect notions like information and system, which border on the incomprehensible, to an overall understanding that we have of the world. As a consequence, a discourse can evolve despite the underlying scepticism about limitations of our knowledge.

These are very philosophical considerations. Yet, in order to assess the epistemological basis of the study of IS, such an approach is justified. Especially, the incorporation of social issues into the predominantly 'hard' study of IS, highlights the point that these changes are a matter for the philosophy of science. Yet, these changes concern very practical common sense problems. The recognition of context sensitivity [e.g. Poulymenakou *et al.*, 1990] stresses that there is more to information systems than meets the eye. There are no obvious, universal features of information or system, or for that matter any other phenomenon within the study of IS. Efforts to come to terms with information systems are perpetually challenged by circumstances. It is, therefore, valid to say that the notion of system conveys a recognition of vagueness. The above description of the 'notion' of an information system tries to make a reasonable

statement about our epistemological limitations when it comes to capture the meaning of the term information system in a multi-disciplinary enterprise like this dissertation.

Multi-disciplinarity poses generally a challenge to meaning, because of the different worlds of discourse that are convened in order to come to terms with a topic. In the study of IS additional problems arise because of reproaches of eclecticism, unsound evidence and a shift in the approach from a technological to a sociological approach. The attribution of meaning becomes, thus, an activity which requires attention to profound ambiguity.

The beauty of the concept of ideology, though, is that it renders an explanation why, nevertheless, temporarily stable meanings evolve in IS-thinking and -practice. This dissertation will demonstrate this and show the implications of such an analysis. Such an analysis and explanation, however, cannot be obvious or universal, let alone complete. The concept of ideology itself is epistemologically limited. The understanding derived from its application to information systems is again ideological. Nevertheless, the richness and profundity of insight which the connection of ideology and information systems renders is significant, because it helps to show that handling knowledge requires nihilistic thinking which is not afforded by knowledge. It encourages us to exploit our doubts about trends in the study of IS rather than to fear them.

In an attempt to capture the richness and profundity of these insights, a "thought experiment" [Kuhn, 1977] will be set up to address the question of the explanatory power of a 'social concept' in the context of information systems. Not only will the concept of ideology be shown to 'create' new knowledge, but it will also be applied to the study of IS, as if the study of IS was itself an information system of some kind. The thought experiment is cast into a dialectical mould (refer to chapter two on method), since it is pointless to try to 'prove' the establishment of

the connection between ideology and system in particular by means of an objective framework. After all, the thought experiment is set up to argue the case of 'ideology and information systems', rather than to impose a 'scientific fact'. It is recognised that it is impossible to give a complete and universal account of ideology and information systems. The thought experiment has, therefore, to be understood as a part of an on-going debate about this topic.

Thesis, antithesis and synthesis are the three parts that constitute the dialectical method. They represent positions taken in a discourse. All three parts argue hypotheses that reflect an understanding of the relevance of ideology for information systems from a limited perspective of human comprehension. It will become clear in this dissertation that all three hypotheses are ideological; therefore, the thought experiment is cast into the dialectical mould, because this allows us to acknowledge the ephemeral understanding that a treatise like this dissertation can render.

A rudimentary understanding of what constitutes an ideology was the initial driving force for this research. A more thorough investigation into the concept of ideology was started in order to find out whether it can explain problems of IS-thinking and -practice, and perhaps even give hints as to how these could be overcome. This investigation resulted in a recognition of the apparent possibility to overcome the conflict between, on the one hand, the ambiguity of evidence drawn from IS-practice and, on the other, the relatively free use of theoretical concepts in spite of it. Consequently, this research is sociological in so far as it uses the concept of ideology. Yet, as is apparent from the argument above, this research is really an investigation in the field of information systems, because the concept of ideology is juxtaposed with the concept of system and especially the concept of information systems, as a consequence of common sense IS-thinking and -practice.

This investigation into the consequences of the introduction of the concept of ideology to the study of IS requires a close look at three subject areas: science, ideology and system (especially information system). The first part of the research will attempt to show that these three subject areas are in fact connected. It is established in the sociology of knowledge that science and ideology are connected [e.g. Barnes, 1985]. It is established that science and system (and information system respectively) are connected [e.g. Checkland, 1981]. What is not established, though, is that ideology and system are connected. In chapter three the former two connections will be presented in a way that will prepare the understanding of how the *third connection* from system to ideology can be constructed. The study of IS will be shown to be a study in the scientific tradition as outlined in chapter three. The critique of science as an ideology will be extended to the study of IS, and its subject matter will be shown to be amenable to ideological analysis. In chapter four a summary will be given which will conclude the introductory, descriptive part. A 'working definition' of the concept of ideology will be given which allows the thought experiment to be carried out.

This working definition singles out four hallmarks to characterise the concept of ideology. Firstly, an ideology is conservative, i.e. the experiences of a person are conserved into a coherent ideology. Secondly, an ideology propagates itself, i.e. the experiences which formed the ideology exert their influence on a person's future behaviour. Thirdly, an ideology appears to be reality, i.e. since all experiences form an ideology there is no experience outside this ideology. The totality of a person's experience is, therefore, his ideological reality. Fourthly, an ideology is reflexive, i.e. the experience of an ideology is again ideological, because there is no single foundation on which ideologies rest. These four points of the working definition of the concept of ideology taken together mean that the concept of ideology is generally relevant in all circumstances where certain points of view are adhered to, where clashes occur, as they so often do in social interaction

(concerning and surrounding information systems), and where these clashes are explainable as a consequence of varying perspectives.

The body of the dissertation, that is part II, is attributed to the thought experiment. The thesis in chapter five states that the establishment of the third connection between ideology and information systems is possible and meaningful. This means that 'systems ideologies' exist, which account for the existence of different opinions of people and the consequent clashes, and for an 'IS-ideology' coincides with the existence of the hermetically sealed world of the study of IS. Thus, an important differentiation is introduced which will be used throughout the dissertation: 'IS-ideology' refers to a *collective* phenomenon of the IS-community, whereas 'systems ideology' refers to an *individual* phenomenon. While individual 'systems ideologies' exist within information systems, a collective IS-ideology exists about information systems in the study of IS as a coherent enterprise. The discussion of the consequences of this thesis in chapter six will draw on some examples to clarify the argument of the thesis. The aim is to present the problem domain and to enable an assessment of the thesis. The antithesis in chapter seven states that the establishment of the third connection is possible and meaningful, but only within the study of IS. This statement is in conflict with the thesis, because it argues that the application of the concept of ideology to IS-problems does not lead to the desired increase in knowledge about causes and effects. It will be argued that scholarship is an intellectual representation of '*Alltag*', and that, therefore, 'systems ideologies' are only abstract concepts. The discussion of the antithesis in chapter eight will point out the differences and stress similarities to the argument of the thesis. In chapter nine the synthesis takes up the argument about the possible existence of the connection between ideology and information systems. The ideological nature of thesis and antithesis is recognised and a consequent acknowledgement of the synthesis to be ideological creates a hypothesis about information systems that takes this limitation *explicitly* into account. The synthesis argues that neither of the two possibilities to interpret the

connection between ideology and information systems as presented in thesis and antithesis do lead to superior action on the basis of superior knowledge. After an assessment of the structure of the arguments of thesis and antithesis it will be argued that nihilistic thinking has to complement knowledge in order to lead to the recognition of 'inappropriate' IS-thinking and -practice.

There is a wide range of possible results to this thought experiment. In the synthesis it could be argued for the concentration of the study of IS on technological, ideological or methodological matters. It could be argued for the complete disbandment of the study of IS into component disciplines. It could be argued for a complete domination of the study of IS in any matter which is of systemic nature. Or it could be argued for the futility of scientific investigation altogether. Yet, it is neither the aim of the synthesis to decide whether or not the connection between ideology and information systems can be established, nor to create superior knowledge. Its aim is to *formulate* a wider perspective which will allow us to discuss problems arising out of the differences between thesis and antithesis. Many such perspectives are possible. In this dissertation, though, only one perspective will be presented. To argue about different perspectives, which could be a potential synthesis to the conflict between the thesis and antithesis of this research, is an area for further research work.

Finally, reaching the conclusion of this research will necessitate the assessment of the implications of the thought experiment. This assessment will highlight the implicit conflict of a critique of science in a scientific treatise, as well as the fateful ambiguity of the chosen topic of ideology and information system. The question of self-transcendence and reflexive conservation, which features *within* the thought experiment, is repeated for the evaluation *of* the thought experiment. This entails a view on the whole research and its relevance in not just the academic, but a personal context. The question of further research becomes, thus, an evaluation of this research.

Our uncertainty and insecurity with respect to computerised information systems has not been eased by the introduction of social issues into the study of IS. Computerised information systems are still a challenge to management, budgets are still not met, promises are still not fulfilled. As this dissertation will show, the wholehearted embracing of sociological theory, motivated by an attempt to make the study of IS truly multi-disciplinary, necessitates the acceptance of sociological method. As a consequence, the study of IS is subsumed in a tradition of social and societal learning that defies the often simplistic answers and solutions which characterise the application of technological theory to information systems.

2. METHODOLOGY AND METHOD

Two major influences set the tone for the discussion of appropriate method for this research and for this dissertation. On the one hand, there is the general ambiguity which besets attempts to close in on a more thorough understanding of what an information system is and how related phenomena are supposed to be interpreted. On the other hand, there is the problem of multi-disciplinarity and the shift in emphasis from technological to sociological theory. These two influences do not allow methodological complacency. It is neither appropriate to bury one's head in the sand, hoping that the question will not be of major importance, nor is it appropriate to pick just any method in the hope that an accepted method will elicit appropriate results. Both strategies would be calamitous in this enterprise, because the contribution of the research is not a matter of progressing within an accepted framework, but an attempt to assess and discuss critically the possibility and the implications of a change of framework. Therefore, methodology and topic of this research go hand in hand, and the methodological discussion within this chapter clarifies the scope and validity of the research and its results.

As demonstrated in chapter one, sociological method has to feature prominently in this chapter, as it reverberates throughout the dissertation. Yet, this is not a dissertation in the field of sociology, but in the field of information systems. Questions about, for instance, the performance of a data-base are not only relevant on a sociological level, as is the aspect of integration into a social context, but also in terms of response time, which is a technological aspect. Similarly, questions about natural language processing are not only problematic in terms of the different use of language depending on social differentiation, but also in terms of transmutation of language into computer-accessible code. The particular twist of this research is that these problems are approached as if the technological aspects of information systems were socially determined if not socially constructed.

Thus, the methodology of this research will reflect this social imperative in its discussion of method.

The topic of appropriate research method appears to be rather neglected by the general IS-community. There have been attempts to start and encourage a debate in this field [Mumford et al., 1985; Galliers and Land, 1987; Walsham and Han, 1990; Wand and Weber, 1990] but these have not yet succeeded in penetrating profoundly into the world of IS-thinking let alone IS-practice. The acknowledgement of a justification for a plurality in research methods is often confronted with the entrenched practices of different scientific traditions. The orientation towards multi-disciplinary is, thus, often hampered.

The great variety of analysis and design methods, which are often labelled as methodologies, has not sparked off a similar amount of literature concerning 'pure' research methods in the study of IS. Especially with respect to multi-disciplinary research, no coherent body of methodology concerning research into information systems has evolved. Tacit assumptions, nurtured by years of education and experience, generally guide research. The article by Liebenau and Backhouse, which was referred to in chapter one, highlighted this inadequacy. The shift from a technological to a sociological nature of investigation necessitates a break with the tradition of technological research methods. There seems to be no alternative, therefore, for a research which is guided by social issues than to draw on the tradition of sociological theory. Research in information systems will have to develop an IS-methodology starting from sociological methodology.

The following paragraphs will discuss sociological methodology as it is relevant for this particular research. Generally the necessity to consider the question of method only arises because of the intention to clarify the essence of the research in some form. In the case of Ph.D.-research the form is a dissertation. This kind of presentation has to support the argument by giving an appropriate structure to the

elements of the research. It has to take into account that the process of clarifying results is a social process and, therefore, subject to the same forces as the topic under investigation. The variety of social phenomena has led to a similarly great variety of interpretation. What 'appropriate' means in this context is heavily debated.

In the scientific discussion about appropriate scientific method opinions differ enormously as can be seen from the limited selection of points of view given below. Questions of method are perceived by some to be pivotal in a sense that "the unity of all science consists alone in its method, not in its material" [Pearson, 1911, p.12]. A point of view given by Rice is that methods "are *aids* to observation or inference. Hence, they are almost infinitely varied, as the data to be dealt with are varied" [1931, p.5]. Nevertheless, he insists that methodological reflections are an important part of scientific work, because they justify a scientist's concepts and assumptions as part of his methods. Yet, methods are also seen as very problematic, especially for scientific work which tries to give new contributions to the field, because they do "not attempt to formulate general scientific ideals for the future" [Znaniecki, 1968, p.vii] and, thus, rather stifle scientific progress. The question has to be asked whether the application of scientific method does indeed induce scientific stalemate. The discussion of scientific method is enhanced by some by the introduction of a social dimension. Method becomes a vehicle for scientific power-play. Indeed, one proponent who explicitly attacks methods as dangerous is Feyerabend [1975]. In his opinion rules and standards restrict any scientific activity to the known or desired, suppressing opposing ideas and views, establishing power over knowledge. He writes: "those who admire science and are also slaves of reason ... have now a choice. They can keep science; they can keep reason; they cannot keep both" [Feyerabend, 1978, p.16]

This wide range of opinions about scientific methods implies that the question of method cannot be answered categorically, but has to be negotiated individually in

the context of the particular enterprise. A particular research enterprise has a particular topic, a particular author and follows a particular method. All three issues are intertwined and subject to social influences. Each issue is negotiated throughout the research enterprise, partly by design and partly by consequence. Attempts to approach the question of method methodically are, therefore, technical guidelines to an assessment of methods that fail to address the social nature of scientific research. A positivistic focus on observable features precludes an explicit treatment of the vagaries of a research enterprise that stem from its social nature. Conflicts in terms of hypotheses, research material, personality, etc. cannot be accounted in such an attempt.

A brief look at one of the major contributors to the theory of sociological method supports this point, because it introduces the one critical element that is lacking from so much of research in information systems: the role of the researcher. Giddens states that a method "is not a guide to 'how to do practical research', and does not offer any specific research proposals" [1976, p.8]. This proposition is taken up for this research. The specificity of a research enterprise does not stem from a chosen method, nor does it stem from the chosen topic. It stems form the individuality of the researcher. As the author of the research enterprise he tries to mediate method, topic and his intervention to some extent, and finally he creates the result. Methodological considerations are, therefore, just as much an expression of the researcher's self as his chosen topic. Research in information systems is always a process by which a researcher takes a position with respect to reality as he sees it. Hence, it is agreed that "anyone who recognizes that self-reflection ... is integral to the characterization of human social conduct, must acknowledge that such holds also for his own activities as a[n] ... 'analyst', 'researcher', etc." [ibid.]. The results of research into information systems are, therefore, bound up with the Weltanschauung of the researcher. Yet, self-reflection does not necessarily have to produce a 'rationalisation' of one's actions. There is more to human conduct than could be expressed rationally, nor is it

necessary to give rational descriptions. Therefore, Giddens' proposition "that social theory must incorporate a treatment of action as rationalized conduct ordered reflexively by human agents" [ibid.] cannot be accepted. The very problem of ambiguity surrounding information systems on a societal scale points to a richer picture than 'rationalisations' can paint.

Neither can it be accepted that social theory "must grasp the significance of language as the practical medium whereby this [treatment] is made possible" [ibid.]. Despite the importance of language as a means to communicate 'rationalisations', language is, therefore, not taken as 'the practical medium' of scientific research. Researchers in linguistics argue that it is impossible to pin-point language as a concept [e.g. Downes, 1984]. Indeed, "the dominant mood among linguists seems to be one of caution about the applicability to linguistic science of any single simplifying concept" [McCormack and Wurm, 1978, p.3]. That Giddens advocates language as the 'practical medium' for research seems, therefore, to be part of the tradition of sociological method, as it has developed over time, rather than to be a consequence of an intrinsic property of language. Completely different perspectives to go about research are at hand which would be forfeited if such a limited proposition was taken up. Taoism, for instance, stipulates that "the Tao that can be expressed in words is not the eternal Tao" [Reese, 1980, p.567]. The insistence on a conscious treatment of language in sociological method is, thus, in conflict with Taoism, which rejects language as a medium for the attainment of truth. Hence, since no area of the human predicament should be ruled out prior to the investigation, no intentional limitation in terms of 'practical medium' is adopted. This research is interested in the challenge posed to information systems and our ways to cope with them that are brought about by diversity in a profoundly varied world.

A method can very well be described as a means for the rationalisation of a research enterprise, which finally leads to the presentation of results. But this

rationalisation is only necessary exactly because scientific work is not rational; otherwise a rationalisation would not be necessary. Scientific work can be described essentially as a social process just as any other activity. Rationalisations of scientific activity are, thus, governed by social rather than scientific forces. Bloor argues that "ideas of [scientific] knowledge are based on social images, that logical necessity is a species of moral obligation, and that objectivity is a social phenomenon" [1976, p.141]. This argument reinforces a point made earlier about this research and its topic. The perception of information systems is biased by social forces that govern perception. Research into this phenomenon is again subject to these social forces. Thus, the question of intentionality arises as an answer to the question of method, because scientific activity, the topic under investigation and the presentation of results are so strongly intertwined by the shared social context. The question that governs the choice of method is, therefore, what intention is governing scientific work and the presentation of its results?

The results of scientific work are supposed to make a new contribution to an established body of scientific knowledge. Consequently, scientific activity is supposed to be free and unrestricted. It cannot be foreseen at the outset what the result of a scientific enterprise will turn out to be. A research method, on the other hand, if it is supposed to guide the research toward the achievement of particular results is a contradiction in itself. An appropriate research method can rationally only be selected with hindsight, because the result becomes apparent only at the end of the research. Selecting a research method before starting the research belies, therefore, the aim of research. Yet, even discussing the appropriateness of a research method after the result has been obtained is irreconcilable with scientific research, because the result would have been different if a different method had been applied. The entire research work would have been altered and with it the result.

This reasoning can be clarified by giving an example from the study of IS. If an electronic mail system is tested on transfer time, a test can be set-up whereby through statistical means a numerical result will be obtained. This result should be verifiable anywhere if the set-up was successful. This is a technological method. However, if this electronic mail system is investigated along a social dimension, for instance, user satisfaction, then the set-up of a research environment will affect the way people respond. The selection criteria, the elicitation process, etc. will all affect the scope and validity of the results of the investigation. From a sociological point of view, information systems can, therefore, not be investigated as if they were technical and not affected by social influences. A research objective, for instance, is necessarily an influence on the research, because the people involved respond in some way or the other to the research set-up. This can manifest itself in super-correct working-practices, in attempts to circumvent the set-up, in an artificial activity which is designed to please, or, in the case of covered investigation, in suspicion and defensive behaviour. Verifiability is, therefore, not a matter of attaining particular figures on a scale of an experimental set-up as in the case of technology. The scales of the experimental set-up change during the experiment. Attainment in itself becomes questionable as a result. Verifiability has, therefore, to acknowledge the social influences that feed back into any experimental set-up.

Another aspect of this problem, which is more relevant for this research, because it is a consequence of this difference in the understanding of verification, is the effect an intention or an objective has on theoretical research. As mentioned above, sociological methodology argues that research activity, researcher and topic of research are closely intertwined by the social forces that constitute the texture of any scientific enterprise. Taking on board this understanding, the question of intention governing results emerges. It would be very surprising indeed to find a researcher, who is known to have made a name for himself with the discovery that predominantly social forces decide about success and failure in information

systems, suddenly to discover that technical details outweigh social forces in importance. Similarly, it would be surprising to find a researcher discovering the futility of planning after a life-long career based on the understanding that without planning sensible IS-practice cannot happen. This is not to say that researchers do not change their opinions, but nevertheless it remains an important point that the result of research seems to be subject to intention in many cases.

This research was not started with a particular intention, but to carry out research. The direction of research changed considerably over time. The issues of potential importance surrounding 'ideology and information systems' are so diverse, that many were interesting enough to be pursued. In fact, many issues were pursued, ranging from discourse analysis to technology transfer to developing countries, using the freedom of academic research maybe as a fig-leaf for an implicit lack of intention. No research method was followed consciously, because no particular objective was set. The entire research was a large adventure in observation, literature, practice and thought.

Writing this dissertation, though, was a different matter altogether. It is a purposive activity. An argument has to be presented. This argument is the 'result' of the research. Usually it is only but a fraction of the entire research work that goes into the argument. But exactly this twofold limitation, on the one hand, of changing from a rather intentionless research to purposive writing and, on the other hand, of 'distilling' a rational argument out of the research, leads to a rationalising reflection on the work done, in order to create a scientific treatise. This is where the question of method must not be neglected, because now a purposive activity with an objective of writing a 'good' dissertation precedes and accompanies the actual activity of writing. It is very difficult, though, to talk of a consciously controlled activity when referring to writing up a dissertation. Not only is there an enormous amount to be written, but also the very process of writing is influenced in a very complex way. For speech, such influences are analyzed in

sociolinguistics. For writing maybe literature study could serve as a model for methodological considerations. For this dissertation the writing up constituted indeed a decisive part of the research enterprise. Writing and re-writing structured the research material from an initial attempt to present a result to a final version. In so far as this can be called a method, writing up actually contributed to the research.

Taking up Giddens' quote that a method is not a guide on how to write, methods may better refer to how to present a scientific result; how to communicate in a convincing way whatever is supposed to be said, in accordance with the experience of the research as well as the 'standards of science'.

In this dissertation the case of 'ideology and information systems' is supposed to be discussed. Is it possible to construct a systems ideology, and is it sensible? Arguments pro and contra are presented. Consequences are discussed and implications are pointed out. But what method is appropriate for such a discussion? The following paragraphs will give an indication as to what ideas are relevant for the research method of this research.

Agreeing with Protagoras of Abdera (480-410 B.C.) when he said that the measure of everything is man, the chosen method should not claim to be vested with inherent validity. Neither should the method claim that everything which can be said is wrong, as Gorgias of Leontinoi (480-375 B.C.) argued [Praechter, 1926, p.122]. The method should allow for a discussion where the argument can be presented to the benefit of the reader, rather than to his instruction. In addition, the assumption, attributed to Socrates (470-399 B.C.), that people like to look at their beliefs as true, whereas they are only authentic, should be accommodated. In his opinion, truth depended on intersubjective agreement, whereas the authenticity of beliefs was achieved without any intersubjective mediation. Socrates pronounced those as tolerant who reflect on their knowledge and recognise that

either their knowledge is true, as in the case of it being intersubjectively shared, or it is only authentic belief, as in the case of it being personal. Since this dissertation is a form of intersubjective mediation, its aim is to get the reader to reflect whether the thought experiment influences his beliefs [Lay, 1989, pp.19-22].

Real tolerance has to acknowledge that all points of view are subjective. Thus, a person is not tolerant when he accedes, out of a feeling of superior insight, the fallibility of other points of view. A sensible discussion must take account of this. It entails that the arguments are discussed with reference to the context of the discussion. For Socrates, this meant that it is important to know oneself (*gnothi seauton*) and to develop a method which enables meaningful discourse with other people, based on self-understanding. The dialectical method supports this discursive imperative, by adopting a conversational, i.e. dialectical, form.

Assuming that a discussion is never an argument between a right and a wrong point of view, but always an argument between two similarly uncertain points of view suggests that the result of the discussion should be mutually acceptable. Thus, two points of view get resolved into a third, which both parties can support. This combination of points of view forms a triad, which Fichte called: thesis, antithesis and synthesis. The acceptability of the synthesis is not context-free, though. It is dependent on the parties involved at that time and holds for them some truth. For other parties or in different circumstances it might not be acceptable. For the time being, though, it establishes for both parties a superior basis for action.

The driving question of the research was whether systems ideologies exist. During the research, however, doubts prompted research into the direction of the antithesis; i.e. systems ideologies do not exist. Researching this conflicting point of view was impossible without learning what assumptions went into the formulation of the initial point of view. The research, therefore, had to take a critical look at both arguments. This learning process necessitated a self-analysis, which is what

Socrates meant by *gnothi seauton*, because thinking about the research meant thinking about its justification which is firmly vested in the author. Social forces cannot take on the responsibility for the argument presented. During writing up, these issues became explicit, and the structure of the dissertation followed suite. At this point it became apparent that the dialectical form, as described above and as it evolved over time, is the ideal vehicle to show this conflict of points of view, expressed in thesis and antithesis. The synthesis is, therefore, as much the outcome of a critique of the thesis and the antithesis, as it is a self-critique. Writing the text meant becoming the devil's advocate in order to make the case of systems ideology in thesis and antithesis, while the synthesis reflects the 'result' of the research.

Writing the dissertation is, thus, a "systematic interpretation" [Couvalis, 1989, p.32] of the research. This means that all arguments derive their validity from the author. The structure of the dissertation is meant to put the reader into a position to grasp this. Therefore, the dissertation is separated into three parts: introduction, thought experiment and conclusion. The thought experiment is the 'summary' of the research, i.e. its scientific yield, whereas the introduction and the conclusion describe the 'thought environment' of the thought experiment in order to make it possible for the reader to familiarise himself with the research. Part I of the dissertation is laid out in a prologue, which introduces ideas pertinent to the research, a methodology, which introduces ideas pertinent to the dissertation, a historical account, which introduces ideas pertinent to the argument, and a summary. The historical approach to the ideas of the argument was chosen because "the contribution of history is *perspective*" [Landes and Tilly, 1971, p.6]; in this instance, the author's perspective. As discussed above, there is no single true knowledge and only the author is a source of justification for this dissertation. In order to clarify the evolution of ideas pertinent to the dissertation the historical account was chosen, since "the study of any other branch of knowledge may begin with origins, but not that of history. After all, our historical pictures are, for the

most part, pure construction" [Burckhardt, 1943, p.18]. In part II, thesis, antithesis and synthesis represent different stages of self-understanding as well as a different understanding of the literature and its relevance for the practice of the study of IS. Using the dialectic method, as described above, to present this progress is supposed to clarify the ideas of the research in a way that makes them 'communicable'. The chosen method serves the twofold purpose to present an argument derived from research and to satisfy scientific requirements. It gives the opportunity to present different and conflicting opinions, held by the author over time, as well as the author's attempt to resolve the conflict. Examples from IS-practice are introduced to connect the rather philosophical argument with reality. In part III, the reader is invited to think about the value of the thought experiment. The dissertation is, thus, characterised as an individual effort in the wider context of scientific research.

The question of research method could be described as the problem of bringing the right information in the right form from the right sources to the right recipients. The analogy to (management) information systems is striking, and it is, therefore, disappointing that the question of research method has not attracted more attention within the IS-community. After all it is an ideal opportunity to try out theories on 'home ground' before applying them in other fields. Perhaps it is the most characteristic technological feature of the study of IS that as long as installations, products and services can be devised and sold, no alternative path is taken with respect to methodology. Only if a 'better' product, a 'better' analysis method or a more 'successful' installation can be produced, only then has research the power to convince. This chapter showed that this is a very peculiar point of view, where, in typically technological fashion, the researcher and the research community are not taken into account explicitly. The thought experiment is supposed to show that conflicting views about information systems can very well live side by side, just as information systems display conflicting features. The commitment to the interpretation of information systems as social systems is, thus,

reflected in a sociological treatment of the topic. Such an investigation acknowledges the role of the researcher as well as the existence of conflicting strains in individuals. As it will be argued in the synthesis, the capability to reflect on such conflicts determines whether ideologies can be checked and counter-balanced.

3. HISTORICAL ACCOUNT OF SCIENCE, IDEOLOGY AND SYSTEM

INTRODUCTION

The computerised information systems that are employed today are the result of a historical development of the sciences within a developing society. The study of IS is part of this development, on the one hand, providing explanations that can be transformed into products and services and, on the other hand, investigating causes and effects relevant in connection with these products and services. These activities happened in a societal context which supplied theoretical models as well as practical problems. The study of IS did not just suddenly appear. The success story of the British Secret Service, employing Alan Turing and other scientists, in order to crack the code of the german ENIGMA-device during World War II is, therefore, just as much relevant history to the study of IS, as was Big Bang in the City of London, the development of scientific practice or the fervent debates in the study of artificial intelligence.

Especially when considering the differentiation between the study of IS and the study of computing, as it is common in the anglo-saxon tradition, it becomes apparent that the search for position in relation to established sciences is not finished yet. The ever stronger orientation toward the social sciences within the study of IS makes a reflection on the roots of the current study of IS important for the discussion of epistemological questions.

The introduction of the concept of ideology and its further development were criticising the scientific tradition in a way similar to the thrust of criticism evolving in the study of IS. The concept of ideology was used to shape a new understanding of sociology. Likewise, the attempt to incorporate sociological methods into the study of IS is accompanied by the opportunity to use sociological methods to justify this incorporation and to attempt a critique.

The target of the critique, i.e. the tradition of the study of IS and the form of IS-thinking and -practice it has led to, appears in a new light when such a critique is successful. The aim of the study of IS to create a new understanding of how information is produced, shared and disseminated will be seen as a continuation of a development from early science through social science up to the establishment of the study of IS as an own discipline.

In this chapter, the three subject areas of 'science', 'ideology' and (information) 'system' are introduced. Each of these areas has its own vast body of literature which investigates topics and problems related to the respective area. The argument of this research is a result of ideas pursued along the lines of these studies. Taken in isolation, very elaborate introductions have been produced in the three studies; for such introductions in 'science' see Singer [1941] and Dampier [1948]; in 'ideology' see Lenk [1961] and Larrain [1979]; in 'system' see Buckley [1967], Laszlo [1972], Checkland [1981] and Open University [1981]. Perceived connections between these three studies gave rise to a speculative interest in their combination.

As mentioned in the first chapter, this research is intended to argue the case of ideology and information systems in relation to the study of IS. This topic is part of the common ground between the three studies. Consequently, the introduction has to take account of the purpose of arguing for the combination of the three studies. Rather than introducing the three studies independently, the introduction will try to prepare the ground for the thought experiment by being selective and purpose-driven. Perhaps only such a selective and multi-disciplinary way of introducing the studies makes their combination plausible, while a more elaborate and exhaustive account of the studies would highlight fundamental differences which rendered such a combination implausible and possibly even impractical. Part of the set-up for the thought experiment is consequently an agreement to accept this purpose of the introduction. It is an essential prerequisite of the

thought experiment to use this set-up for the formulation and discussion of the thesis, the antithesis and the synthesis.

The problem of knowledge *about* a subject area cannot be separated from knowing *the* subject area. This introduces a circular argument about knowledge, because it would be necessary to know a 'fact' in order to decide whether one knows it. If one was ignorant about a 'fact', how could one suddenly be able to decide whether one knows it or not? This paradox is being debated in an on-going discussion in the philosophy of science. In the study of (information) systems, however, the paradox of knowledge is not discussed in such a general way, but more as a by-product of problems of knowledge-based systems or in connection with knowledge acquisition and representation. The foremost critics of a cavalier way of the treatment of knowledge are Weizenbaum [1976], Winograd and Flores [1986] and Roszak [1986]. Their interest in the topic and their main line of criticism is the functionalism or 'machine-behaviourism' by which the creation of knowledge is explained as a consequence of an analogy between machine-output and genuine human understanding. For example, when ELIZA, a computer program by Weizenbaum, is taken by a user as a knowledgable psychotherapist, immediately some scientists concluded that there must be some knowledge in the program. "And that is how far the computer metaphor has brought some of us" [Weizenbaum, 1976, p.181]. Suffice it to say that the debate about 'functional' knowledge is far from the philosophical discussion about the nature of knowledge. The philosophical debate about this question displays a tendency to be never-ending; already Socrates discussed it in his Meno [Grene, 1966, p.23], and since then throughout the entire history of western philosophy it has never ceased to puzzle the minds of philosophers. This gives an indication of the marked contrast between the casual treatment of knowledge in much of the study of IS and the on-going debate in the philosophy of science which leaves such questions largely unresolved.

The question of what a systems ideology is and what is known about it will remain equally unresolved. We do not even have a thorough understanding of science, ideology or system. In fact, it will be argued here in this dissertation that 'understanding' and consequently 'usability' are ideological positions, rather than a necessity. To strive for answers and truths introduces a partiality that conflicts with the open-mindedness required by the spirit of *gnothi seauton.*

As was already mentioned in chapter two, the pretence of truth and a consequent justification for instruction cannot be part of a sociological treatise. Nevertheless, for the sake of the argument, it is important to clarify the position adopted in this dissertation with what is meant by science, ideology and system, before embarking on the thought experiment. Clarifying these subject areas will lead, as a consequence of the reflection on information systems, to chapter four where the connection between ideology and information systems will be introduced.

From the possible ways of showing this, a historical account has been chosen. The succession of an introduction in science, ideology and system reflects the order of emergence of these three studies in an attempt to give a single coherent account. Presenting the material in a chronological way and, at the same time, leaving the three introductions into the studies vaguely apart, is supposed to help generate a familiarity with the ideas that are going to be used in part II. There, the ideas and concepts introduced will be used freely to argue the case of systems ideology. For the sake of the argument, it will be necessary to be able to refer to particular ideas from the introduction, because these will be taken out of context and applied in a new and speculative way.

At the same time it has to be pointed out here that the historical account does not try to argue for a historically determined connection between the ideas introduced. Earlier ideas may influence later ideas, but it is not the aim of the introduction to argue for or against a deterministic connection. Rather the succession of ideas is

used to build a stock of related ideas which give rise and give credibility to the justification of the thought experiment as well as to the arguments used.

Since this research was initially directed by a curiosity, especially for the relevance of ideology to IS-phenomena, the historical account will not start with the earliest descriptions of science, but with the Renaissance and the Enlightenment, when the development of science was accompanied by phenomena that can be interpreted to have preceded current research into the concept of ideology. This decision to cut short the introduction stems from the concern of this research with the connection of the three subject areas. As discussed above, the question of 'when the concept of ideology came into existence' cannot be answered, but it can be said when scholars began to make ideas, idols and ideology their subject matter. That point will be the starting point for this historical account. Many phenomena, and that not only in the history of science, but also in various disciplines like philosophy, organisational theory, psychology, anthropology, etc., could be considered to represent similarities with phenomena described by the concept of ideology. This account, however, will focus on epistemological problems related to the concept of ideology as they arise especially with reference to the study of IS. For this purpose it suffices to say that a historical account of science starting from around the 16th century offers itself as a good route for an enquiry into the nature of knowledge about information systems.

SCIENCE

In the 'Post-industrial Societies' of the 'Information Age', knowledge is seen as a competitive resource, and consequently already pupils are encouraged to pursue it. This relative freedom is only a recent development, and Galileo may serve as one of the most prominent victims of repression in the past. In the development of society up to the Renaissance and the Enlightenment, the Church and other worldly dignitaries had been patronising society. This entailed a monopoly on official knowledge and truth. Yet, with the emergent changes in society the

Church came under pressure to justify its claim on truth. Its response was the institution of university chairs, which was the first step of the Church to give in to societal pressures, instead of remaining dogmatic. But rather than strengthening the position of the Church with respect to knowledge and truth as intended, this move only served to show that society had changed to such an extent that even the mighty Church had to react rather than act. "The very learning the Popes patronized and made fashionable resulted in a revolt against their authority" [Flick, 1967, p.476]

It is a matter of perspective, to decide whether the changes in society enabled individuals to entertain their desire for knowledge, or whether their boldness made society change. What is important for the argument of this research, though, is that knowledge became disconnected from previously established authorities, and entered into a new era. The sciences were not established as professions at that time as they are today. The differentiation into disciplines was not very advanced compared to our present state of specialisation. Scholars were not usually scientists of one special field, but rather philosophers, statesmen, civil servants, noblemen, private teachers, or a combination of the same.

Francis Bacon (1561-1636), with whom this historical account starts, was a statesman and a public figure. He is described as a rather controversial man with his own ideas, cold-blooded, yet a willing supporter of the king. He is the first to be credited with an explicit treatment of knowledge not as being free but as being determined by various forces that characterise human reality. He described these forces as the four 'idols': the idols of the tribe, the cave, the market-place and the theatre [Spedding, *et al.*, 1875, vol.1, p.163]. The first are constraints imposed on knowledge by human nature, such as complacency to question cherished beliefs. The second are educational constraints, such as a stress on parochial superiority. The third are matters of language, such as the ambiguity of utterances. The last are explanatory systems, such as anthropocentric explanations. He considered the

influence of these idols to corrupt knowledge. Especially he set out to charge the confusion of theology with philosophy as detrimental, because he considered philosophy to be scientific, and theology to be mystical. Science is what he advocated in his *Novum Organon* (*Organon*, being a word adopted from Aristotle describing a body of logic for gathering knowledge) as the way forward toward a better society.

This striving for a better society is a common theme among the authors who are going to be discussed. In Bacon's case the enemy is quite clear; the Church with its self-righteous claim on truth as well as the various superstitions, misperceptions, demagogues and sophistries. He argued that the idols that beset knowledge had to be purged with a *Novum Organon*. Only an established body of logic that dispenses with the idols of human reality could protect man from fallacy and outright subjugation.

Antoine Destutt de Tracy (1754-1836), living in France approximately 200 years later, had similar ideas based on similar motives. He proposed a science of ideas that enabled man to account for all the ideas that had been conceived. This science he called 'Ideology', and thus he is credited with coining this term [Runes, 1951, p.140]. The scientific analysis of the ideas would ensure that the 'good' ones could be differentiated from the 'bad' ones. The study of ideas could be taught to students and progress would be achieved on grounds of educated people who were able to discern the quality and potential of an idea. With his 'Ideology' the projection of a selective treatment of knowledge into the future was cast into a coherent concept for the first time.

Auguste Comte (1798-1854), another Frenchman, who is credited with being one of the founders of a study which developed into sociology, went even further in the introduction of science as a means for societal progress. Formulating a programme of 'Positive Science', he propounded a treatment of knowledge as a

derivate of scientific study. He regarded knowledge as belonging to either one of three categories: theological, metaphysical or scientific. Whereas theological knowledge was deemed to be fictitious, mystical, irrational and superstitious, metaphysical knowledge would be at least abstract and speculative. Nevertheless only scientific knowledge was justifiable by a scientific method and the object of investigation were positive facts, i.e. those which could be observed.

In chapter four the contribution of each of these writers to the thought experiment of this dissertation will be summarised. However, it is appropriate at this point that a short interim account of the main points of this section will be given.

These three writers have set out to give man tools with which he can battle the distortions that beset his knowledge of the world, whether this is Bacon's *Novum Organon*, Destutt de Tracy's Ideology or Comte's Positive Science. The analogy to the study of IS is apparent. All three stress the importance of knowledge for man to build a better society. "Knowledge is power", as Bacon said, preempting the battle-cry of marketing campaigns advertising management information systems. The writers of the 16th to 18th century were all eager to point out that knowledge was the key to liberty; Bacon, Destutt de Tracy and Comte were no exception. So rather than investigating the nature of knowledge itself, these authors took knowledge almost as a neutral physical matter that could be used against an enemy and for the common cause. To ensure the quality of this weapon the 'right' method had to be used, i.e. the scientific method, thus, paving the way for conceptions of 'functional' knowledge. With tool and method in place the advancement of society could be increased almost at will by the gathering and teaching of scientific knowledge. The more knowledge is gathered, the stronger is the fortress of reason against the 'forces of darkness'. In order to secure this status, the method had to be kept autonomous, untinted by any human deficiencies. Then the progress toward the ideal would be brought about by the advancement of science. Progress in science was equated with societal progress.

The euphoric proclamations of the blessings of information systems have directly adopted this self-same tone of confidence.

The relevance for the thought experiment of this dissertation lies in the three crucial steps that these three writers stand for. Bacon stands for the establishment of knowledge as a power. Knowledge is subject to social forces, and controlling knowledge by means of science gives power to control the social forces. Destutt de Tracy stands for the societal value which is attributed to an enterprise that fortifies that society's basis. He proclaimed his 'Ideology' to be able to decide between good and bad ideas, and to teach those ideas that support the beneficial development of society. Comte stands for the institutionalisation of a Baconian source of power as an enterprise in the sense of Destutt de Tracy, by establishing science as the guardian of proper knowledge.

On this foundation an understanding of the study of IS as a scientific enterprise that strives to come to terms with information systems through scientific knowledge can be constructed. The study of IS is a science in the tradition outlined in this section. Scientific method is seen as a means for the selection and tuition of good IS-thinking and -practice. As a consequence it is claimed that incremental progress can be made toward the proper treatment of information systems.

IDEOLOGY

Karl Marx (1818-1883) transformed much of what had been said up to his time. This German who lived in London for a long period of his life, witnessed the troubles that early industrialisation meant for the masses. All circumstances of life were dominated by economic conditions. These were determined by a small but powerful segment of society, which dictated the work that sustained such conditions. Any activity was dominated by these conditions: work, leisure, science,

art, etc. This peculiar situation did not allow for a free development of knowledge, because everything is subject to the predominant socio-economic conditions.

Rather than focusing on human distortions of 'objective' knowledge, Marx used the concept of ideology within the wider framework of his writings. From his investigations stem the political as well as sociological use of the term ideology, and also much of its negative connotation. He tried to explain knowledge as a consequence of human existence rather than as some sort of 'commodity'. His importance for the development of the concept of ideology cannot be underestimated.

In order to grasp Marx's concept of ideology it is helpful to take into consideration some developments of western thought that paved the way for his kind of thinking. Immanuel Kant (1724-1804) was investigating the limits of human reason. As a result of his studies he came to formulate what was later called the 'Copernican Revolution'. This is the tenet that man's knowledge is limited by how man imposes his frame of mind on reality, rather than that knowledge was an unconditioned image of an independent objective reality. Thus Kant put general human 'categories' between reality and man's knowledge of reality. The influence of these categories on knowledge reflected human terms rather than an objective reality. Georg Friedrich Wilhelm Hegel (1770 -1831) criticised Kant's generalisation of human subjectivity for being not realistic. He said that everybody's reality is subjective, but individually subjective and not just generally subjective. This entails a subjectivism that turns reality into a personal reality, determined by each individual's personal life.

In the light of these developments, Marx's concept of ideology took form as part of a description of the socio-economic circumstances of his time, rather than as a reflection on 'pure reason'. Central to his writings is the notion of *action* as determining the reality of people; because only by acting does a person transgress

the boundary between the self and the matter of investigation, or between subject and object. Action, it must be said, he understood to be any involvement of a person with its environment, whether this is social, physical or intellectual. Action, thus, mediating the conflict between subject and object, covers the entire spectrum of the human predicament and consequently all the aspects of development. A person's interaction with reality produces an understanding of reality that derives its essence from these individual actions. What has not been experienced as a matter of interaction can consequently not become part of a person's knowledge of reality. The manifest circumstances of a person's environment, which Marx called the 'base', is transformed into a person's understanding of this base, which Marx called 'superstructure'. This limitation of knowledge through action is the conservative and propagative side of Marx's concept of ideology.

The other side of his concept of ideology is that people have no chance to recognise having ideologically distorted knowledge. Since the conditions are given, nobody can experience any actions outside the predominant socio-economic framework and nobody performs any actions outside the framework that would allow for the creation of alternative knowledge. Thus, people not only live with an ideology, but they are not even conscious of this. It led Marx to call an ideology also a 'false consciousness', because it effectively gives people the impression that their ideology *is* reality.

Marx added a historical dimension to this. He wrote: "men make their own history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past" [Marx, 1898]. The vicious circle of ideology exerts its power. Past structures form historically determined realities, which in turn determine possible actions, which in turn determine possible knowledge, which in turn determines the basis for future actions. Thus, circumstances are

perpetuated through an ideology. Circumstances and people's knowledge of the circumstances are, thus, ideologically stagnant.

Marx understood an ideology to be a conservative mechanism where knowledge gets determined by the possible actions within the given circumstances and vice versa. From these premises Marx suggested actions that would enable people to break this vicious circle. This reasoning leads to the more politically orientated aspect of ideology.

A different understanding of the problem of knowledge was held by Wilhelm Dilthey (1833-1911), the founder of the German 'Geisteswissenschaften'. He did not work on the concept of ideology, but came from the discipline of history where he had been specialising on biographies. These studies made him develop a scientific concept of 'Weltanschauung' [Hodges, 1969, pp. 92, 152-155, 160]. The characters he described had a particular outlook on reality. Their view of the world affected not only their interpretation of the world, but also their actions. He tried initially to describe these Weltanschauungen as different in structure and as ordered according to particular qualities. Scientific discussion, though, necessitated him to give up his stance and to acknowledge the impossibility of making valid statements about the order of Weltanschauungen. In his later works he, therefore, advocates a relativism that gives equal standing and justification to each Weltanschauung, yet still retains the notion of different Weltanschauungen according to which a person's life can be interpreted.

Dilthey's theories are in line with Marx's, where he talks about the shaping of knowledge and actions by a person's Weltanschauung. He differs from Marx in so far as he does not use his method for describing how these Weltanschauungen come about, nor does he argue for a class-related ideology, but for a person-related Weltanschauung.

The decisive re-formulation of the concept of ideology as a sociological concept was achieved by Karl Mannheim (1893-1947). He applied Marx's concept of ideology on itself and thus added reflexivity to Marx's concept [Mannheim, 1930]. He criticised Marx's view of ideology as single-sided. If socio-economic conditions determine the ideology of people, then those conditions must also be responsible for Marx's theory to evolve, i.e. determine Marx's actions. Everybody's actions happen in a historical socio-economic environment; one which is individual to each person. He argued that the subjugation of personal reality to the limiting influences of personal actions consequently applies to everybody and more accurately to everybody individually. No analyst can stand above his historical socio-economic existence. Just as Hegel criticised Kant's subjective world not to be individual, so does Mannheim criticise Marx for not recognising that each person lives in his own world without any chance to experience something outside his life, not just outside his class or economic conditions.

Reflexivity, thus, became a central reference point in the sociology of knowledge. The theory that no single position can claim general validity without overthrowing the sociology of knowledge, as it had developed so far, put an end to any idea that aspired to find general answers and solutions. Any such answers and solutions would be absorbed by the social context and give rise to new actions and behaviour, generating new problems. The feed-back of knowledge on itself prevents, thus, the establishment of definitive knowledge.

The above argument, which was already responsible for Dilthey's formulation of relativism, didn't allow Mannheim to propound a theory which would claim validity on a general level. Therefore, he argued for a relationalism of individual ideologies. Relationalism he understood to be different from relativism. While relativism presupposed an 'absolute' reference point, relationalism did not. People's realities are formed in relation to their social existence. Their knowledge is ideological in so far as their relations within reality are personal. Ideas seem to

them original, whereas from a sociological point of view they are reckoned ideological, and their ideologies are deemed socially determined by their relations to their social and material environment.

The ideologies have taken over the role of reality. The base is considered to be objective and the superstructure to be subjective. Yet, nobody has more insight than his subjective ideology permits. In this respect all people are equal; nobody knows anything absolute, but only in relation to his social and material environment.

Another writer who contributed to the debate of the nature of knowledge is Claude Lévi-Strauss (1908-). His structural approach to anthropology led him to try and understand realities (of foreign tribes) as structures of symbols. Every act of life is seen as a symbol that together make up a picture. Trying to relate them in many ways would finally lead him to a pattern where the symbols yield a meaningful account of the matter under investigation. Lévi-Strauss then justified this method by saying that man actually orders the symbols of his reality, because they only make sense to him in an ordered pattern. This feat is done contiguously. Man is a 'bricoleur', putting the bricks into place in order to build a structure that makes sense. His knowledge is, therefore, bound up with the structures that are permissible under the constraints of culture. Alternative structures are eschewed and, therefore, do not become part of knowledge. Culture affects this selective process, encouraging the selection of sanctioned structures, discouraging the adoption of new structures. In fact, he claimed that culture is the basis on which to build any investigation.

Lévi-Strauss offers, with this structural approach, an alternative to Marx's historical approach. He preserves Marx's idea that action determines knowledge, but not as a tradition of structures but as a phenomenon of culture. Thus, it is not

just conservative with respect to time, but conservative with respect to the survival of a community as it is encoded in its culture.

Mary Douglas found this approach barren, because the elicited structure does not give any insight into the content. The production of a meaningful pattern does not constitute an understanding of the matter under investigation. Knowledge is more than ordered symbols. Knowing that a poem is written in the form ABBAC does not say anything about its topic or its mood. Jean Piaget's (1896-1980) understanding of structuralism closes this gap. For Piaget, who started by analyzing child learning, structuring was in itself the process of creating meaning, the process of making sense of life, which he termed 'genetic epistemology'. Man was not ordering symbols, which possess an innate significance, in order to 'make' meaning, but the process of ordering was the 'making' of meaning by attributing significance to the symbols. Thus, the gathering of knowledge was changed from an *ex post* interpretation of structure to a continuous re-interpretation of structuring. Man as a structurer was replaced by structuring man. He inferred from his studies that the attribution of meaning in this structuring process followed certain principles: the principles of wholeness, transformations and self-regulation [Piaget, 1968, pp.8-16]. Only structuring according to these principles allows man to gather knowledge.

Knowledge, thus, becomes a result of on-going feed-back. Within the limitations of the three principles man goes about creating (and destroying) structures, and thus creating (and destroying) knowledge. In contrast to the previous approaches which were mostly concerned with the creative side of knowledge and its sustenance, Piaget made knowledge an ephemeral phenomenon that is connected to life. Knowledge is, thus, an emergent phenomenon that is not bound to conditions as perceived by an authority, but only consistent to an individual's reality and the three principles.

Coming back to the sociological treatment of knowledge, David Bloor has propounded a theoretical framework termed the 'strong programme for the sociology of knowledge' [Bloor, 1976, pp.2-5]. He argues that knowledge can be investigated scientifically like any other phenomenon, and that the same scientific standards are sufficient for this task as for any other investigation. With his programme he expects to cover the sociological aspects of knowledge according to the following principles: causality, impartiality, symmetry and reflexivity. With these principles the social reality of knowledge should be accounted for. Knowledge is no longer regarded as, for instance, a problem of ideological distortion or a correlate to the process of life, but a mere reflection of the four principles in relation to the investigation of a person's life. The concept of ideology has become absorbed and internalised in this effort to establish a framework for the investigation of knowledge. The social and material circumstances that are supposed to account for the creation of ideologies become the focus of investigation, rather than knowledge itself.

It is not entirely clear what Bloor means by knowledge. Knowledge becomes a mere shadow of the framework. It seems to have vanished into the haze in favour of the scientific treatment of manifested conditions of knowledge.

A brief interim account will summarise the main points of this section. These will be expanded upon in chapter four. The writers since Marx who were discussed came from various backgrounds, and their theories were not necessarily contrived to address questions of ideology. Nevertheless, they all address the problem of knowledge as deriving from the process of living. None of these authors assumes that there was knowledge without a knower or without a knower's action. This assertion opens the concept of ideology to all actions of man, which is the reason for the versatility of the concept of ideology.

Marx initiated the change in perspective from conserving knowledge for some purpose, to knowledge conserving the purpose. It is interesting to recognise that most information systems are still perceived to preserve knowledge such as production or sales figures. This way knowledge is seen to serve a purpose, as, for instance, machine utilisation or market penetration. Marx's change of perspective allows us to see that the preservation of knowledge about production or sales figures can actually be interpreted as a purpose in itself. The preservation of data is the purpose of information systems, and machine utilisation and market penetration are only afterthoughts to an information system that has been installed. Measurements and reference numbers are gauged out of the information system, because it allows people to use its output for this purpose.

The lesson of Dilthey and Mannheim is that *all* knowledge should be considered to be ideological. This means that knowledge becomes a matter of circumstances, it is not any more a 'neutral physical matter'. From this perspective, the discussed writers up to and including Comte can all be analyzed as being conditioned by their environment to adopt an approach that favoured some independent-sounding method for the provision of knowledge. Their advocation of science can be described as ideological, because a belief in the power of science opposes and replaces the belief in the power of the Church or some other authority. Knowledge has changed from a tool to achieve an end, to a concept which explains living conditions. It is of special importance for the argument of this dissertation that science loses its superior legitimacy. Scientific activity is subject to socio-economic conditions just as much as any other activity. Ideology has made the step from a study to battle the 'priestly deceit' to a study of man's reality. It has also made the step from science against ideological distortions to science as an ideology in itself [Barnes, 1974, p.125].

The relevance for the thought experiment is that the concept of ideology is established as a means to show how knowledge and a person's reality are linked.

Marx showed how knowledge gets *conserved* into an ideology, and how this knowledge gets *propagated* through the ideology. This ideology is a 'false consciousness' that lets people believe that their ideology is *reality*. Mannheim showed that ideologies are *reflexive*, because it is ideological to talk about ideology from an 'objective' position. The study of IS can be seen as a phenomenon of social action, and, therefore, as an ideological science. The approaches of Lévi-Strauss, Piaget and Bloor show how the concept of ideology is characteristic for problems of knowledge and reality. Culture, 'genetic epistemology' and the 'strong programme' are means to explain knowledge about reality from within a structure of knowledge. Without explaining knowledge these three terms cater for the stability of the structure and the resilience of its explanations. In systems terms, culture, 'genesis' and the 'strong programme' are statements of homeostasis, conserving and propagating the derived knowledge about knowledge.

SYSTEM

Rather detached from such work in the philosophy of science, scientific disciplines have thrived on success. Yet, the success is wearing off. Consequences of successful technical achievements turn out to have adverse social and environmental effects, and new success-stories are ever harder to find because of the interrelatedness of phenomena. Knowledge in one field quite often is not enough any longer to get an enterprise going successfully. Laszlo, in fact, argues that an "atomized" [1972, p.4] understanding of reality is inadequate. He continues that "instead of getting a continuous and coherent picture we are getting fragments - remarkably detailed but isolated pattern" [ibid.]. Specialised knowledge is questioned and found to be inadequate; a different knowledge is necessary to explain phenomena, and Laszlo argues that "there is an emerging paradigm - a new way of ordering the information we already have and are likely to get in the foreseeable future" [ibid.]. The paradigm Laszlo talks about is the systems paradigm; also referred to as systems thinking, systems methodology, or the systems approach.

The systems paradigm is said to have sprung mainly from two different sources. Checkland separates them into the system thinking of organismic provenance where ideas of "emergence and hierarchy" [1981, p.74] prevail, and in systems thinking of technological provenance where ideas of "communication and control" [ibid., p.82] prevail. The two different sources can be characterised by discussing two key figures: on the one hand, Ludwig von Bertalanffy who helped found the General Systems Theory (GST) movement, and on the other, Norbert Wiener who was the *spiritus rector* of the study of cybernetics.

V.Bertalanffy came from the study of biology to formulate a theory that could handle phenomena of "organised complexity" [1971, p.33] that were taken as a whole, rather than to break them down in an analytic fashion, to study them separately and to construct the end-results by putting together the isolated results. He struck an analogy from biology, where the objects of study are 'wholes' or 'systems', to general systems theory which concerns itself with 'epiorganisms'. V.Bertalanffy boldly states that a "'systems approach' became necessary" [ibid., p.2], because of the innumerable problems of the modern world. Scientists could deal with problems of limited scope within their domain, but problems of societal or social relevance were too delicate to be dealt with in a specialised way, because "constitutive characteristics are not explainable from the characteristics of isolated parts" [ibid., p.54]. According to v.Bertalanffy, it is only possible to recognise emergent properties pertinent to the system, because of the understanding of the hierarchy of sub-system and system. Therefore, only a systemic or holistic view can lead to an appreciation and interpretation of complex problems. Specialised knowledge is directed toward sub-systems. It is inadequate to grasp the systemic nature of phenomena, and consequently solutions are sub-optimal.

Wiener, on the other hand, wrote about "servomechanisms" [1961, p.43]. Rather than occupying himself with wholes, he wrote about communication and control that makes such mechanisms work, whether animate or inanimate. For this

purpose he devised a body of mathematics to describe relationships of switches, signals, effectors, feed-back, etc., which allowed him to "measure" information [ibid., p.61] in a statistical model. Since he was convinced that servomechanisms were dependent on messages that were communicated and, thus, controlled the existence of these mechanisms, such an explicit treatment of information was necessary. Constructing automata around controlled information flows meant for him constructing possible machines, some of which resemble existent servomechanisms. Thus, knowledge about these servomechanisms could be derived from constructing a corresponding machine.

The systems paradigm has absorbed a mixture of aspects of v.Bertalanffy's and Wiener's theories. There are variations within the systems paradigm in the understanding of system, as more open or more closed, and similarities, as in the explicit treatment of information flows. The essence of this approach is that "in some respect corresponding abstractions and conceptual models can be applied to different phenomena" [Lektorsky and Sadovsky, 1960, p.174].

Later systems theorists draw heavily on the two writers above and the ideas they represent. There are many variations of the basic themes. A common denominator, though, is the claim of the systems paradigm being its own discipline [Gérardin, 1968; Klir, 1969; Rubin, 1971; Miller, 1978; etc.], which "is a subject which can talk *about* other subjects" [Checkland, 1981, p.5], rather than about a particular problem-domain. The systems paradigm requires the systems thinker to look at problems with a systemic mind, which prevents him from being misled into tackling specific sub-problems. Optimal solutions for sub-systems might create a sub-optimal solution for the overall system. Therefore, the systems paradigm is characterised by taking "a broad view, which tries to take all aspects into account, [and] which concentrates on interaction between the different parts of the problem" [ibid.]. Thus, the discipline is not characterised by a particular theory, but by diverse aspects of systems thinking. Systems behaviour is investigated and

conclusions are drawn from it. Central in this endeavour is the place of information, which, as can be seen, for instance, from Laszlo's quote, has come to prominence in the systems paradigm. Using such insight, the working of the systems can be interpreted and understood on account of the discovered information flow.

The acknowledgement of this information flow to be a matter of social interaction within an (information) system, has led to the appreciation of social or 'soft' issues. 'Information Theory' was recognised to cover but a very limited and technical aspect of information. Moreover, the problems of today's complex world suffer from the conflict of diverse perspectives which make the production of a good system a matter of negotiation, rather than engineering. Hence, the retreat from specific problems and best solution, to complex "problem-situations" [Wilson, 1984, p.4] and optimal solutions. In this context information takes on many guises, which defy the singular concepts of information theory.

The self-proclaimed virtue of the systems approach of not being too specific, but rather of being synoptical and concerned with a general view, makes it very difficult to pin-point its epistemological standpoint. The systems approach is advocated as the only approach that can possibly tackle problem-situations of today's complexity. It is a paradigm that lays a claim on 'super-knowledge' of a kind which cannot be achieved in any specialised discipline. This particular knowledge is derived from systemic thinking.

A brief interim account will summarise the main points of this section. These will be expanded upon in chapter four. The treatment of knowledge has changed again in this third subject area of system. Knowledge was treated in the first section almost as a neutral physical matter, in the second section it was treated as a social phenomenon. In the section on system these consideration are less important in comparison to a general analysis of effectiveness of knowledge. 'Atomic'

knowledge is considered to be just not good enough for today's complex problems. Knowledge has, therefore, to be 'super', grasping the systemic nature of phenomena. The conceptual model of 'information' and 'system' is used for this activity to be 'applied to different phenomena'. Can there be a more blatant expression of an ideology? Systemic knowledge is supposed to have superior power, it conserves and propagates systemic thinking and it applies it to anything it deems appropriate, because the world is perceived to be a hierarchy of systems. The marriage between 'organismic' thought and the 'machine-metaphor' has produced a familiarity with the jargon and the relevant authorities that breeds contempt for a renewed curiosity about information systems. This development creates a mind-set of 'tried and tested' ideas which, when grouped together, will be referred to in the thought experiment as an ideology of information systems.

The relevance for the thought experiment lies in the twofold applicability of the concept of ideology within the study of IS. Firstly, people involved with information systems, whether they are designers, analysts, users or commissioners, can be interpreted as having ideological perspectives toward information systems. Secondly, systems-thinking and -practice, which incorporates the study of IS, can be interpreted as ideological. Both applications of the concept of ideology are a consequence of the introduction of the social aspect to information systems.

CONCLUSION

The writers who have been introduced in this account of the three subject areas lived or live in very different circumstances. A critical appraisal of their position in their society and of their work cannot be attempted, because the richness of contextual information about anything introduced in this chapter renders a just treatment of each idea impractical. The thought experiment just takes the ideas at 'face value'. For the purpose of using the different ideas in part II of this dissertation this account has to suffice.

The three studies of 'science', 'ideology' and 'system' have been introduced without paying tribute to all contributors in these fields. Nevertheless, those points which are relevant for the thought experiment have been introduced. Yet, the different treatment of knowledge as scientific, ideological and systemic showed the possible connection between these perspectives. Chapter four will summarise these and put them into a coherent picture in order to lead the reader to the starting point of the thought experiment.

Questions about the meaning of 'information system' have not been answered. Indeed, the historical accounts of 'science', 'ideology' and 'system' have only led to a different interpretation of phenomena pertinent to 'information system'. Neither science nor the study of ideology nor systems thinking are going to provide one universal meaning. Moreover, the differentiation of 'the notion of information system', the concept of information system' and 'particular information systems installations' has been diluted. Particular meanings attached to each phrase must be seen as influenced by each other. What is an information system is as much dependent on how the notion is used, as it is dependent on how the concept relates to this use, as it is dependent on what installations are referred to, and vice versa. Thus, these phrases are interrelated amongst themselves through feed-back.

How then did discourse about information systems evolve, and how did installations get going? Apparently, there was no consensus to suspend all IS-practice in order to think matters through. As argued above, that would have been pointless anyway, because thinking about the concept of information systems is dependent on IS-practice and vice versa. Neither was there a consensus to 'muddle through' with IS-practice and think matters through later. This would have been pointless for the same reasons as above. It seems that a discourse about information systems evolved and installations did get going as part of the evolution of society. No big upheaval interrupted the course of events, despite the literature that proclaimed a paradigm shift that would catapult society into the

third millennium. Singling out the topic of information systems and portraying it as a manageable phenomenon is, therefore, an emphasis. Society does support such neatness of demarcation, yet at the same time trips over the mines such neatness disperses across common sense. It is on this foundation that the interpretation of 'information system' is seen as a manifestation of ideologies. Despite the almost indiscriminate use of the label 'information system', ideologies give meaningful knowledge to those who feel a need for reassurance. This desire for meaningful knowledge quietens the nagging whisper that however clever the explanations are, they will nevertheless falter in the face of conflicting evidence.

4. SUMMARY

Knowledge is the lynch-pin of the three subject areas science, ideology and (information) system and in particular of the their corresponding studies. The study of IS did not have to battle against a domination of knowledge by the Church or some other authority. It grew out of the natural sciences with a more recent injection from the social sciences. The study of IS has, overall, an entirely scientific tradition. No author has been found who discusses why books on the topic of information systems strive to capture the scientific aura, and only one book is known to the author which takes a humorous approach to systems, making a serious point in the disguise of a humorous treatise [Gall, 1975]. The scientific imperative (not only in the study of IS) allows critical and humorous approaches only in so far as the court jester was allowed to speak out in feudal times. Apparently, it is taken for granted that scholarly investigation is the solution to problems in IS-theory and -practice. Metaphysical speculation let alone theological belief are supposed to be inadequate. The respectability of the status of a discipline that has proven itself worthy of scientific laurels seems to be a common goal. The irony of this jostling for a place amongst the established disciplines is that respectability comes at a cost.

The approaches taken to explain what a system is, or how an information system should be analyzed and designed thrive on the treatment of information systems as if they were a matter of definitive knowledge. Some IS-methods do not explicitly refer to the process by which knowledge should be derived and what influences have to be accounted for; others do. In the field of intelligent knowledge-based systems a particular branch is concerned with knowledge acquisition. In keeping with the development of the systems paradigm, knowledge is acquired through a process that gauges the effectiveness of knowledge. Buchanan *et al.* refer to "identification of terms used" [1983, p.134] and "strategies the expert uses" [ibid.]. The simple assumption is, that the expert knows; and what worked for him will

work for us. It is a reasoning of linear extrapolation. Quite often, however, as in the case of large-scale data-bases, very little attention is given to the analysis of knowledge. It is trusted that vast quantities of data-input will secure a sufficient pool for knowledge-output. How the magical transformation is supposed to happen, is obscure. Again the initial assumption is that if the systems analysis has figured out how 'the system' worked in the past, then the efficient computerised version will do the same work for us in the future. However, in addition to this reasoning of linear extrapolation is a mystical belief that somehow a skilled operator can get information out of a data-base which nobody had put there, and therefore, which nobody had expected. This cavalier attitude toward the riddle of knowledge indicates the presence of an ideology, that precludes alternative evaluations.

In chapter three, various influences were described that condition knowledge according to the authors who were discussed; the power of authority, the tuition of proper ideas, the separation of appropriate and inappropriate methods, socio-economic conditions, the Weltanschauungen, individual circumstances, cultural posits, 'genetic' development and sociological indicators. These alternative perspectives see knowledge not as a 'datum' that can be attained through effort, but rather as a consequence of the experience of a person, subject to the above influences. Metaphysical speculation, quasi-religious belief and other non-scientific vagaries are back on the agenda, since the above list of influences is so comprehensive with regard to the human predicament. If the human predicament is taken as the true background of knowledge, then it is significant to recognise that the phenomenon of 'knowledge' should be of similar profoundness. No easy answer should be expected that does justice to the problem of knowledge.

When it comes to giving meaning to a phenomenon, the different perspectives are telling indications of the problems of understanding. As was discussed in chapter one, 'information', 'system' and 'information system' are elusive notions that defy a

universal meaning. In the case of the notion of information systems the effect of human interaction has been mentioned to characterise the interpretation of phenomena that are relevant to information systems. Similarly, as chapter three has shown, the controversial notion of human interaction can also be taken to account for knowledge. The experience of human interaction was said to be crucially connected to the possibility of ordering these experiences. Hence, the capacity to order experiences, which then can be conceptualised into notions, raises the topic of whether man can know anything at all which he has not perceived through this order. Is not the attempt to come to terms with information systems a consequence of an imposition of personal perceptions, assumptions, beliefs, Weltanschauungen, experiences, etc.? A circularity of perception and the perceived characterises this puzzle. The concept of ideology accounts comprehensively for such phenomena, whether ideology is considered to be the ordering influence of a dominant class, as with Marx, or whether it is the ordering influence of culture, as with Lévi-Strauss. Thus, information systems can be understood only by the use of an ideological perspectives that allows the unordered and incomprehensible to be conceptualised, and conversely within information systems, ideologies allow for understanding of the unordered and incomprehensible.

As argued in chapter three, a universally valid explanation of what an ideology is, cannot be given. Any such attempt had to be ideological, because of the reflexivity of the concept of ideology. For this dissertation, though, some hallmarks of the concept of ideology will be singled out to be relevant for the thought experiment. These four hallmarks represent the author's personal choice.

Firstly, an ideology is *conservative*. A person's experiences get conserved into a person's knowledge of reality. The person's memory retains this knowledge over time. Thus, a clerk will always be conscious of the precariousness of a computerised information system that has let him down. Secondly, an ideology is

propagative. Depending on what a person knows, he is going to direct his actions, which will be responsible for future experience and consequently future knowledge. The above clerk will be sceptical about any new system he is supposed to rely on. Even if the system is only a 'humble' word-processor, the clerk will direct his actions according to his previous experiences. Thirdly, an ideology is a person's *reality*. It is impossible for a person to know anything apart from the things he has experienced. The totality of a person's knowledge is his ideology. The clerk will treat his computer-terminal with suspicion even if a new release has eliminated a bug that was responsible for the break-down. For him it was 'the system' that went down, and talk of 'bugs' and 'new releases' makes him only more suspicious rather than less. Fourthly, an ideology is *reflexive*. No person can claim any knowledge beyond his experiences. Personal experiences, thus, confront other personal experiences of a shared reality. A claim for validity can, therefore, only be based upon authority. Consequently, authority stands against authority, which in the case of the concept of ideology results in an epistemological relationalism. If the break-down of the computer-terminal was subject to overheating, because the clerk deposited a file on top of the cooling slots, this is most likely not apparent to the clerk. Indeed, he will not treat it as significant. Consequently, he will not report it to the systems support group of his company. All theories that evolve about why the break-down occurred are going to be similarly wrong. Any consequences depend, therefore, on the authority behind the clerk and the systems support group.

A person's ideology can be described along the lines of these four hallmarks. An individual cannot know everything, but only what he experiences. Therefore, he cannot develop a complete understanding of a phenomenon. Nobody can. Therefore, knowledge is partial. This partiality allows the individual to proceed meaningfully until his knowledge is challenged, because he is committed to his reality. The continuous feed-back of his past experiences on his understanding of phenomena builds his ideology. Taken together this amounts to a homeostasis of

the mind. This homeostasis gives stability to a world view, and the ability to deal and come to terms with the otherwise incomprehensible.

In the case of the clerk, an acknowledgement of the ideological nature of knowledge would lead to the dismissal of the computerised information system. If nobody 'really' knows why the computer-terminal broke down, any action could have been responsible. Under these conditions further work on the computer-terminal is hazardous, because another break-down could occur any time. However, the attribution of the break-down on some specific event as, for instance, the use of a formula with more than ten greek characters in one line, stabilises the organizational context. Only if such assumptions are challenged continuously does a serious situation arise.

The notion of system has been taken up by the systems paradigm, which makes great efforts to come to terms scientifically with systemic aspects and problems. Science has been analyzed as a social phenomenon, a group activity of typical nature, which displays all the signs of an ideology. And finally, the concept of system, as a notion as well as a study, can be described as an ideology. The three connections between science, ideology and system now appear complete.

In order to illustrate the latter point, a summary of chapter three is helpful. With Marx, science enters into a realm where institutions, like science, are treated as social phenomena of equal value with other phenomena of human reality. This is a consequence of human action being of equal 'value' regardless of what objective it pursues. Actions generate experiences which account for knowledge. Thus, scientific activity loses its special position. This distinct change in the outlook on the validity of (scientific) knowledge as a socially constructed phenomenon rather than a product of the 'right' institution has repercussions on the treatment of the study of IS. While Marx would have tried to show the expression of class interest, Mannheim would have tried to show the relational nature of the study of IS; Lévi-

Strauss would have tried to show the reflection of culture in the structure of the study of IS and Piaget would have tried to show how the development of the study of IS is a consequence of a 'genetic epistemology' of the IS-community and vice versa. The social reality of the study of IS might, thus, be thought of as an information system of a complexity well beyond human comprehension.

The entire treatment of knowledge as ideological renders a social and historical component to any activity. Social reality, as it exists over time, must be considered to influence knowledge. This can manifest itself in socio-economic influences, as Marx would have argued, in terms of a particular Weltanschauung, as Dilthey would have argued, or in any other way described by the authors discussed previously. Information systems and the study of IS, thus, may be considered to be a special kind of social reality. Peculiarities and particularities which are pertinent to information systems and its study are hunches that let limited knowledge become a real possibility. What manifestations this has will be discussed in the next two chapters.

So far the assumptions taken from Marx, Mannheim, Lévi-Strauss and Piaget have been accepted in order to describe the concept of ideology. But are these assumptions valid, do ideologies and consequently systems ideologies exist? Since those assumptions sustain the argument in favour of systems ideologies they have to be scrutinised critically and the results have to be pondered in order to discuss the concept of systems ideology properly.

First of all the validity of action as a means to bridge the gap between subject and object has to be considered. Marx, Mannheim and the other authors discussed in the section on ideology assume that through action people experience their environment and thus create their reality. The question is then whether social action is such a basic concept that it can account for the concept of ideology without itself being ideological. The writers mentioned above are dealing very

much with a concept of action rather than with action itself. It is, therefore, appropriate to argue that the use of such a conception is ideological. Yet, if it were ideological to built the concept of ideology on the concept of action, then the entire theory is flawed, because of its circular reasoning.

Secondly, it has to be considered, whether the historical continuum of experiences actually determines a person's knowledge. Marx's statement that man does not act in a vacuum, but in a historically determined environment, and that, therefore, his actions are historically conditioned is again circular reasoning. Only if a historically conveyed environment *necessitated* certain actions, only then would such a reasoning be convincing. But since any particular action *can* happen and *might* be undertaken under any circumstances, a historically determined activity loses its credibility. The fallacies *post hoc, propter hoc* (economics) and *correlation indicates causation* (statistics) warn of the shaky philosophical basis of such simplistic assumptions. Historical influences can affect actions, but they might affect them to lead into one direction to suit circumstances, or they might affect them to lead into another direction exactly in defiance of circumstances. Indeed, they might lead anywhere in ignorance of particular circumstances. The interpretation of such compliant or adverse developments is dependent on the interpreter, whose power of interpretation cannot claim absolute validity without violating the premise of historically determined actions. But this is exactly what is done if the circumstances are taken to be somehow objective and if a necessity rather than a potential for action is derived from such an interpretation of circumstances. The clerk of the above example might rely on a new computer system or not. What decision he takes is not dictated by necessity. Thus, the perceived necessity of actions stemming from particular environments is a self-fulfilling assumption. Only if such a necessity is accepted as the only possibility for a connection between circumstances and a person's actions, only then does the concept of historically determined actions convince.

A third assumption which has to be considered, as a consequence of the two previous assumptions, is the establishment of a connection between circumstances and action (and phenomena in general). This can also be called the question of structure. Generally actions are not considered to be meaningful without reference to their context; actions are not considered to be *self*-evident. Therefore, in order to make meaningful statements about human behaviour, they are made out to be meaningful in relation to their environment. For instance, a man switching off a computer is not a very compelling drama. If he switches off the control system of a nuclear power plant, or if he switches off the flight control support system, as some U.S.A.F. pilots have been reported to do, the action becomes immediately impressive. Thus, a conceptual separation is introduced which singles out actions within their environment by drawing (arbitrary) boundaries. The establishment of such a dualism is then used to 'prove' various assumptions, be it statistical, metaphysical or argumentative. Thus, the meaning of actions is vested in the interpretations of the chosen scenario. The introduction of the dualism, though, which put actions into opposition to their environment in the first place is taken as meaningful. Self-evidence of actions is dismissed in a matter of fact way as mysticism, as in the case of intuition or gut feeling or some other 'quasi-holistic' phenomenon. The introduction of boundaries, which gives such tremendous scope to elaborate matters and, therefore, to explain connections, intricacies, feed-back, etc. seemingly does away with such mysticism. That this way of going about things is just as mystical is obscured by the very elaboration of structures in explanatory frameworks. Thus, it is often overlooked that the structures explain nothing beyond the structural framework, which was put up in the first place on the assumption that actions are not self-evident. The dualism introduced between circumstances and action (and phenomena in general) has, thus, established explanations for such *structures*; the phenomena themselves, as they occur, unrestricted by imposed boundaries, remain as obscure as ever.

Fourthly, it is questionable whether it is possible to talk of an IS-community as a coherent group. Only if the IS-community is coherent can an IS-ideology arise and vice versa. Yet, not only is the IS-community not defined and its members not of a special kind, but the very idea of a group of people being equal in some respects is problematic. In spite of the widely accepted belief that members of groups display shared properties, this belief can be shown to be another instance of circular reasoning. Social action of a typical nature is expected to be a consequence of a professional preoccupation with typical phenomena. However, the contact with a typical environment does not necessitate a typical response to it. A person's behaviour is not deterministic like that of a machine. Thus, experiences will vary from person to person and consequently no typical experience springs from an involvement in a typical environment. If a community is 'defined' by its shared properties, and the shared properties are 'defined' as a consequence of the existence of a community, circular reasoning is in full swing.

These four assumptions have been singled out to discuss the validity of the concept of ideology. It is a matter of perspective, whether to agree with them or not. It is a matter of perspective too, whether the choice of these four assumptions is valid. Circular reasoning is often believed to discredit a concept. Yet, is not all reasoning circular according to the concept of ideology? The homeostasis of the mind is a phenomenon of feed-back, which reveals circularity in assumptions that were supposed to be straight forward. Circular reasoning, where explanations for phenomena are revealed to be based on themselves, is an ideological phenomenon *par excellence*. It is a feature of the homeostasis of the mind that was discussed earlier. The hermetically sealed circle described by the concept of ideology constitutes a blueprint for the circularity of arguments in general. These four criticisms are, therefore, criticism or justification of the concept of ideology, subject to interpretation. Hence, the concept of ideology cannot be dismissed easily and, therefore, a thought experiment of 'ideology and information systems' is worthwhile.

On the basis of the concept of ideology, three positions toward information systems will be argued. In the thesis, the concept of ideology will show how action is the basic concept of human reality and how the concept of ideology gives insight into IS-thinking and -practice. In the antithesis, the concept of ideology will be portrayed as a conceptualisation that is inadequately explaining IS-thinking and -practice, because it is based on a concept of action, rather than on action itself. IS-thinking and -practice are, therefore, obscure, and scholarly explanations are an *Ideologisierung* of the *Alltag*. In the synthesis, finally, the conflict of thesis and antithesis is resolved into a position of nihilistic thinking. Only the readiness to 'transvaluate' gives the resilience necessary to adopt IS-thinking and -practice reasonably, whereas knowledge gives the stability necessary to develop this resilience.

The recurring assertion that there are no panacea becomes comprehensible in this context as a nihilistic statement. IS-thinking and -practice evolves along ideological paths. Interpretations of this evolution as progress are wishful thinking. Only because phenomena are constantly re-interpreted, or 'transvalued', can a resilient study of IS exist. However, the 'elitist' treatment of the study of IS has all the hallmarks of a predominant paradigm that degenerates into an inappropriate ideology.

Part II: Thought Experiment

5. THESIS

INTRODUCTION

The first part of this dissertation gave a historical account of science, ideology and system, where thoughts and ideas on these topics were presented in a selective and descriptive way that represent a personal choice. In this part, the thesis will be formulated, and its implications will be discussed, using cases from IS-practice.

The first part of the thought experiment is the formulation of the thesis. In this research the thesis is: "'systems ideologies' exist". This means that IS-thinking and -practice are conditioned by human limitations. Assumptions, beliefs, luck, inclinations, preferences and other influences have to be taken into account. Indeed, these influences amount to an environment that binds the IS-community together. Within this 'culture' a collective IS-ideology rules. In this chapter the necessary argument will be delivered to show that the thesis is a sensible statement. In chapter six, the thesis will be discussed in detail and implications will be derived from this discussion.

Neither Marx nor Mannheim wrote explicitly about information systems. In their day, the term information system had not evolved. By discussing how the hallmarks of the concept of ideology, as selected in chapter four, are to be interpreted with reference to the study of IS, it will be attempted to give a Marxian and Mannheimian perspective on information systems. This entails that the concept of ideology, as presented in part I, will be applied to the subject matter as well as to the study of IS itself. By means of introducing the author's interpretation of Lévi-Strauss's, Piaget's and Bloor's thoughts to the study of IS and its subject matter, the meaning of systems ideologies and the crucial step from individual systems ideologies to a collective IS-ideology will be demonstrated. The result of this first part of the argument is the clarification of individual systems ideologies. The second part concentrates on the demonstration of the evolution of

a collective IS-ideology. As a consequence the position of the concept of ideology within the study of IS should become apparent.

ARGUMENT

As was discussed in the first part, the concept of ideology really became viable with Marx. His ideas are, therefore, the starting point for the establishment of an argument for systems ideologies. If the study of IS and its subject matter are to be approached from the point of view of Marx's writings, then the concept of social action, which is so central in his writings, has to be used accordingly. Any action within the study of IS, as well as any action within the subject matter of the study of IS, is social action in a Marxian sense. These social actions happen in a typical IS-environment. Consequently, only typical knowledge can be derived from these experiences. On the basis of this typical knowledge future actions in the IS-environment will be shaped. The first step to the establishment of a concept of systems ideologies is done. The credibility of this step is dependent on the observation of a typical environment.

In the case of the IS-community this environment is characterised by words like 'system', 'information', 'computer', 'byte', 'data', 'IT' and 'processing', words that feature prominently in its discourse. Because of the diversity within the IS-community, there is also a wider range of IS-jargon. This includes words like 'spreadsheet', 'bug', 'Weltanschauung', 'computability', 'virus', etc. The professional life of the IS-community is dominated by a concern for the things these words and combinations of these words stand for. Although it is pointless to try to define the IS-community, it is nevertheless clear that it is common practice to talk of people as IS-people, either to characterise them or to differentiate them from other communities.

Even though the IS-community is diverse, it nevertheless rests on the often casual use of 'system' and 'information' as the pillars of its identity. Everything is

considered in the light of these two concepts, and although everything *can* be seen through the tinted spectacles of system and information, this does not establish a justification why this should be done, let alone why it should be appropriate. In fact, systems-thinking and -practice adds another structure to the social whole and thus produces, as a consequence of both its introduction into and its interaction within the social whole, another layer of complexity together with emergent relations to and from other social structures that are affected by it. This is a new layer which owes its existence to IS-thinking and -practice. It is in this respect typical of the IS-community. Moreover, access to this layer comes through involvement with the same (typical) IS-thinking and -practice. When access is gained this layer feeds back to IS-people, and thus re-enforces their sense of identity.

This can be clarified with an example. A problem is usually stated in terms of its features as, for instance, 'the furnace temperature varies too much' or 'documents which are older than four years take up too much space in the office'. The investigation by a systems analyst will produce a specification requirement for a computerised information system that controls furnace temperature or stores old files. A whole new layer of phenomena are created: measurement converters, communication lines, scanners, optical discs, etc. This layer of devices, organizational measures and conceptual novelties establishes a source of identity and power for those who have access to it. Some people will be 'in the know', others will not. Groups will form and additional changes, related to the new layer, will take place.

The 'hermetic' circle described by Marx, of a social reality which permits only particular actions as a basis for experience and consequently knowledge, is closed by the re-enforcement of structures which are conceivable on the basis of limited knowledge. In the above example, this could be a suggestion for improvement of the storage procedure, which, even though it makes sense with respect to the used

equipment, actually goes counter the initial problem of a crammed office. All the phenomena which Marx stipulated for the emergence of an ideology are existent in the field of systems-thinking and -practice. From a Marxian perspective, the *conservative* and *propagative* property of ideology traps the study of IS and its subject matter within limits of a 'superstructure' that do not represent the limits of its 'base', yet nevertheless convey the impression of representing a whole *reality*.

The above idea of systems ideologies is the consequence of the application of Marx' concept of *action* on human reality and its consequent mediation between subject and object. Taking the study of IS and its subject matter as a phenomenon made up of social action makes the above point a valid conclusion. Literally all phenomena under investigation by the study of IS, whether it be participative methods in IS-design, competitive influences of object-oriented programming in the banking-sector or people's attitudes toward information, are describable as a consequence of actions taken by individuals. The specific contribution of Marx is the labelling of such a realisation of knowledge as ideological, describing a series of influences and grouping them together into one concept. A true Marxian investigation would then try to establish a connection between the economic circumstances and the emergence of one particular systems ideology on the basis of the struggle between a ruling and a ruled class. The ideological distortions would be seen as upholding the ruling class's socio-economic supremacy over the other. As the discussion of Mannheim in chapter three showed, this is a one-sided approach.

What becomes apparent from this Marxian perspective is that no clear meaning evolves of what an information system is. Despite a bias toward information, system and information system these terms are used in an idiosyncratic way. The importance for the argument of the thesis lies in the absence of any objective reference. Individual experience within a typical environment determines the

gathering of knowledge. The first three hallmarks of the concept of ideology are fulfilled.

A Mannheimian investigation would adopt a different point of view, taking a relational perspective. Such an investigation would accept the Marxian premise of action, and agree that the social determination of action shapes a person's belief that his knowledge is original, whereas it is really determined by what his circumstances allow him to experience and consequently to know. His knowledge is, therefore, from a sociological perspective not original, but ideological. Going beyond the Marxian understanding of the concept of ideology, a Mannheimian investigation would argue that since *all* knowledge is ideological in this sense, there can be *no* independent or objective knowledge. This entails that also the notion of ideology is ideological, because this proposition is as well a consequence of experience through action which is dependent on circumstances. The notion of ideology is, therefore, not an original thought, but a result of what circumstances allow a person to know. The notion of ideology is, therefore, not an objective truth, but a result of actions that have taken place in the social and material environment.

Applied to the study of IS, this entails that actions and ideas appear original; yet, they are ideological in so far as actions and ideas are typically concerned with information systems. With reference to IS-thinking and -practice, it can be argued that the circumstances of the actions of people are constitutive for their knowledge. For example, particular circumstances prevail during the production of a specification for an information system or in connection with the implementation of a decision-support-system in a far away subsidiary. People will treat their knowledge as original and their consciousness is formed accordingly. From a different point of view their knowledge and consciousness appears conditioned by those circumstances, and consequently ideological. Yet, this perspective is just as ideological, since it is based on a different set of circumstances, as, for example,

not being part of the specification team or working in the R&D-department of headquarters. All points of view are, in this sense, ideological in relation to a person's circumstances. Yet, they are also ideological in relation to each other. With the introduction of this relationalism, perspectives concerning specifications or implementations are not only ideological in themselves, but also the idea of taking them to be ideological is ideological. The consequence of this strict application of the concept of ideology is a relationalism of perspectives and ideas, which does not allow for independent or objective knowledge, and, therefore, necessitates the proposition that any perspective within or outside any specific task is relational in nature, and not absolute. The *reflexivity* of the concept of ideology does not allow one perspective to dominate another on the basis of superior validity.

Thus, the Marxian possibility to differentiate between 'good' and 'bad' on the basis of an analysis of the socio-economic background is no longer possible. On the basis of a Mannheimian understanding of the concept of ideology, there can be *no* 'absolute' valid basis for arbitration or evaluation. *All* actions are equally ideological, and consequently so are all points of view. It is, hence, invalid to talk of one particular systems ideology, but rather of multiple systems ideologies. They cannot represent an absolute aspect of the base, but only a relative one. The Marxian struggle between different classes is thus disposed of. Consequently it is impossible to talk of 'false consciousness' in a Marxian sense, resulting from an unjust stratification of society. If a 'false consciousness' exists, then it had to be a result of the typical and often fortuitous peculiarity of the IS-environment in a Mannheimian sense. Social influences, like power and authority, decide about superiority of perspectives, and not 'absolute' knowledge.

The recent development of the concept of the 'Hybrid-Manager' is one well-publicised phenomenon [Johnson, 1990], which can be interpreted as a consequence of the realisation of ideological limitations. IS-managers were

perceived to be too limited in their education and their consequent understanding of information systems. Consequently, a broader curriculum of subjects was advocated to widen the limitations of understanding and knowledge. Thus, the Hybrid-Manager was supposed to be able to understand and communicate a wider range of experiences and to be able to take a wider range of actions. Contrary to the assumption that this is going to lead to a breed of managers who will be able to tackle problems better, an ideological interpretation suggests that it will only lead to a wider ideology, which will have a *different* perspective, but not necessarily a *better* perspective.

In addition to this interpretation, there is yet another way to interpret the emergence of the concept of Hybrid-Manager. Career paths for IS-professionals are not very well developed. Indeed, if a career reaches the level of project leader or project coordinator, there is hardly any prospect left, except maybe to become an IS-consultant within or outside the company. The move to develop from within the IS-community a breed of managers that have the air of generalists, or systems-thinkers, is a clever move to conquer other career paths. To this end an ideology of the importance of information systems has to cover up the gap that exists between claim and reality. On the one hand, the ideology has to convince personnel officers that the Hybrid-Manager is indeed what companies need. On the other, the IS-community has to be educated as to accept Hybrid-Managers as IS-people. Pushing through the concept of Hybrid-Manager is, hence, an exercise of authority.

The four hallmarks of the concept of ideology lead to an assessment of people which are involved with information systems along the lines of their actions. This assessment is valid for users and analysts alike. However, in the following, the argument concentrates on the relevance of the concept of ideology on the IS-community. In the IS-community a strong involvement with information systems results in conceptual approaches to information systems in addition to the *ad hoc*

responses of ordinary users. This study of IS will be shown to coincide with a collective IS-ideology that supports and justifies the study of IS.

The 'working' of a systems ideology as a cultural phenomenon can be shown with reference to Lévi-Strauss. The similarities between an anthropologist's and an IS-person's task are striking. Lévi-Strauss's approach closely resembles the approach that systems analysts take when they go to an organisation that wants parts of its business converted into a (computerised) information system. The systems analyst has to make an analysis of the 'symbols' that are of importance and assemble them according to the 'rituals' within the company into a meaningful 'culture'. Lévi-Strauss's structuralism was criticised for the danger that his ideology drove the construction of a 'whole' which was rather a personal than a true reflection of the situation. This means that his ideology translates his experiences of what a 'family', an 'adult', an 'aggression' is into a prescription for the foreign culture. Thus, he would impose his conceptions onto the culture he 'discovers'. The appropriation of meaning and the claim to wholeness of that culture was, thus, a mere reflection of his ideology. The criticism in its most extreme form has, therefore, called anthropology the 'continuation of imperialism'.

This imperialism of the analyst is a valid idea for systems analysis in general. Some examples will show how IS-methods encourage an imposition of ideologies onto an organization. The first example is John Camillus's and Albert Lederer's proposal of a three-dimensional design-support tool. This structure allows the system under investigation to be classified along the three dimensions: Transaction Processing System (TPS) versus Decision Support System (DSS), Strict versus Flexible Policy Stance and Mainframe versus Micros Hardware Configuration [Camillus and Lederer, 1985]. These three dimensions are a product of a particular and arbitrary analysis of business. The analysis cannot be objective, it has to be ideological. What specific influences governed this particular analysis is not important, because it is just one out of many such analyses, which come to

formulate different dimensions. What is important, though, is that the three dimensions are supposed to be the result of such a thorough analysis, that they cover all there is to 'corporate strategy and the design of computerised information systems'. However, not only does the necessity for such a three-dimensional matrix only arise because business has adopted the computer as a valid technology within its framework, but also because effective computer-use has become such a prominent topic within business. Furthermore, the classification of an IS-project along those three dimensions is again a matter of ideology. Whether an information system is rather a TPS or a DSS is very much dependent on whose perspective is taken. In a participative company, employees will be involved in the deliberation, whereas in an autocratic company, the deliberation is a matter for top management. Business culture, thus, strongly affects the choices taken in systems analysis and design. The systems analyst plays an important role here, by selecting a method or advocating a classificatory scheme, by involving a large or a small set of people in the analysis and design process, thus allowing for a large or a small number of different perspectives, by choosing only sales-representatives or only women, etc. He has to make precarious choices when he vests a structure of the prospective system with meanings, because these choices can predetermine the result of systems analysis and design to a great extent. A prevalent ideology, in the sense of Lévi-Strauss's culture, is taken, consciously or rather unconsciously, as an unproblematic datum to justify the systems design tool and the delivery of meaningful answers. Systems ideologies decide whether computer-use is seen as a valid addition to business, they decide whether there are three dimensions or seven, they decide how to understand classificatory schemes and how to evaluate them. The link between action and knowledge prevents, thus, an objective treatment.

Another example is, for instance, the systems analysis and design method of D. Jeffrey and M. Lawrence [1984], which is closely allied to DeMarco's. They choose the model of a flowchart and a restricted set of flowchart symbols to represent an

information system. The systems analyst's choice to use these symbols introduces 'cultural posits' into the process of systems analysis and design. The 'ritual' application of this method to any system under investigation creates a culture of systems analysis and design. The systems analyst introduces an 'alien' syntax into an environment. The syntax represents his educational background, his assumptions and beliefs, i.e. his ideological superstructure, while the environment is the base which this superstructure tries to represent. He projects his systems ideology on the system under investigation, just as anthropologists project their ideology on the foreign tribe under investigation. And just as the argument waged in anthropology as to what extent the anthropologist affects the society he studies, this argument should also wage among the IS-professionals.

Systems analysis in general is, thus, susceptible to such criticism, because of the crucial role of the systems analyst to draw boundaries where none existed, to introduce formal structures where informal structures existed, etc. Why, indeed, do flow-charts introduce boundaries? The structuring of a problem is supposed to clarify the phenomenon under investigation by reducing complexity. Yet, boundaries are very complex. Indeed, the introduction of boundaries adds a whole new collection of problems to the phenomenon under investigation. Problems of ambiguity, problems of flexibility, problems of change will emerge as a consequence of the alien boundaries introduced by the analyst. Complexity is, thus, increased as much as it is decreased. The resulting chaos puts heavy demands on management, and even the whole organization. IS-methods camouflage this disastrous consequence with the euphemism 'maintenance'. This is as much a ritual to convey the impression as if maintenance was under control as it is a self-delusion. Spiralling maintenance costs send a clear message: IS-methods are not in control! No wonder computerised information systems are loathed as much as cherished.

To discuss such issues only with an eye on which method is better suited to create 'good' information systems, neglects that *all* methods are culturally or for that matter ideologically restricted to confounding complexity within an organization. The assembling of computerised information systems becomes a ritual task, and in the contest for the best structuring method, the most relevant point, i.e. that they are *only* structuring methods, is lost. The convergence of the IS-community to task-orientated issues, makes it unreceptive to consequences that cannot be captured within their ideologies. Spiralling maintenance costs are not interpreted as a consequence of systems analysis and design, but as a consequence of 'bad' systems analysis and design. Various points are neglected. Firstly, maintenance costs spiral, because the organization has been thrown into turmoil. The simplistic snapshot of systems analysis cannot capture the complex nature of organizations, and systems design constructs simplistic mechanisms that neither harmonize with human behaviour, nor keep pace with organizational change. Secondly, intention rules over consequence. 'Good' analysis and design is supposed to control maintenance; i.e. by being clear about the goals and means, it is expected that one can contain negative consequences. Thirdly and lastly, there is an immense support for 'good' IS-thinking and -practice. If an information system is a success, then it was 'good' IS-thinking and -practice. If it is a failure, then it was 'bad' IS-thinking and -practice. This is a perversion of definition. All three points demonstrate the effect of a force transcending individual limitations. A *collective* IS-ideology establishes such defences. This collective IS-ideology can be interpreted as a cultural phenomenon, which protects the members and rituals of the IS-community.

The above affords an assessment of the methods advocated in the field of information systems and of their handling as a 'cultural' phenomenon. Taking a Piagetian view leads to a critique of the very process of IS-thinking and -practice. As Piaget claimed that structuring is actually making sense of life, so Lévi-Strauss's focus on culture is replaced by a more personal idea of generating

meaning and knowledge within a culture. A systems analyst might just as well be described as making sense of life while going about his task. By doing so, he generates his personal knowledge. This 'genetic epistemology' of his personal knowledge is derived from the way he goes about his job. This activity is part of a wider context of his life. Living generates his understanding of the world. The genetic epistemology of his personal knowledge of information systems is, hence, only a part of his personal understanding of the world. How a systems analyst understands an information system would then have to be considered as contingent on much more than just the narrow confines of his task such as the studied organisation, but also on the self-understanding of the systems analyst, his method, his Weltanschauung and quite possibly even the prevalent *Zeitgeist*. If, in Piaget's sense, living is the making of sense through the way in which one goes through life, i.e. structuring, then a professional structurer, as for instance a systems analyst, has to question his task as a professionalisation of life. His professional structuring is not different from mere living, when living is structuring. The 'genetic epistemology' of a systems thinker and practitioner generates knowledge parallel to the 'genetic epistemology' of all people around him. Anybody involved in the system under investigation and anybody involved in the tasks surrounding its creation generate their knowledge as they live. Any attempt, therefore, to stop the structuring process is bound to generate problems when faced with a continuing structuring by users. The 'genetic epistemology' of systems thinkers cannot but use the systems methodology as a tool in the totality of his life. Personal creation of artifacts is a consequence, with all the conceivable influences on the created information system. Does his structuring, which is meant to last through the creation of a system, conflict with the continuous structuring of the users and society at large living in the system's environment? A critique of ideology in the sense of Piaget's 'genetic epistemology' will clarify the issue.

For instance, Peter Checkland's CATWOE analysis states that C, the customers, are those "who would be victims/beneficiaries of the purposeful activity" [1990,

p.87]. How then does a systems analyst classify people in order to find out who are and who are not the customers of the system? According to Piaget, any answer would have to be considered as temporary, because it would be part of an on-going genetic epistemology of knowledge. For instance, if it was said that white collar workers were the beneficiaries, blue collar workers, for instance, could become customers as well, because not mentioning them would soon get them upset and, therefore, involved. The systems analyst's statement would, thus, have created a change in the system under investigation, and consequently a different understanding by the people involved. Their changed social circumstances lead them to form a different understanding according to their ideology. The generation of knowledge never stops, as long as people live. If a systems thinker decides to stop the process by making, for instance, a CATWOE-statement, he has to be aware that this is going to have consequences. A 'genetic epistemology' cannot be controlled. An attempt to do so by designing a purposeful activity is, therefore, always a recourse to the systems analyst's ideology.

The difference between the individual structuring in a person's life and the general structuring as with the systems paradigm accounts for the difference in derivable knowledge. The similarity in the concepts of "organised complexity" [v.Bertalanffy, 1971, p.33] and of Piaget's 'self-regulated transformations' is only marginal. While both the systems paradigm and Piagetian structuralism say that knowledge only comes in wholeness, they differ in that they take different perspectives on wholes. Piaget says that what man structures he structures *into* wholes, i.e. there is no partial knowledge, whereas according to the systems paradigm wholes are the basis for systemic as opposed to reductionist understanding. So while GST is a unifying principle [Ackoff and Emery, 1972, p.3], Piaget's structuralism is an individualistic principle. The property of any unifying principle to structure according to one (non-individual) principle makes its predominance dependent on the power-base of its ideology. Again, as in the above example, the coincidence of a powerful IS-ideology is, therefore, a necessary

condition. IS-methods can override individual differences, only because a *collective* IS-ideology justifies a unifying principle. Its authority helps to support the general approach, but at the same time preserves the IS-community's relative isolation.

Finally, discussing the study of IS from the point of view of Bloor sheds light on the topic from yet another angle and gives additional validity to the possibility of the existence of systems ideologies. Bloor's four categories of causality, impartiality, symmetry and reflexivity can be taken to account for the circumstances of an IS-person's realisation of knowledge. The interpretation of phenomena is reduced to interpretation of the circumstances of phenomena which gives much wider scope for ideological distortions. Using the deliberate aloofness of Bloor's explanatory framework in the study of IS leads to an epistemology of 'anything goes' [Feyerabend, 1975], where base and superstructure can change without any teleological direction, and merely the account of the conditions of knowledge renders insight into the study of IS as well as into information systems themselves. The interpretation of circumstances of phenomena allows for an almost cynical expansion of the influences that are to be held accountable for knowledge. Knowledge becomes, thus, the result of the unconscious design of a person's ideology.

The increasing elaboration of the study of IS follows this ideological path. Many textbooks in the study of IS are now concerned with formulating fundamental prerequisites, necessary conditions and/or critical success factors. Information systems are taken as a matter of course, with eclectic and arbitrary choices determining the set up of discussed circumstances. The focus on information systems is fading. Information systems have been absorbed into the consciousness to such an extent that they are used unquestioned in most textbooks as if they had an objective existence. That they have not is all too often forgotten. The example of Camillus and Lederer showed that some scholars even consider there to be a dimension to measure information systems. Such a pretentious neglect of the

controversy that surrounds information systems can only be justified by the evolution of a collective IS-ideology.

Thus, information systems lose their importance for discourse which is dominated by social circumstances like culture, 'genetic' development or scientific ritual. As described with reference to Lévi-Strauss, Piaget and Bloor, there are various threats to the study of IS. Problems of justification on a cultural, 'genetic' and scientific basis raise the question about how the systems paradigm can be justified.

The belief in the efficacy of a systems methodology, which is very much based on knowledge about organised complexity by means of an understanding of its structure of information flows and the influences on this structure, is indicative of the sense of security the various systems ideologies render. This secure position of professional dominance creates the collective prerequisite for the emergence of a collective ideology and vice versa. In the case of the IS-community, the unquestioned existence of individual (competing) systems ideologies, such as 'hard' and 'soft' artificial intelligence, entails a collective IS-ideology that protects the members of the IS-community and their theory and practice, as well as giving them a basis for generating ever more systems ideologies in line with their IS-ideology. The above example of a conflict between white and blue collar workers might serve to demonstrate this. Their conflict may be transferred into a competition of systems design proposals by the different parties. The competition of one design against another reinforces the use of systems design, with one side advocating, for instance, CATWOE-analysis and the other side adopting JSD. The chosen method is, to a large extent, irrelevant to the conflict. While the conflict is about white versus blue collar worker interests, it takes systems design as a 'vehicle' for lobbying. The effect is a reinforcement of an IS-thinking and -practice which is connected to problem-solving of a distinct IS-epistemology of "bubbleware" [Straub and Angell, 1990]. The competition of different systems

ideologies within the IS-community, thus, establishes a professional environment which coincides with an IS-ideology.

In accordance with Comte's classification of knowledge, the study of IS is solidly committed to scientific reasoning by its practitioners. The firm belief that knowledge, and especially scientific knowledge, is power, encourages an ever increasing effort to come to terms with information systems scientifically. This ranges from efforts of a highly theoretical nature to grasp the notion of information and system to long-term empirical studies of influences of business policy on the formation of IS strategy. Such an accumulation of 'scientific facts' about information systems is supposed to lead toward a better understanding of information systems. It is expected to be taught and propagated amongst students and practitioners. Thus, Destutt de Tracy's vision of a science of ideas is repeated on a less grandiose scale with a science of ideas about information systems.

Despite vast amounts of literature on the history and philosophy of science, which have led to a reassessment of scientific knowledge in the social sciences, it seems as if the study of IS has made only haphazard attempts to consider its scientific knowledge as socially influenced and thus ideological. Singular textbooks and schools of thought that introduced the study of social influences in information systems exist, for instance, in the field of IS-methods and artificial intelligence. However, there is no sign yet, that even those schools consider their knowledge as ideological. The study of IS is still very much concerned with the quest for the 'right' questions and the 'right' answers, just as if knowledge was a 'neutral physical matter' out there only waiting to be discovered. The study of IS has all the hallmarks of a positivistic science where a critical and reflecting position toward knowledge within the study of IS is not adopted.

It is indicative that most books on systems analysis do not even bother to address the question of knowledge; no epistemological discussion of the subject is carried

out. A notable exception is Jackson who writes that "in JSD the real world is given, a fixed starting point" [Jackson, 1983, p.x]. Apparently, Jackson sympathises with Comte's point of view that facts are the basis of (scientific) knowledge, and that, therefore, systems development should deal with the hard facts as they can be observed and formulated as systems development input. He continues that "our concern in JSD is to ensure that the system *correctly* reflects the real world as it is" [ibid.] (italics added). A consequence of the proposition that facts are 'given' by the real world is the possibility of 'correctly' mapped systems. Systems can be correct, because everything can be proven by facts; at least by users who in specifying their requirements have "the determining voice" [ibid.]. No mention is made of who gives and who receives what, why and how. In fact, any such problem "is no part of JSD" [ibid.]. Such practice opens the door for ideological abuse of this method.

However, there is a slight deviation from 'positive science' in JSD. Since the task of systems development, rather than the establishment of 'positive science', is the aim, the primary commitment to a given real world is somewhat curtailed. Although JSD "regards the real world as given, we do not, *of course*, exclude the possibility that some or *all* of the real world must be *invented* or changed" [ibid.] (italics added). It is a hint that forces, other than scientific, govern system development. The gap between, on the one hand, the commitment to a given world, and, on the other hand, the readiness to invent the entire system is the space which the IS-ideology fills. Reconciling the former with the latter without straining the consciousness of IS-people is what the IS-ideology achieves.

The IS-ideology achieves this by shifting the focus of IS-theory and -practice from information systems to tasks surrounding the creation of information systems. Most IS-methods are predominantly concerned with the functional side of a task. Very telling in this respect is the omission in Olle's list of important questions on 'IS methodologies' of any question whether IS-people know what they are doing

[Olle *et al.*, 1988a, p.2]. The concentration on the task has proceeded so far, that not even in a book on the comparative review of IS methodologies is asked an existential question. This, at least, would be the place where the question is asked 'what is an information system', 'what does an analyst do' and consequently 'what is the role of IS-methods'. Instead, all sorts of questions, internal to the IS-ideology, are discussed.

Jackson is a rare exception in explicitly addressing such an issue, and he should be appreciated for his explicit mentioning of a crucial point. The task to produce systems is such an overriding theme of many books [e.g. Checkland, 1981; Rosenhead, 1990], that fundamental questions are not asked. No reflection on the task is done. Consequently, a positivistic understanding of information systems is prevalent, where even the treatment of information systems as 'social systems' merely indicates a practice of social systems engineering. This phenomenon of avoidance and projection is not restricted to the study of IS. Generally in systems analysis of, for instance, the energy sector, the status quo of imperative task accomplishment overrides professional reflection: "energy systems analysis, then, is simply the quantitative treatment of such problems [of the interaction of energy with economic development]" [Meier, 1984, p.2]. Quantitative, fact-based analysis is the accepted standard. Systems paradigm protagonists firmly believe in the equation of progress in the (scientific) systems approach with progress in systems thinking.

CONCLUSION

This chapter has shown how the concept of ideology is relevant for the study of IS. On one level, the question of the 'best' way of knowledge gathering comes under ideological attack; on another level, current scientific activities in the quest for a better understanding of information systems as well as in the task of applying IS-methods is seriously troubled by ideological implications. The Marxian concept of action renders users' and analysts' experiences personal, creating the ideologies

that leads them to see problems in an ideological way. Mannheimian relationalism denies the possibility to judge these systems ideologies on an objective scale. Lévi-Strauss, Piaget and Bloor give examples how a justification of perspectives could be ascribed to culture, 'genetic epistemology' or science.

The question of what an information system is, becomes very problematic. Since the concept of ideology encompasses the entire reality, whether that is in terms of socio-economic conditions, in terms of possible knowledge, in terms of culture, in terms of personal 'genetic epistemology' or in terms of a scientific programme, there is no escape from ideological knowledge. Arguing about information systems without 'really' knowing what information systems are, is thus, the fate of the study of IS. In this scenario, the collective IS-ideology guarantees the homeostasis of the IS-community as the individual systems ideologies guarantee the homeostasis of the mind in the face of these weird circumstances.

6. DISCUSSION

INTRODUCTION

The previous chapter tried to present systems ideologies as a valid possibility, but do systems ideologies actually exist? This chapter is intended to discuss that question. Examples are used to show how the interpretation of phenomena in IS-practice are affected by a perspective which takes systems ideologies into account.

In chapter five, systems ideologies were shown to exhibit the four hallmarks of the concept as described in chapter four, using Marx's and Mannheim's thought. Levi-Strauss's, Piaget's and Bloor's thought was used to show how these systems ideologies 'work' and how a collective IS-ideology justifies the individual systems ideologies of IS-thinking and -practice. In this chapter, this reasoning will be discussed, and the implication that the introduction of the concept of ideology gives alternative explanatory power which points at dangerous developments for the study of IS will be shown.

To this end the 'bug/feature'-example will be introduced to show the working of ideological explanations, and to point out the implications this has for the study of IS. Then, the evolution of a collective IS-ideology will be demonstrated and its consequences discussed.

ARGUMENT

The famous "It's not a bug, it's a feature!" is known widely in the IS-community. The funny undertone of the statement points out that there is a problem of ambiguity here which cannot be resolved easily. The joke also hints that a bug can be a feature just as much as a feature can be a bug; it is not just a one-way relation. However, the underlying problem is very simple in terms of the concept of ideology. Making sense of a computer program leads one person to assume that some action of that program is a bug, whereas another insists that this action

makes sense as a feature. Interpreting this example with the help of the concept of ideology suggests that the two people each have a different individual reality in which the program's action has different meanings. Looked at from an outside point of view, there is nothing to suggest that the program's action should favour one person's reality over the other, or one person's knowledge over the other. After some explanation, it might be resolved as a bug or feature and both people can incorporate the program's action in the same way into their reality. They have compromised on one way of interpreting reality. Yet, overall it still leaves them with two otherwise different realities.

The example of the bug/feature-controversy shows the existence of different subjective realities, which differ, for instance, in personal beliefs and/or attitudes which are shared by social groups of which the person is a member. The different attribution of truth is a consequence of the difference in personal reality; for A it is true that it is a bug, for B it is true that it is a feature. Without any mediation between A and B, both would go on believing in their truth, and none of them would feel the need to challenge this, because their reality is in accordance with their knowledge, even though a third party could easily spot the clash. What is more, there is no social mechanism that would automatically trigger a mediation. Both could go on, A disgruntled and B satisfied. This means that their realities become 'updated' by their respective experience of the bug/feature. Both go on with their initial 'Weltanschauung' intact and unchanged. Existing beliefs and shared attitudes of their social groups have been *reinforced*. Another important point is that neither A nor B even realise that they are at ease with their ideology if they do not explicitly reflect on this experience. And why should they? For them everything is in accordance with their ideology.

Without deliberate intervention, their ideologies are reinforced and A and B are trapped in their way of thinking. The implication of this example is that if only people would talk to one another about the conflict and about why they hold

different opinions, then ideological clashes may be resolved. The claim of many methods [e.g. DeMarco, 1978, pp.6-7] to be basically a communication device to bring the parties together and to get the problems out of the way, plays on this point, hinting at the problems these methods have in bringing about 'quality systems'. In the light of the following analysis of the study of IS these problems are not surprising, and the claim to resolve these problems methodically becomes questionable.

On the one hand, according to IS-methods, the quality of information systems depends on a proper functional decomposition of the task which they are to perform. The cybernetic origins of much of these current IS-methods necessitates an application of logical, analytic thinking. This quasi-mathematical treatment of systemic structures refers back to philosophical roots in writers as, for instance, Poincaré, who defended numerical models. He writes that "it is the intuition of pure number, that of pure logical forms, which illuminates and directs those we have called *analysts*" [Poincaré, 1913, p.221], asking from the analysts primarily a good command of logic, because "logic, which alone can give certainty, is the instrument of demonstration" [ibid., p.219].

On the other hand, systems methods have to deal with the legacy of v.Bertalanffy, whose holistic approach to phenomena necessitates a grasping of the whole phenomena, as described by *Gestalt* psychology or *Verstehende* philosophy. Köhler writes about the "properties of organised wholes" [1930, p.144] that have to be grasped because of additional aspects that might appear "mysterious" [ibid.] since they are beyond the local limits of the system in focus. Thus, a non-reductionist element is introduced which complements the use of reductionist elements in IS-methods. Through methodical usage, though, the holistic component of the systems approach is instrumentalised and subjected to subjective deliberation, as v.Bertalanffy acknowledges when he writes that the wholeness of a system "must be intuitively seen and recognised" [1971, p.69]. The difference between the

mathematical decomposition and the psychological intuition is highlighted by Poincaré's belief that: "intuition is the instrument of *invention*" [1913, p.219] (italics added). Since the 'whole' has to be intuited, the basis for any systems-thinking cannot be methodical.

In this conflict of analytic logic with *verstehende* intuition the systems analyst plays a crucial role. Stamper [1973] has recognised the crucial role of the systems analyst. He argues that any system has as its 'root antecedent the analyst', which is IS-jargon for: all entities in a system's structure derive their ontological justification from the discretion of the systems analyst. This radical subjectivism is very difficult to translate into practice, because often the analysis is carried out by a constantly changing team and because of other limitations. The attempt to build a valid systems structure increases the importance of producing an invariant structure. In Stamper's case this is reflected in the use of 'affordances' as cultural invariants, according to Shaw and Bransford [1977, pp. 59-61]. Thus, the drive for deliverables, which can work independently of the systems analyst, counteracts the initial insight [Poulymenakou *et al.*, 1990]. The importance given to the role of the analyst, in comparison, is diminished, and the root antecedent is reduced to a footnote. The quest for usability corrupts philosophical rigour.

Because 'quality' is in the eye of the beholder, 'quality systems' are a matter of negotiation between different perspectives. The feature of IS-methods to support the process of negotiation by making structures, components and sometimes motives explicit is seen as the communicative element of IS-methods. However, this is the ideal case which is hardly implementable in IS-practice, because any honest participant is taken in by those who 'cheat'.

The bug/feature-example shows how the concept of social action can yield an explanation of people's different points of view. Based on their experience, they take their subjective reality for objective; they behave ideologically, 'they know no

better'. The example shows only one particular instance of disagreement and the possibility to reduce it to an ideological phenomenon through recourse to individual backgrounds of social action. However, it is an indication that differences in general can be explained in an analogous way. A wide range of differences in personal experiences which amount to a person's ideology can be revealed. People act on the same base, i.e. the same social and material environment, but in an individual way. In so far they are ideological, and just as much as they are ideological with respect to bugs and features, they are ideological with respect to information systems. The way they 'verstehen' or grasp the notion of system is idiosyncratic.

Yet, the example can also be used to show a different aspect of systems ideologies to propagate their limited grasp on an 'objective' reality, to the exclusion of alternative ways of understanding. Taking an outside point of view gives the opportunity to negotiate a compromise between A and B. With hindsight the arisen conflict could be interpreted as a result of 'bad design'. Systems methods implicitly claim that good designs follow a good analysis, for which some stress structural rigour [DeMarco, 1978], others participative methods [Mumford, 1979]. The implication is that if a conflict like the above had been taken care of in the analysis of the system, the system could have been designed to prevent such problems. Valuable and scientifically sound as these measures might be, they do not preclude failure. Murphy's law, that everything which can go wrong, will go wrong, is not invalidated, because this law applies to human shortcomings in general and, thus, is independent of what action a person is involved in. Nevertheless systems methods are used; sometimes even *ad absurdum*. What starts as sensible systems-practice as the application of a systems ideology, transmutes into an ideologically rigid application of systems-thinking. The implication that there is a *correct* use of methods and that if the methods are used correctly, good systems will be built is indicative of the belief in inherent validity, a claim, which is only possible within an ideology. While the concept of ideology suggests that the

base is a muddle of equally valid perspectives which interact in a complex way, the superstructure, that is the current IS-ideology, is beset by the quest for the best method under which all problems can be unified.

Superstructure and base are greatly at variance. The superstructure of a collective IS-ideology champions the use of IS-methods. The power of the individual systems ideologies is derived from the prevalent positivistic attitude toward knowledge of this IS-ideology and the imperative use of scientific method in the study of IS. Systems methods textbooks give no advice on when to apply these methods, which can lead to a system overkill, where *systemic* thinking transmutes into *systematic* thinking. The consequent over-exposure to systems-thinking and -practice conditions the consciousness to 'think systems'. The consciousness is false in a sense that it uses these methods almost with deliberate disregard for the base. Thus, the limited grasp of systems ideologies on reality encourages the use of systems methods for lack of alternative perspectives. Thus, the propagation of the knowledge they conserve, to the exclusion of other approaches, is put into effect.

The example of the bug/feature-controversy shows the explanatory power of the concept of ideology. The implication is that points of view can no longer be described as straightforwardly right or wrong. Both A as well as B are right in their own way. The assumption that either one of them is right, thrusting one particular Weltanschauung on others as an 'objective' frame of reference, is in itself ideological. This change in interpretation of people's points of view comes about by means of the historical orientation of the concept of ideology. Thus, beliefs, assumptions and truths but also systems-thinking are put into a perspective that makes them appear justified in their environment. Consequently, no right or wrong systems analysis, design and management exists, but only ideologically justified ones. More importantly, even considering ideologies, or assumptions, beliefs, goals, etc. within the study of IS, will lead just as much to ideologically distorted IS-thinking and -practice. This means that any approach towards

information systems can be considered ideological. The suitability of any approach rests on the appropriateness of its ideology to the social and material environment into which its methods are introduced. However, appropriateness is a matter of ideology. The powerful IS-ideology seriously infringes attempts of assessing the appropriateness of the study of IS for information systems. Indeed, 'good' and 'bad design' have to be seen as a matter of ideological prescription.

The application of the concept of ideology to the study of IS, thus, leads to the notion of systems ideologies within the IS-community. As a consequence of these individual systems ideologies the evolution of a collective IS-ideology is a valid conclusion. The implication of these two ideological phenomena is that while the first implies an open-minded approach toward information systems, the second effectively prevents open-mindedness to develop. The stability of the study of IS as a professional institution is preserved, but at the cost of the resilience of the study of IS to respond to the challenge of information systems. This calamitous reasoning is a consequence of the introduction of the concept of ideology. In the following paragraphs this reasoning will be discussed further.

The state of the art in the study of IS is only partly advanced beyond a stage reached in the early 19th century by the writers discussed in chapter three. Consequently, the discussion of an IS-ideology did not arise. Only if the study of IS is viewed from the point of view of Marx and the writers discussed in the section of ideology does the relevance of the concept of ideology become apparent. The introduction of *action* as the lynch-pin between subject and object makes any knowledge dependent on a person's practice. Thus, the embellishment of a positivistic and task-orientated study of IS by some more sociologically orientated issues must be seen then as just a substitution of one ideology by another. It does not convince that such a replacement should be a general improvement of the study of IS. Firstly, sociology is not more virtuous than any other science. Sociological practice is, therefore, bound merely to lead to a new

and different set of working-patterns that replace a technologically driven systems approach, but retain the trappings of an isolated IS-ideology. Secondly, the assumption of more science, in this case the addition of some sociology to the study of IS, equalling better science is very much positivistic. It is most surprising to witness how systems failures are followed up by further research into the matter, when the break-down occurred despite or possibly even because the 'systems approach' was taken. The conclusion that more scientific research is needed, when tasks have gone wrong [Martin, 1978] is only one possibility out of many. That the IS-community very often draws that conclusion is a sign of its healthy quest for self-preservation. Yet, the effectiveness of the IS-ideology to achieve the homeostasis of the study of IS as a scientific enterprise, might obscure the meaning of the task.

The introduction of the study of IS has changed the subject matter under investigation. It changed 'the name of the game'. Therefore, it cannot fulfil the task to look at knowledge *ceteris paribus*. However, the systems approach is hailed as if it could integrate all other approaches and account for other knowledge within its epistemological framework without paying attention to the changes it produces. Wilson, for instance, tries to formulate a systems epistemology and stipulates that "the type of knowledge needed for praxis or action must be based on the *total* system in which the action is to be executed" [1973, p.123]. After what has been said, the concept of a total system cannot be taken to be an objective reality, but must be understood to be a subjective conception. The authority which formulates the total system is, therefore, imposing its perspective on the total system and consequently that authority is becoming itself an important agent *within* this total system. The propagation of a systems epistemology and with it the propagation of systems-thinking and -practice is already transgressing the borderline between a genuine methodology and its subjective degeneration. Systemic thinking is changed into systematic thinking, when, for the mere fulfilment of the method, various influences are grouped together ideologically.

This eclectic approach is systematized by the systems approach. Yet, the systemic imperative, that everything affects everything, is thrown overboard.

Indications of ideological distortions become perceivable when the claim of validity of the systems approach is discussed. The possibility of its proclaimed all-encompassing validity being limiting is not considered within the IS-community. The claim to be a super-science is seen as being typical, yet not as typically limiting but rather as typically integrating. An ideological bias toward the positive prevents the study of IS to develop into a balanced or even a negative enterprise. Implicitly the typical properties of IS-thinking and -practice are seen as a virtue. The recognition of the IS-ideology is, thus, a recognition of the self-preserving mechanism of the study of IS. The existence of the study of IS coincides necessarily with the existence of a collective IS-ideology.

However, the claimed super-applicability of the systems approach leads to the very phenomenon of disabling oneself for other ways of looking at things by installing an overriding principle. The systems approach is even used to look at the systems approach [Mead, 1968]. Thus, only typical knowledge can be realised, but not super-knowledge. Quite the contrary, experience of non-systems approaches is discouraged and reality is interpreted in special IS-terms.

Interpreting reality in IS-terms allows only for typical knowledge to be realised. The implication of the concept of ideology, though, is that IS-people are not conscious of their ideology; they have a false consciousness in so far as their reality favours some actions over others, some experiences over others. Consequently, the preoccupation with optimising systems rather than solving particular problems is only 'super' in a sense that it does not expect stable solutions. Yet, it is not 'super' in an epistemological sense. A different technique and a different focus of the systems paradigm does not allow people to know anything they have not experienced. IS-professionals are limited, just as much as

'narrow' engineers are limited, by what they know. Members of both groups depend on their experiences for their knowledge, which is basically a reflection of their life. A claim to super-knowledge in a super-discipline could, therefore, only be defended on the basis of a 'super-life'.

The IS-ideology is not bad in itself. Everybody is ideological in so far as the relation to the social and material environment determines one's knowledge. Ideologies become problematic, though, when their claim for validity exceeds their justification for validity. The growing strains in the realm of information systems indicate that the IS-ideology is becoming problematic for the study of IS. The tacit assumption that the systems approach is super-applicable does not allow for much variety. Yet, if there are multiple ideologies to be found, and a pluralist society suggests such a conjecture, as well as Dilthey's experience of the different Weltanschauungen, then the IS-ideology, which attributes meaning to life according to a structuring principle of information systems, is singularly ill equipped to heed to the implications given above. Regardless what properties the underlying reality, that is the base in Marx's terminology, might have, the realising, or structuring in Lévi-Strauss's and Piaget's terminology, of it according to the IS-ideology corresponds to an imposition of systemic thinking on a possibly non-systemic situation that is experienced differently by people with a different ideology. Besides, different personal ideologies coincide with a perception of different personal realities; a 'false consciousness' lets people live in different realities, not just different perceptions of reality. Yet, the IS-ideology does not permit any reality beyond its own, and thus stifles the study of IS into a systematic stability which is inappropriate to its systemic subject matter.

It is questionable to what extent the social world can be seen as being objective. A person's subjective reality, though, necessitates an ideological approach toward his environment. In individual instances, compromises will be made and differences will be reconciled. For the study of IS as a group-activity, it is difficult to do so

because collective features dominate over individual experiences. In the competition between the study of IS and experience, conflicting experiences are denounced as inappropriate or as exceptions. Cause and effect are fabricated in accordance with the IS-ideology. The social interaction within the IS-community and to its environment as expressed in the IS-ideology is an expression of a means for group cohesion. Levi-Strauss would argue that the members of this particular group receive their identity from their ideology. The inherent danger stems from the discrepancy between the stance of the IS-ideology and the tolerance of the 'objective' social world. If the study of IS loses the connection with the meaning of the tasks, that is if the study of IS is professionalised to such an extent that the feed-back of the IS-ideology overrides experience, then there is a real danger of a loss of the capability to adapt. The consequence would be that the study of IS progressed into extinction. Changing circumstances would deliver a shock to the non-adaptive IS-ideology that necessitated a dramatic change of the study of IS.

That many obsolete information systems exist is indicative of the influences of an aberrant IS-ideology. As long as society tolerates obsolete information systems and the waste of resources in their production then, nothing has to be done. The time for change comes when the complexity of the world of information systems requires a variety of the study of IS and its members in its responsiveness which cannot be delivered within the confines of the IS-ideology. It will be challenged as a consequence, and whether the IS-ideology will survive this, nobody can tell. Perhaps the IS-ideology will be seen as the Trojan Horse of knowledge in the late 20th century, where the god-sent power of computerised information systems turns out to be the disguised source of terminal destruction.

CONCLUSION

The explanatory power of an ideological appreciation of phenomena goes beyond current IS-thinking. It generates a different understanding of human behaviour as it has to be taken into account when information systems are understood to be

social systems. As such, it is an alternative to technological explanations without offering a superior but just a different quality of insight. It also draws attention to the dangers of IS-thinking and -practice because not only the user behaviour but also behaviour of IS-people can be explained. As such it thrusts new insights on the IS-community itself that are dangerous to ignore.

Thus, the explanatory power of the concept of ideology for the study of IS is twofold. On the one hand, for the analysis, design and management of information systems, multiple ideologically justifiable perspectives have to be acknowledged. Opinions are appropriate in their own right and, therefore, have to be accommodated. On the other hand, for the study of IS the spectre of a collective IS-ideology is also a danger to its validity. IS-thinking and -practice is only appropriate in its own right. The claim to super-applicability is an inherent contradiction to this limitedness. The limits of validity are not clear-cut, but they loom as an imminent danger.

7. ANTITHESIS

INTRODUCTION

In this part of the dissertation the antithesis will be formulated and discussed. The argument of the antithesis conflicts with the argument of the thesis, making a different statement about systems ideologies on a shared basis of premises. A different interpretation of these premises leads to a view that is opposed to the one argued in chapters five and six.

The thesis argued that systems ideologies exist. This proposition is an ontological statement about the concept of systems ideologies. The antithesis too argues for a proposition which makes an ontological statement about systems ideologies. In this research the antithesis is: "'systems ideologies' do not exist". In this chapter a dichotomy will be introduced that separates scholarship and science from '*Alltag*'. It will be argued that the concept of systems ideologies is used within the 'ivory tower' of scholarship. Its application, though, is not a matter of scholarship, but an action firmly based in the *Alltag*. The relevance of the concept of systems ideologies is, therefore, restricted to the scholarly world of contemplation and argument. In the *Alltag*, though, systems ideologies do not exist. In chapter eight the antithesis will be discussed, and implications will be derived from this discussion.

The pros and cons of the existence of systems ideologies have been discussed in chapters five and six. The first stage of the thought experiment has comprised a discussion of arguments both in favour and against the assumptions that helped to establish the thesis. The antithesis is supported by a different perspective, and the discussion of the antithesis is, therefore, not a mere reflection of the discussion of the thesis.

The argument of the antithesis starts from the proposition that scholarly work and *Alltag* are essentially different. This differentiation will lead to a discussion of the nature of this difference and of the nature of the circumstances of this difference. To this end the notions of scientific discourse and methodology, protocol, context and phenomenon, and explanatory structure and knowledge are used. This argument will lead to the statement that systems ideologies have a very shaky ontological foundation and should, therefore, not be used in order to explain the *Alltag*. They are useful, though, to explain how scholarship works and why scholarship is curiously inert with respect to the *Alltag*. The establishment of the argument of the antithesis is followed by three examples from the IS-world that clarify the argument.

ARGUMENT

The power of the concept of ideology holds some surprises for everyday thinking. In spite of its arguable validity, it becomes quite unsettling for someone who considers himself independent-minded to be told that he is acting ideologically. A rather devious twist to this is that even if one tries to argue oneself out of such an accusation, the logic of the concept of ideology forces one to consider the argument which achieved this to be again ideological; except, of course, one does not recognise this, which in turn might just be an indication of a 'successful' false consciousness. This is the essential difference between thesis and antithesis. For the thesis everything is a broth of social action that forms ideologies, while for the antithesis the concept of ideology is a consequence of scholarship and, therefore, not a part of the *Alltag*. The handiness of the concept of ideology, though, which makes it so easy to use it as an attack, makes it difficult to claim here in the antithesis that systems ideologies do not exist, because any attempt to question the concept could be labelled ideological. From the perspective of the thesis, the dichotomy of scholarship and *Alltag* is seen as ideological and, therefore, a consequence of *Alltag*. Whereas from the perspective of the antithesis, the dichotomy might be ideological, but it nevertheless points out the limitations of

relevance for this scholarly concept, thus, supporting the validity of the dichotomy. It is, therefore, opportune to attempt a critique of the concept of systems ideologies by criticising the process of conceptualisation which led to the formulation of this concept. This amounts to a critique of scholarly work.

Many authors have written about the essential difference between scholarly work and the life to which it is relevant: Georg F.W. Hegel differentiated between philosophy and life, Max Weber stipulated that scholarly work was necessarily value-free in contrast to its subject matter, Karl Popper "formulated and solved the problem of demarcation between science and non-science" [1972, p.1] and Alfred Schütz analyzed the different worlds of '*Wissenschaft*' and '*Alltag*'. He makes the point that *Alltag* and scholarly work are two different worlds. Popper, indeed, formulated a theory of three different worlds which he labelled: World I, II and III. World I refers to the physical world. World II refers to experience and thought in the subjective sense. Finally, world III refers to objective thought, like products of the human mind. All these writers claim to see an essential difference between scholarly work and the *Alltag*. This critique of scholarly work has a tradition, which has touched, among other things, the connection and relevance of scholarly work and its results to the *Alltag*. In a discussion of the relevance of the concept of ideology for the study of IS, such a tradition of thought has important implications. If there is an essential difference between the study of IS and information systems, then the relevance of the concept of ideology is seriously curtailed.

In order to pursue this argument Hans-Georg Soeffner's contribution will be taken as a reference point. Soeffner, a sociologist who writes, among other things, about the problems of methodology in the social sciences and about sociological hermeneutics, claims, that the belief that scholarly work should be of help for *Alltags*-problems, corresponds to a myth of the power of scholarship to be somehow superior to everyday actions. He criticises this myth because it disregards

the essentially different environment of scholarship versus *Alltag*. Soeffner points out that *Alltags*-actions happen in context, where the actor is at the same time the "author" [1989, p.40] of the action. Whereas in all scholarly work the context is removed and the actor is not at the same time the 'author' of the action but its 'interpreter' via 'protocols' and 'texts'. The scholar is not there, he is not the actor in the situation. Any attempt, therefore, to try to bring the two together leads to an "*Ideologisierung*" [ibid., p.38], where the validity of a particular perspective, that is a scholarly one, is extended to a general environment, that is the *Alltag*. The point Soeffner tries to make with his argument is that any application of the results of scholarly work to the *Alltag* is an *Ideologisierung*, which stems from the difference between scholarly work and the *Alltag*.

This means that when scholarly enterprises like the systems paradigm are applied to the *Alltag* this amounts to an *Ideologisierung*. They are a product of scholarship. Many hours of abstraction and conceptualisation have gone into them. Likewise, the announcement of the sixth generation computer systems can be interpreted as a result of an *Ideologisierung*. Fifth generation computer systems are still in a stage of experimentation and concern [Angelides and Sabanegh, 1990]. Conceiving the sixth generation is so far removed from the *Alltag*, that it is apparent that governments who are willing to jump on the bandwagon of this development are following an ideology. It is surprising that, in spite of the troubles the fifth generation computer systems project ran into, there seems to be a convincing argument why sixth generation computer systems should be used. The frenzy of high technology, the momentum of scientific research and the threat of economic competition add up to a general conviction that it is advisable to give the go-ahead for this new project. That this conviction is not based on 'hard evidence', but, on the contrary, thrives on the shambles of previous efforts, shows the power of an ideology to attribute meaning to actions that are otherwise without meaning. In both examples the link between claim and reality is provided by a particular ideology that supports the use of the systems paradigm or of the sixth generation

computer systems on grounds of the claim. The fact that such ideologies are driving action, makes an impact on the *Alltag*. This impact is an *Ideologisierung*, because claims and a considerable amount of wishful thinking are shaping the *Alltag*.

Since Soeffner's argument is a scientific protocol it can be subjected to scientific interpretation. If, for instance, the concepts of the writers discussed in chapter three are used, then an ideological case could be constructed for Soeffner's argument. The following are some examples of how such an interpretation might start: The distinction of various tiers of knowledge and the establishment of scientific knowledge as a special tier within this framework is a thought in the tradition of Bacon, Destutt de Tracy and Comte. The tradition of Marx, Dilthey and Mannheim affords Soeffner's argument to be described as a product of his circumstances with a validity that rests on his relations with his environment. The interpretation of the use of results of scholarly work in the *Alltag* as an *Ideologisierung* is almost an exact repetition of Levi-Strauss's interpretation of myths. They both serve as purposeful explanatory frameworks. Yet, the structures which Soeffner interprets are results of scholars, while Levi-Strauss concentrates on the interpretation of tribal myths. The idea of an ambiguous orientation of structure, whether scholarly result or myth, on the one hand, to explain reality to a group of people and, on the other hand, to knit the group together by means of this shared explanatory framework has distinct anthropological qualities. These few examples show how easily a scholarly discussion could evolve to absorb Soeffner's work and come to stigmatise it as ideological. This susceptibility to 'ideological attack' was described earlier as the consequence of the difference to the thesis. Yet, Soeffner's argument is poised to cut through such a discussion. It makes an onset where scholarly explanation is trying to assume authority of the *Alltag*.

The proposition that everything is ideological does not satisfy the critical mind; especially when the analysis of ideologies is itself ideological. The notion becomes empty and, therefore, a tool of questionable relevance. A critical person starts to wonder whether the concept of ideology is not after all just a scholarly contrivance. It might be just another one of those clever ideas that sound great but do not work. The *caveat* of this line of argument is that questioning the concept of ideology means as a consequence questioning scholarship altogether.

Soeffner's rather commonsensical premise led him to investigate the relationship between scholarship and *Alltag* closer. His understanding of the matter is perceptive and it is relevant for the study of IS. It goes as follows. A scholar works on a situation interpreting recorded actions and contrasts them with scenarios of possible actions, which leads him to deduce statements. The man on the street, on the other hand, does not create a "*Versprachlichung*" [Soeffner, 1989, p.29] of his reality in order to act. As much as scholarly work might have contributed to his interpretation of the world, it is nevertheless impossible for him to use protocols directly; the gap between a *Versprachlichung* of actions and action itself cannot be bridged by a protocol. The man in the street is in a unique situation by 'being there', and it is up to him to act (appropriately). The gap to be bridged is, hence, more than a mere result of the nominal separation of action and protocols about actions; actions and their textual representation are basically different. Of course, an individual might ponder before he acts, and various scholarly ideas might come to his mind, but it still leaves him puzzled when concerned about his actions, because he cannot simultaneously conceptualise his actions. The scholar, on the one hand, can go on treating his protocols to all sorts of coding, ranging from word-analysis to three-times differentiable matrices that he derived from the protocol. The man on the street, on the other hand, cannot do the same in his *Alltag* with the situation he is in. His actions are not conceptually expandable, they are, so to speak, *a priori* to him. A direct link between action and protocol can only be imposed by *fiat*. A discussion of a scholar's work as ideological in the

sense as attempted in the first part of the thought experiment would thus remain scientific, leading to all sorts of scholarly results. The *Alltag*, though, would remain separate.

In the context of information systems this means that even though a programmer, for instance, can read a protocol which stipulates that an appropriate mix between quality and cost has to be achieved, he is still left without a means to assess appropriateness, except for his personal conscience. Similarly, when a textbook points out the importance of top management support for an IS-project, it is still unclear how this applies in the 'here and now' of a situation a project leader is faced with. In any situation in the *Alltag*, it is a matter of doing the right thing, whether that is the mix between quality and cost or the support of top management. But doing the right thing is not a matter of prescription, it is a matter of interpretation. In the *Alltag* this comes after the action, whereas ideologies try to make us believe that it could be done beforehand.

Based on Soeffner's argument, this leads one to question the applicability of scholarly work for the *Alltag*. This question can be clarified if, for instance, assumptions that go into scholarly work are considered. Most assumptions are not made explicit; many of them are unconscious. They remain opaque, because they are part of a scholar's *Alltag*, where he "thinks with his beliefs, but not about them" [Barnes, 1974, p.1]. The socio-historical *a priori* of the *Alltag*, thus, penetrates the detached world of scholarly work.

Anybody who has tried to apply a protocol to a situation he is faced with, will have experienced the disillusion when suddenly the terms of the protocol did not fit the task. This discovery is not just limited to software handbooks, where it is positively annoying, when two terms are used apparently interchangeably, but do not have the same meaning, as in the case of different key-boards or different computer-terminals. It applies also to more important issues, as for instance, when

a problem has to be assessed along a dimension of 'programmability'. If a problem is programmable it can be put on the computer, if not, it cannot. But how is one supposed to assess, when the reasoning could be just as well reverse; i.e. if a problem can be run on a computer, then it is 'programmable', if not, it is not. A circular reasoning is, thus, easily discovered, just as in chapter four. And again, it is a truly ideological phenomenon.

Another example that shows the gravity of the problem are data-bases. If, for instance, the structure of a data-base requires an item to have a reference number, but the item has none, then some numerical mechanism has to be conceived. Usually one is found, but the result is an *Ideologisierung* of the application. The application which worked without a reference number for years has suddenly to incorporate some awkward arithmetic, because the data-base requires it. The ideology which supports the use of data-bases sees the world in terms of numbers and their relation to each other. Consequently, an application has to comply, if it is to be computerised. Yet, human nature is not 'ideal', and compliance is not one of its straight forward traits. More likely than not, the work-around will be corrupted by laziness, ignorance, resistance to change, etc. As a result ideal and reality drift even further apart.

Another example is the use of the term 'system'. The very assumption that there are systems is a consequence of reflection. System serves the purpose of scholarly discourse to denote a complex phenomenon of some order. However, in many cases the identified system is a matter of vested interest. Either a phenomenon is called a system in order to preserve or to change it. Identifying a 'system' is, thus, a consequence of a particular ideology, rather than of 'objective' observation. It is subject to the agent's complex predicament within the *Alltag*.

Scholarly work is just as much pervaded by such *a priori* actions as is the *Alltag* of the scholar. In the *Alltag*, on the one hand, implicit assumptions are not a

problem, i.e. they are not made problematic in a scholarly sense. In scholarly work, on the other hand, assumptions lead to discussions about validity and justifiability with respect to reference points such as protocols, experiences, other 'implicit' assumptions or prevalent scientific attitudes. Scholarly discussions are, therefore, disconnected from action and linger on about problems which stem from the nature of the scholarly work rather than from the situation which gave rise to the discussion. Taking the *Alltag* as reference point rather than scholarly work, it is even questionable whether it is appropriate to talk of assumptions, because it is only possible to talk of assumptions if they are made explicit through language. Thus, scholarly work does not just disconnect its practice from the actual situation through *Versprachlichung* of the *Alltag*, but creates, as a consequence of its methodology, an artificial environment in order to carry out its discourse.

Scholarly work is, therefore, not only at variance with *Alltags*-actions because of its different level of discourse, i.e. context-removed protocols versus action in context, but also because of the very discourse itself. In the *Alltag*, any consequences arising from actions are necessarily actions again, whereas discussions in the scholarly realm are ever more and more theoretical, they lose more and more the connection to the context in ever decreasing circles. Thus, a world of scholarship is created, that takes on a life of its own. Popper called this the World III of knowledge without a knower [1972, pp. 106-152]. This knowledge feeds back into the *Alltag*, but not via direct application of protocols to actions but via a process of socialisation. Whatever socialisation might be, it is a phenomenon of the *Alltag* and not of scholarly work. The problem of connecting the two worlds will remain an inexplicable *Alltags*-phenomenon, 'explained' by another concept of scholarly work, adding yet another ghost to the World III.

The concept of ideology is just such a ghost of the World III. It is not just that one cannot observe an ideology, as an empirical positivist might argue, but that the concept of ideology is a scientific concept, and, thus, a result of conception.

Despite the use of the term ideology in the *Alltag*, the discussion of symbol structures, social systems, action-generated knowledge, etc. is a matter of scholarly discussion. The socialisation of such terms is just an indication of the social link between scholarly work and *Alltag*; i.e. scholars are people like you and me, and people like you and me get to know some works of scholars. The fabric of society and its culture take care of this.

Consequently, there have been attempts [e.g. Cassierer, 1950; Piaget, 1971; Barnes, 1974] to limit the approach of 'total relativism' of the thesis by a hint at culture as an objective basis that gives viability to at least some assumptions. Yet, these attempts rest in a similarly ill understood concept, i.e. culture. There is no essential difference in protocols about culture and protocols about any other phenomenon. Protocols are protocols, and their ability to capture reality is limited. To illustrate this point, just take Bloor's strong programme as an example of the scientific culture producing a framework of principles. It falls short of questioning the hermetically sealed character of its approach, i.e. the sociology of knowledge. The stability of the framework compromises the epistemological validity. A case in point is the assumption that four principles can be used to account for knowledge. Why four, why not three or five or thirty-seven? Furthermore, by complying to rules like consistency and integrity it aspires to a universal validity, which falls short of the complexity of the *Alltag*. The question of epistemology 'what can we know' is discarded in favour of the question 'what can we explain'.

Again the idiosyncratic treatment of assumptions is a telling example of this. The realisation that assumptions can change, points as much to the possibility that they are changing over time, as it points to the possibility that verbalising a phenomenon into an assumption was the wrong thing to do in the first place. Either the assumption is objective, but was not covered by its textual representation, or it is objective, but cannot be covered by a protocol, or it is not objective and the author has projected his own ideology into the protocol.

However, in spite of the impossibility of finding a rational solution to this problem, a discussion which verbalises all the points in order to satisfy the scientific imperative is the only alternative open to scholars. The consequence is the production of ever more and more protocols. Similarly, the habit of discussing an ideology in the hermetically sealed world of scholarship, therefore, only leads to further discussion rather than (appropriate) action. The scientific reduction of problems of the concept of ideology to ever more 'basic' concepts like 'man' or 'action' or 'culture' or 'system' can only serve the purpose of scholarship to have ever more scenarios at hand for *ex post* explanation. But these explanations serve only the realm of scholarship.

If the question of the ontology of ideology was left to scholars, it would necessarily lead to an expansion of the concept of ideology and a profusion of protocols about the subject. Not only would the issue be absorbed into a swamp of scientific discourse, but also the inability of the scientific community to muster the authority for a decision would hardly become apparent. In comparison, from the *Alltag*'s point of view, does it convince that knowledge is determined by action? Isn't this just academic mumbo-jumbo to talk of action and knowledge, when scholarly investigations are only able to make valid statements about phenomena that are verbalised and stripped of all life? Barnes writes, for instance, that it is impossible to conceptualise science [1974, pp.45-46]. All the reasons he gives for the impossibility to characterise a particular social phenomenon like science could also be used to argue that a particular social phenomenon like an individual's life cannot be characterised. But how then can one argue that one's life will *determine* one's knowledge of reality, that is one's ideology? If there is no way to characterise one's life, then this supports the claim that knowledge might come to a person by inexplicable ways at least as much as by action.

This leads to the conclusion that, like Soeffner argued, all results of scholarly work are ideological. In addition, the *Alltag* does permit all actions and consequently

allows for the use of scholarly results, including the concept of ideology, in a way that is beyond scholarly explanation. Despite the power of scholarship to explain protocols, the *Alltag* retains its secrets. The thesis fell short of recognising this, by treating the representation of the *Alltag* in protocols as all there is to *Alltag*. Therefore, it argued that systems ideologies exist, as they were apparent from the protocols, despite the disputed validity of the concept of ideology. The argument of the antithesis challenges the thesis, by stating that the argument of the thesis is a valid scientific statement within the realm of scholarship. Yet, since the thesis did not recognise the essential difference between scholarship and *Alltag*, it fell short of recognising its own scientific limitations.

The study of IS is a form of scholarship and, hence, the argument of the antithesis applies to it. Before discussing the antithesis in chapter eight, some examples will show as to how the antithesis applies to the study of IS.

One common example in the study of IS is the 'systems life cycle'. This term is a creation of the systems paradigm, which characterises the system as a project within time. "In information systems, indeed for all systems, the basic period for temporal analysis is the *systems life cycle*" [Ein-Dor and Jones, 1985, p.37]. The first step of scholarly work is done. The *Versprachlichung* of a complex phenomenon, in this case the on-going evolution of a system over time, into a concept with a label allows the systems life cycle to become a matter of scholarly work. However, since there is ambiguity to the *Alltag* of systems the scholars always return to actual systems to investigate and check. As a consequence of the scholars' different perspectives, the systems life cycle is divided in different phases which vary in number as well as content and emphasis. Candidates for such phases are: project initiation, user request, inception, definition, specification, design, coding, production, testing, verifying, certification, acceptance, implementation, release, operation, maintenance, extension, evolution, obsolescence and phaseout (all terms are compiled from [Sommerville, 1982; Lewis, 1982; Birrell and Ould,

1985; Simons, 1987]). Many of the protocols which are concerned with information systems are written by people who have actually built information systems. In those instances the *Alltag* of the evolution of an information system over time was experienced first hand by those authors. Their involvement with a particular information system was one of immediate interaction to the socio-historical *a priori* of their task. In those cases they experienced their 'authorship' of their actions. Yet, when writing about the respective information systems they interpret their authorship as well as the actions of the others involved. As a consequence a protocol is created that is taken to represent the actual actions in context.

The second step is the direct consequence of this *Versprachlichung*. Consequences and implications are derived from these protocols. Yet, the derived implications are a game with words. The *Versprachlichung* of the *Alltag* introduces a meaning that pertains to the terminology and its set-up much more than it relates to the *Alltag*. For instance, if requirement specification is included in a systems life cycle then, "there is no point in setting about a complex procedure of software development unless a clear need has been identified" [Simons, 1987, p.57]. Of course not! But one might say analogously that there is no point in setting about a complex procedure of software development unless any pretence about 'clear needs' has been routed. The neatness of 'clear needs' is a very powerful ideology but a very weak observation, because it is a hostage to fortune and abuse. The deduction of implications is, thus, based on a logic that exploits the *Versprachlichung*, rather than serves the *Alltag*.

The *Alltag* of a 'complex procedure of software development' is truly complex. The poverty of a 'linear' systems life cycle was, therefore, exchanged for the poverty of a reiterating systems life cycle. But is not this change an amendment to an inadequate concept? If feed-back between phases is allowed and even encouraged, "there is, of course, a danger here, namely that of iterating so much between phases that the boundaries between them become blurred and indistinguishable"

[Birrell and Ould, 1985, p.5]. This means that the force of the *Alltag* is about to assert itself over an inadequate *Versprachlichung*. The phases were ill-conceived, and the *Alltag* of software development, with all its inconsistencies and hiccoughs, upset the protocol so much that it is in danger of becoming meaningless. But, "the solution to this is simple. Each phase ... must have a clear start and a clear end" [ibid.]. Now this is a fine prescription. After the failure of the clear *Versprachlichung* to capture the messy *Alltag*, all that has to be done is to insist on clarity. The concept of the systems life cycle is preserved while the conflicting complexity of the *Alltag* is ignored. The aim to control software development has subsided to control of the control of the control mechanism. An unnecessary focus on control is the consequence of the failure to accept profound complexity.

It becomes apparent that the *Versprachlichung* of the perception of different phases in the evolution of an information system has made it necessary to make the *Alltag* comply to scholarship. All sorts of checks and balances have to be introduced in order to allow the systems life cycle to survive as a concept in the face of counter-evidence from the *Alltag*. This is what Soeffner meant when he talked of *Ideologisierung*. The systems life cycle becomes a totem which is afflicted onto 'indeed all systems'. The fact that there are numerous different representations of the systems life cycle, does not constitute a convincing argument that anything like it exists in the *Alltag*. When the software development turns bad the failure is blamed either on the lack of clarity in the set-up of on the inappropriate use of the systems life cycle. How much evidence does it need to show that the systems life cycle is an afterthought? It is a conception to cope with the messy *Alltag*. The hope that the *Alltag* will comply with the systems life cycle is, therefore, naive. The systems life cycle is a part of Popper's World III. As such, it has even become itself a victim of computerisation in the form of computer aided software engineering. Even software factories are built around the systems life cycle [Matsumoto *et al.*, 1981, p.310]. Yet, this attention the systems life cycle gets, does not make it any more than a scholarly ideology imposed on the *Alltag*.

As a second example the debate about management information systems (MIS) shows how the process of *Versprachlichung*, as described in the first example, leads to a controversy. Of special interest are the article of Russell Ackoff "Management Misinformation Systems" and John Dearden's article "MIS is a Mirage", and the responses these articles provoked. A good summary of these debates is printed in [Davis and Everest, 1976, pp.17-21, 109-126]. Without reiterating the points of disagreement and controversy, it is nevertheless possible to use these examples as an explanation of the argument of the antithesis. The consequence of *Versprachlichung* and the implications derived from such a *Versprachlichung* is a lively exchange of protocols about MIS. Even a secondary body of literature emerges which uses these debates to argue for or against something, like Davis' and Everest's book or this dissertation. None of these protocols is sufficient to close the matter as settled. Everybody is only trying to sell his point of view, or his ideology. Only the *Alltag* can decide with respect to each situation how the issue is tackled at that point. In contrast, a general discussion about some conception about MIS will only lead to more protocols. There are certainly people who are genuinely interested in an 'objective' answer to the question of MIS. However, there are just as many people interested in MIS because they can make money with them, or get promoted, or get a publication (or even a Ph.D.!).

A third and last example for the argument of the antithesis is this dissertation. The notion of systems ideologies is part of Popper's World III. The dissertation itself is a protocol which is based on a *Versprachlichung* of *Alltag*. The analysis of activities within the study of IS and its subject matter in order to highlight its ideological properties and, therefore, to explain them with the help of the concept of ideology is an *Ideologisierung* in the spirit of the thesis. Whereas the assumption that the *Alltag* is a separate world from that of scholarship, and that, therefore, scholarly statements about the *Alltag* are an *Ideologisierung*, is an *Ideologisierung* in the spirit of the antithesis. After all the effort which has gone into the establishment of the notion of systems ideologies and their pros and cons, what do

we know about the *Alltag* that we did not know before? Nothing! The entire discussion of this dissertation remains curiously inert with respect to the *Alltag*, because of its scholarly nature.

Coming back to the first chapter of this dissertation, the question of what an information system is, has to remain obscure. An information system, for whatever it is, is a phenomenon of the *Alltag*. Concepts and notions that try to capture what an information system is, are an imposition on the *Alltag*. The ideologies that reverberate through scholarship made up of assumptions, beliefs, aspirations, etc. are 'human, all too human'. The *Ideologisierung* of the *Alltag* seems an inevitable consequence of scholarship. However, ultimately the *Alltag* rules scholarship and not vice versa.

CONCLUSION

Together with IS-methods the spectre of systems ideologies has to be banned into Popper's world III. They exist in protocols which make statements about people's reality. Interpretations of these protocols may feed into the *Alltag* through socialisation. However, socialisation is a process beyond scholarly prescription. The *Alltag* of information systems is profoundly complex, and will, therefore, defy enthusiasm and authority. Passwords that are scribbled on the side of the terminal and users who type 'RETURN' instead of hitting the return key are phenomena that have a tendency to elude protocols. Hackers are successful, because they are 'street-wise'. They can double-think the mind set of others, and are, thus, able to cheat. The *Alltag* rules over scholarship exactly because scholarship creates a gap in order to preserve its activity in the ivory tower. It has to be acknowledged that attempts to overcome the gap between scholarship and the *Alltag* are futile. Systems ideologies do not exist in the *Alltag*, and their use will not advance the study of IS toward an understanding of information systems.

8. DISCUSSION

INTRODUCTION

The argument of the antithesis is a response to the trouble of the ideological reflexivity of the thesis. Defending oneself against being called ideological, because of the negative connotation that goes with it, can again be called ideological. The implication is that the knowledge which governed such a defence is not original in a Mannheimian sense, but conditioned by the complex involvement of a person in his social and material environment. There is no escape from this argument since every person can be portrayed as being involved with his environment and, therefore, had to be ideological in whatever argument he pursued. Yet, as argued in the antithesis, this whole argument is based on a scholarly interpretation of the *Alltag*. Only after the *Versprachlichung* of the *Alltag* into discrete and concrete concepts can the above argument be applied. The task of this chapter is to show the consequences and implications of this *Versprachlichung* and to demonstrate that on the basis of the *Versprachlichung* a typical activity evolves which, for this very reason, cannot transcend its epistemological base.

To this end, two strands of analysis of *Versprachlichung* will be pursued. Firstly, the representation of the *Alltag* in the form of phenomenon, protocol and context will be shown to have implications on the efficacy of this explanatory 'landscape'. Secondly, the method which is afforded by such a landscape will be described as implicating a detached and self-perpetuating activity whose basis is an interpretation of a representation of the *Alltag*. It will be demonstrated that the systems paradigm is a vehicle of such interpretation. Hence, the danger of its irrelevance will be discussed. Finally, a short critical appraisal of the antithesis will conclude this chapter.

ARGUMENT

The argument of chapters five and six did not state that the concept of ideology is invalid. It was not argued that systems ideologies do not exist. The validity of the concept of ideology, though, was said to be restricted to a discourse which takes for granted the authenticity of scholarly work with the *Alltag*. In those chapters, the essential difference between actions and 'protocols' about actions was not treated as important. Rather everything was subsumed to an overall assessment of activity as social action, and, therefore, as a basis for ideology. The argument of the antithesis interprets the differences in activity as important. Thus, actions and the treatment of protocols about actions are interpreted as being different in that the former is *Alltag* whereas the latter is scholarly work, which is in itself a particular form of *Alltag*. Does this suffice then as an argument that systems ideologies do not exist? The investigation of the *Versprachlichung* of the *Alltag* will give an answer to this question.

In an attempt to capture the complexity of the *Alltag* a protocol can only represent a phenomenon or several phenomena and their context. Each phenomenon can be described as embedded in a variety of circumstantial phenomena. The selection of those phenomena is not determined by necessity. Yet, scholars discuss a protocol as if phenomena and context were all there is to a situation. They impose a perceived, and, therefore, artificial, order on the situation where phenomena of the same kind are juxtaposed to different circumstances. For instance, companies are evaluated to follow different IS-strategies in different markets. The representation of 'company', 'IS-strategy' and 'market' is highly abstract. Nevertheless, phenomena and context are discussed as if such a representation was relevant. The genuine situation on which conceptions of phenomena and context are imposed is not represented in the protocol. Thus, 'system', 'data', 'objectives' or 'strategies' are dealt with as if these phenomena were actually existent.

The establishment of this explanatory landscape highlights the conceptualised phenomenon and its context, yet neglects the uniqueness of any situation it aspires to represent. But exactly because such a landscape is established, a discussion can take place where a phenomenon becomes a 'matter of interest' with the discussion itself being the manifest event for its members. The preparation of the situation has given rise to a scholarly discussion which argues about the representation, but not about the situation the representation tries to represent. Thus, the paradox emerges where an increase in the potential to explain concepts reduces the opportunity to use this potential for lack of relevance.

In the case of the bug/feature-controversy, A and B are represented as persons 'of the same kind' in circumstances 'of the same kind'. Their different relation to these circumstances is said to establish their different realities. The 'authorship' of A and B in the *Alltag* is entirely neglected in favour of a perceived responsiveness of two 'persons' A and B to circumstantial phenomena. The attempted representation of the bug/feature-controversy in a protocol necessitates such a treatment because human behaviour cannot be captured accurately in a representation. A protocol necessarily leaves out many aspects. Treating A and B as persons presupposes a conception of 'person' that satisfies the conditions of the discussion as well as represents A and B (and any other person involved) adequately. An equation is struck between A and B and a protocol which is supposed to represent them.

Moreover, for the representation of person A and B in the protocol, the reality of the controversy does not exist beyond the description of the situation. The actions of A and B respectively, as recorded in the behavioral evidence of their different attribution of truth, places them in a position relative to the circumstances and relative to each other. This relative relationship of one person to another is only possible on the above assumptions that there is a landscape of context and phenomenon. Taking away only one of these 'absolute' conceptions makes arguing

for relative positions of persons (and other phenomena) to the context impossible. The explanatory power of the concept of ideology is, therefore, restricted to protocols. This implies that the validity and relevance of the protocol decides about the validity and relevance of its explanations.

This implication is responsible for the scholarly discussion which emerges when different protocols, with different perspectives, are introduced as being valid. In the case of the bug/feature-controversy, validity can be claimed for many perspectives, because none of the protocols can capture reality. Every protocol will draw attention to different aspects of the controversy, always failing to present an exhaustive picture. One protocol might stress the difference of expertise between A and B, another might point to the organizational relevance of A's and B's opinion and yet another might highlight the authority which A and B have respectively. All protocols are valid in their own right, all contribute to the discourse, but none resolves the issue.

The *Versprachlichung* of the *Alltag*, though, spurns also other curious consequences of their combination. Various restrictions have to be taken on board when a textual representation of the *Alltag* is discussed and if the results of such a discussion shall be used. As soon as it is written, a representation becomes a matter of a possible scholarly discussion. Such a discussion, as a part of a scholar's *Alltag*, is a merger of protocol and action, conveying a strong impression to its participants that comprehension comes through explanation of the textual recreation of reality, or as Pankow put it: "not only is language a conscious re-creation of our world of experience; the world of experience is also a concrete representation of language" [1976, p.27]. A bias toward protocols, which stems from the reduction of *Alltag* into a 'matter of interest' and the contrasting manifest reality of the discussion, limits understanding to the understanding of protocols and in a bold statement makes reality the 'concrete representation of language', thus trying to vindicate discussions of protocols as relevant for the *Alltag*. By

discussing protocols, the 'real situation' loses its flair of *Alltag* and becomes a trite textual representation. The discussion itself, however, is 'real' for its participants. It is their *Alltag*, even though it is only of limited relevance to the matter of interest. The *Versprachlichung* of the *Alltag* has, thus, established the claim of leadership for those who study its representation over those who are involved in it.

In addition, a discussion gives the opportunity to choose circumstantial parameters and to measure both their importance for, and their impact on, the phenomenon under investigation. Both are helped by the establishment of the conceptual separation between phenomenon and context. The ensuing profusion of parameters is not only a consequence of such a *Versprachlichung*, but it also becomes a requirement for the participation in a scholarly discourse. A simple statement which is not supported by a, possibly elaborate, structure of arguments, based on contextual parameters, and references to previous protocols is not considered to be proper. Even if such a statement would constitute the foundation of a new 'paradigm', it would not be accepted immediately by the community. The choice of parameters might be 'at free will', or it might be limited by social norms and conventions. The chosen parameters and their choice have to be justified to satisfy the scientific community. Hints at how such limiting conventions may operate in the scientific community are given by various authors. Amongst the most prominent explanations for such conventions feature the system of "irreducible posits" [Quine, 1961, p.44], the "paradigm" [Kuhn, 1970] or the "style of reasoning" [Hacking, 1983, p.127f]. Quine sees science as "extremely underdetermined by experience" [1961, p.45] and holds cultural influences accountable for the most part of science "with all its elaborate myths and fictions" [ibid.]. Kuhn introduced the "image of science" [1970, p.1] as a commonly held misperception of science. Indeed, he argues that historical analysis would show that science is dominated by authority. During periods of 'normal science' a prevalent 'paradigm' would keep scientists on track, while only in times of 'crisis' will this authority be challenged by a 'revolution'. A new paradigm which is

sanctioned by authority will ultimately start a period of 'new normal science'. Hacking, finally, suspects that "a style of reasoning may determine the very nature of knowledge that it produces" [1983, p.128]. Yet, since "we are left with no external way to evaluate our own tradition" [ibid.] we are unable to control the quality of knowledge. The style of reasoning, thus, reflects a predominant constellation of culture and society into scientific practice. The implication of this consequence of *Versprachlichung* is a detachment of scholarly work and its protocols from the *Alltag*, which makes its results increasingly relevant for scholarship, but also increasingly irrelevant for the *Alltag*.

In the case of the notion of system, the systems paradigm has already set the scene for further discussions. Not only are there already university departments and IS-companies established, but there is also a public debate about computers and the information systems they serve. There is no shortage of opinions about what a system is. This situation is encouraged by the labelling of all kinds of organizations, concepts, mechanisms, etc. as systems: health systems, traffic systems, control systems, soft systems, etc. Has this plethora of systems-thinking and -practice increased the body of knowledge about systems? Yes and no. Of course we know much more about the paradigm, because "it is solving the puzzles that it creates as solvable" [Hacking, 1983, p.56]. But then, we did not really want to know about the systems paradigm, we wanted to increase our knowledge of system. In what way the systems paradigm can help in this respect remains unclear.

A second strand of argument to support the antithesis builds upon the first strand, yet it is also corollary. On the one hand, the representation of reality, or possibly its scholarly preparation or even 're-creation', affords a particular methodology. A protocol can be analyzed and treated in various ways, depending on its form, whether it is numbers, language or any other sort of code. On the other hand, a methodology cannot be thought of without the basis on which it acts. The question

whether the presentation of reality preceded a particular methodology or vice versa cannot be rationally resolved, and, therefore, the two strands of argument are taken to be consequent as well as corollary. Representation and methodology go hand in hand.

The basis of scholarly method is a *Versprachlichung* of its subject matter. In the case of the study of IS various manifestations can be shown. For instance, functional decomposition as well as data decomposition are basically a *Versprachlichung* of actions and context. One exception among IS-methods, the MEASUR-method [Stamper, 1988] explicitly addresses this issue by stating that the symbols of an information system have no meaning except through their interaction with people. For any scholarly work in general, the reality has to be translated into a symbol structure which could be manipulated in various ways, but which needs human interaction to make it a meaningful manipulation, because the *Versprachlichung* has stripped away the uniqueness of the situation and authorship of the persons involved. The interpretation of action into protocols precedes any scholarly discourse. Thus, interpretation enters the scholarly method as a consequence of *Versprachlichung*. In this sense Popper's statement is taken up, that the connection of World III with World I has to go through World II.

Looking again at the systems paradigm for a clarification of this argument, the example shows the following. System is a concept of World III, which is used to explain phenomena in the reality of World I. In order to do so, the 'knowledge without a knower' about system has to be interpreted by the ideology of the agent, a part of World II, in order to make 'system' meaningful.

The primary interpretation of the *Versprachlichung* contributes to the particular nature of scholarly method which leads to a secondary interpretation of the protocols. These give the opportunity to deal with reality by *naming* it. A higher level of abstraction is reached, where not the actual involvement, but a textual

representation is concerned. In spite of Marx's statement of the necessity to change the world, scholars only become involved in the *Alltag* through interpretation. Such practice is built upon an understanding of names. Now the argument could continue with the argument of the thesis in chapter five. How does this understanding come about and what does it mean? Ideological phenomena can be used in a variety of issues relating to this question. The result would be a perpetual discussion. Yet, the argument of the antithesis is not based on the question how this knowledge comes about, but rather how it comes about that this sort of understanding is treated as knowledge, and what consequences it has to treat it as such.

The key to investigate this question is structure. The treatment of names, or labels, as if they actually were the phenomena they stand for, gives a new meaning to structure, making it a matter of interest in its own right. In the *Alltag*, structure does not occur as a perceivable property of a situation. As Piaget argued, structure is more like a consequence of living, or really, it is living. Yet, within protocols, structure is a phenomenon of order. Different orders of labels generate different structures. Structure can be used as a variable in order to rearrange names, thus allowing the scholar to test alternatives and by trying to build a structure that resembles a perceived reality. This opportunity to change structure and to rearrange labels gives the impression that a 're-creation' of reality was possible. Hence, Wiener's approach to construct machines, or servomechanisms, that resemble and thus explain phenomena. Yet, in contrast to the *Alltag*, structure orders abstract and context-free labels, whereas the man in the street cannot rearrange his immediate reality, but has to accept the situation as constituent of his predicament.

Thus, structure takes on a critical role in protocols. The ordering of labels gives the scholar the opportunity to choose among various alternatives and then to explain the *Alltag* in analogy to the order he sees in the protocol. Ordering

principles, then, are structures given to different scholarly approaches to structure. The systems paradigm is a case in point. The insistence on thinking in 'wholes' and the ordering of labels so that 'feed-back' takes place in a complex web of 'communication' and 'control' shows clearly what prominence the ordering of labels has in the systems paradigm. Structure is, thus, on the one hand, a consequence of representing reality in protocols and separating phenomena from their context and, on the other hand, a prerequisite of scholarly work, enabling scholarly discourse and scientific justification.

Structure gives meaning to a scholarly discourse which disputes alternative ways of analyzing and treating protocols. Protocols which are considered controversial either do not fit current scientific thought and practice, or they do not satisfy scientific standards of representation and/or method. These standards are orientated toward an ideal of rational knowledge. Thus, Dilthey was forced through pressure from other scholars to change his theory about Weltanschauungen, because it was 'proven' that he was logically inconsistent. The scholars used the 'unifying' principle of logical consistency to coerce a member of the scientific community to change an otherwise sound research into biographies. Thus, a 'structural' argument brought about a change in content. At the same time this example shows that the pressure from within a scientific community demands that theories and ideas have to be justified. Lakatos would call this insistence mythical, and attribute it to the 'negative heuristic', a "set of devices ... designed to neutralise the destabilising effects of anomalies" [Fuller, 1988, pp.58-9], of the scientific community. Different opinions within a group of scholars are discussed until one opinion prevails which can be justified to all its members. Thus, two phenomena are important: the preservation of the shared accord and the introduction of structure into the discussion in order to bring this accord about. The ability to discuss structures of ideas makes it possible to explain them and, therefore, to defend them against other structures and schools of thought. The epistemological possibility of objective knowledge ceases. "The shift from

knowledge to justification results from serious doubts about the possibility of attaining the kind of certainty that knowledge has been taken to involve" [Kekes, 1977, p.87].

Indeed, the computerised spreadsheet might serve as an example for this. As an instrument to create scenarios and to rearrange bits and pieces of the representation of a system, it is supposed to allow the user to come to results that are optimal. Yet, it could be argued that all the spreadsheet does, is to demonstrate that there are various ways to compute the matter. The system it represents, though, is not computational. The user might assume he has control over the system as he has over the spreadsheet. When one particular result is chosen then this choice becomes effective. In the case of the spreadsheet this choice will be determined by the possibility to justify the selection, whether to superiors, peers, subordinates or to oneself. This justification is built upon a *Versprachlichung* of the *Alltag*, where names represent entities and all sorts of interpretations have affected the structure and content of the spreadsheet. The relevance of this process to the represented system is questionable, and with it the efficacy of the choice. In addition, it is quite often disregarded that the A4 size of paper dictates the format of the output, and, thus, to a certain extent the content of the spreadsheet. Variables which cannot be put on one sheet of paper have to be presented on two sheets, even though they can fit on a single spreadsheet. A decision taken in the past about standards of the size of paper influences the use of high technology in our times. However, a print-out from a spreadsheet carries its weight in a meeting; facts can be presented, choices justified: mission accomplished.

The structure of the mechanism of investigation with its conceptual separation of phenomenon and context in conjunction with the shift from objective knowledge to justifiable knowledge characterises the second strand of the argument. Structure gives the opportunity to explain, whereas the *Alltag* does not lend itself to such

practice, because it cannot be grasped or abstracted. The possibility to explain is, hence, subjected to the social forces of scholarly discourse in two ways. On the one hand, structure becomes in itself an issue and a hallmark of scholarship. On the other hand, it lends itself to the pressure from cultural influences to comply with current standards. This means that power rather than knowledge decides the content of the protocols.

An interpretation of the results of scholarly discourse will lead to actions which will draw their justification at least partly from this tertiary interpretation of protocols. It is the third stage of scholarly work. Firstly, actions are recorded into protocols. Secondly, these are disputed in a scholarly discourse. Thirdly, the results are applied in the *Alltag*. All three stages of this process are subject to interpretation.

The systems paradigm has come to play a prominent role in this respect. Hailed as a means for communication among different people [e.g. v.Foerster, 1968] it plays on the difficulty of negotiating different interpretations of reality. The question of knowledge has been relegated in favour of mutual understanding by means of an explanatory framework which assumes a position of superior interpretative power. As stated in chapter seven the shift from 'what we can know' has been made to 'what we can explain'. The explanatory power of theoretical concepts is high in the latter, but low in the former. Interpreting protocols and analyzing a protocol's context gives a tremendous scope for scholarly discourse, the merits of which are supposedly seen in the progress of science. Yet, the perennial quest for knowledge cannot be achieved through an increase in many alternative explanations of the inexplicable.

The implications of the two strands of analysis on the systems paradigm are far-reaching. As a scholarly enterprise it is caught in a power-game of interests. Within the scholarly community it increases its relevance through the power-base

which has been created for it. Outside this community, though, it falls seriously short of demonstrating its relevance.

In order to support this implication, the example of the competitive advantage which computerised information systems are supposed to give can be discussed. Michael Earl states that generally "managements have not realized the full strategic potential of an IT-based weapon" [1988a, p.276]. This statement sets the scene for much elaboration on this topic, because it is a claim which is based on "investigations at Oxford" [ibid.]. This blatant display of authority which a place like Oxford commands by its tradition is the 'urbi et orbi' for its message. Other scholars are bound to take up the issue because of the precedent set by a scholar from Oxford. Not that 'strategic potential' was a generic Oxfordian discovery. This term is used in connection to a whole culture surrounding 'competitive strategy' and 'competitive advantage' as coined by Michael Porter [1980, 1985a]. Yet, as an additional source of literature which sanctions this culture, Earl's book serves as a means within the scientific community to support the paradigm. This 'political' aim of the statement becomes obvious when the next sentence is considered. "Of course it could be that in some sector 'competitive advantage' is mostly ephemeral" [Earl, 1988a, p.277]. The interpretation of 'investigations at Oxford' is only powerful enough to corroborate the initial statement, when supported by the current paradigm and the authority of Oxford. In the case of contrary evidence 'of course' some exceptions could be granted. This generous gesture to admit conflicting evidence to be an exception to the rule, tries to justify the rule rather than to accept the limitedness of the paradigm. No wonder, therefore, that competitive advantage is mocked by those who see it as a paradigm that supports scientific complacency [e.g. Warner, 1987]. Not that these critics possess the truth, but they interpret their investigations differently. That they try to make a point 'against Oxford' or 'against MIT' is most likely part of the game.

This example shows that there is a wide scope for interpretation. However, more importantly, the example draws attention to the implication that the motivation of the scientific debate comes from within the scientific community. Despite the subject matter being the *Alltag*, paradigms like competitive strategy are the gravitating forces that keep the scholarly discourse together. The question whether this paradigm, or for that matter any other paradigm, can justify its relevance has to be answered negatively, because the paradigm is an *experimental representation* of an interpreted *Alltag*. As such it is already detached from the *Alltag* through a *Versprachlichung* which gives rise to a discussion of a detached and self-perpetuating nature. The imposition of this debate on the *Alltag* is an attempted *Ideologisierung*.

The study of IS should not let itself degenerate to an *Ideologisierung* of the *Alltag*. Rather than preaching its gospel of IT and IS, it should look at the *Alltag* and see what is happening. It should acknowledge that there is a complexity beyond scholarship. Consequently, any ideology which emanates from scholarship should try to contain as much the possible consequences of the *Ideologisierung* of the *Alltag*. This means that systems-thinking should take account of systems-practice as the pillar of justification.

Before concluding this chapter some critical points have to be raised. This discussion of the antithesis is problematic, because of the strong distinction it makes between the *Alltag* and scholarly work. It has been said in this chapter that scholarly work is also *Alltag* in its own right. Furthermore, the difference of the *Alltag* and scholarly work was said to consist in the different approaches to interpretation. Whereas in the *Alltag* interpretation is simultaneous and context-free in a sense that there is no such thing as a protocol, scholarly work exclusively and specifically interprets protocols. Yet, the separation of protocol and action is problematic, and this is where a critique of the discussion of the antithesis has to start.

Many scholars explicitly addressed understanding and thinking in terms of language as a constitution of reality; Pankow and Giddens have been mentioned. At different points in this dissertation it has already been argued that protocols are taken for reality. For instance, Hegel argued that all thinking is in the form of language, because ideas are expressed in language. Only because they are communicated can they be understood. Private ideas are, therefore, meaningless, because they have no relevance to a community. A similar statement was made by Wittgenstein, when he said that there can be no private language. Thus, there is a strong case that language and, therefore, protocols are really meaningful, because they are the only way of sharing ideas. They are possibly even the only meaningful representations of reality open to man. Yet, this possibility of representation does not constitute a necessity to represent, nor does it constitute a proof that protocols are a true representation of reality, nor that they are beneficial.

The separation of protocol and action, as constituent parts of reality, is a philosophical question that 'oscillates' between acceptance and rejection. This philosophical question does not ask for an answer, but for a philosophical response in whatever way. The validity of the discussion of the antithesis, though, is dependent on this philosophical response.

CONCLUSION

Where does this leave the efficacy of the concept of ideology for the study of IS? There is a strong case for the statement that the concept of ideology emerges as a consequence of scholarly representation of the *Alltag* and to the used methodology. The existence of ideologies is therefore a matter of scholarly discourse, which thrives on discourse rather than helps in understanding the subject matter. Ideologies do not exist in the *Alltag*, because of the 'immediateness' of the experience of reality. The imposed structure of scholarship will never overcome its self-created gap between 'knowing' and 'explaining'. It will, therefore, only affect the way we explain reality without helping to understand the

human predicament. The concept of ideology should, therefore, not enter into the study of IS, since it will not contribute to the knowledge of the subject matter.

9. SYNTHESIS

INTRODUCTION

The thesis and the antithesis discussed two different points of view concerning the relevance of the concept of ideology for the study of IS. The thesis took a relativist and historicist point of view arguing that, since all knowledge is instrumental, the concept of ideology can be used as an instrument in scholarly discourse. The connection between the concept of ideology and the study of IS was demonstrated. It was shown how meaning and knowledge is constituted in a world of ambiguity and change. Consequently, the use of the concept of ideology within the study of IS was advocated. This part of the argument concluded with some cautionary remarks, which drew attention to the limitations of the argument of the thesis. The antithesis took a 'realist' point of view. Granting relativist and historicist notions of reality and consequently of its concepts, an argument was developed which challenged that stance as being hermetically sealed and trite. The unconnectedness of the *Alltag* and its study left the two realms distinctly apart. The gap between *'res extensa'* and *'res cogitans'* [Descartes, 1986, pp.68-74], the world as it is and as we see it, was taken to be too wide to be bridged. Any scholarly concept was, therefore, argued to be purely theoretical. The addition of another concept whose justification lay more in its relevance for scholars than for reality was not deemed to be appropriate. The incorporation of the concept of ideology into the study of IS was, therefore, not advocated.

The synthesis builds on these two arguments. Both, thesis and antithesis, have to be acknowledged and preserved to some extent. Yet, the synthesis has to try to absorb both arguments and achieve a different level of discourse.

To this end this chapter is split into three sections. Firstly, an assessment of chapter five to eight will show the conflict between epistemological and 'transcendental' issues in these chapters, and the way in which a collective IS-

ideology resolves this conflict. Secondly, an assessment of chapters five to eight will show how thesis and antithesis are in themselves two ideological positions that establish a stability of interpretation which renders them homeostatic. This emphasis on stability forsakes the necessary resilience these perspectives would need in order to meet the challenges to the study of IS. Thirdly, a summary of the relevance of the chapters five to eight for the study of IS leads to a critical questioning of knowledge as the lynch-pin of science, ideology and system. In contrast to the empty promise of knowledge, nihilistic thinking is advocated as a means to stay abreast of the stifling onslaught of knowledge on the study of IS. Tactical advantage gained from knowledge should be complemented by a strategic exploitation of nihilistic thinking [Straub and Angell, 1991].

This argument is based on the understanding that 'good' information systems are not a matter of knowledge. Max Hopper, the director of SABRE (the American Airline's computerised reservation system), contends that the time of large competitive information systems is over and that "astute managers will shift their attention from *systems* to *information*" [1990]. He acknowledges that whatever 'good' or 'competitive' means, their meaning is only appropriate with reference to the knowledge derived from within a position and is, thus, transitory. Indeed, when he compares the development effort for SABRE of 30 years with the replacement time for a competing reservation system of 30 days, he concludes that the investment in systems, that is the analysis, design and management of organized complexity with the ultimate aim of controlling the known, loses out to investments in information, that is the mundane yet unaccountable phenomenon of human interaction that thrives on communicating the unknown. His analysis is, hence, in line with the argument of the synthesis, that stresses the human capability to interact flexibly, to change positions, to transcend boundaries and to transvaluate. The knowledge about information systems is the basis on which IS-thinking and -practice is built, but any such knowledge is temporary according to the chosen course of action. The ability of individuals to deny themselves in a

nihilistic fashion is a lesson which has to be learned as part of the study of IS, and which will lead to new ways of IS-thinking and -practice.

ARGUMENT

The differences between thesis and antithesis can be described as a conflict between two types of fundamental question. One type of question inquires after the nature of things, such as what is a system? What is an ideology? What is action? What is the connection between action and ideology? These questions are linked with the idea that if the nature of these phenomena is understood, epistemological progress can be made, because reality is constituted by the interaction of different ideologies. Yet, the inquiry into such phenomena is particular, in so far as these questions always refer to 'entities' such as ideology and system, within a 'broth' of complex experience. An element of choice precedes these questions, when the boundaries are drawn that signify such entities. The second type of question is a consequence of this way of inquiry. Questions of the second type ask for the way the new understanding of a particular phenomenon can further the understanding of the 'broth' and the role of that phenomenon and its particular understanding. Such questions are concerned with the 'transcendental' value of the understanding gained in an inquiry of the first type, like what is gained by assuming that every thought is ideological? Is it valid to separate phenomena of scholarship from those of the *Alltag*? What does it mean to assume that reality is constituted by the interaction of different ideologies? These questions are 'transcendental' in that chosen boundaries are transcended by a look at the profound complexity of the human predicament to make sense of the 'broth'. Thus, a conflict of constitution and dissolution of understanding arises where statements which are born out of an inquiry of the first type, with its position, its framework and its Weltanschauung, are challenged by statements which are born out of an inquiry of the second type where the inquiry is not necessarily a means to an end, but rather an end in itself.

With respect to the concept of ideology and its relevance to the study of IS, this conflict is exemplified in the mesmerising ambiguity that emerges from the juxtaposition of any one position taken and the perpetual change to which such a position is exposed. The thesis and antithesis have shown this conflict in arguing two out of a multitude of different possible perspectives. The establishment of any such hypothesis necessitates the taking of a position and the defending of this position on the basis of the understanding that the respective perspective renders. A position is challenged, though, by the inevitable emergence of tautologies, syllogisms and solipsisms that stem from the introduction of a position. The circular reasoning which has been described in chapter four underpins such positions. Examples are the dependency on action or history as a concept that makes historicism viable, or the necessity to introduce a demarcation between *Alltag* and scholarship in order to make an argument about their difference. However, not just these two positions of thesis and antithesis entail criticism directed at simplistic transcendental flaws and their epistemological presumption over transcendental uncertainty. Most if not all attempts at a higher epistemological certainty are subject to such criticism. One apparent example is the claim that the computer can be developed into a brain-like machine based on the assumption that logic underpins human reasoning, and the almost haughty rejection of this position in the face of its imposition of the machine metaphor on human nature.

It has been argued by various scholars of the philosophy of science that belief systems are responsible for such perspectives and the consequent understanding [e.g. D'Amico, 1989]. Statements of quasi-religious nature are supporting theories within the sciences. This can be said as well for the study of IS where information and system are positions of belief that are the Mecca of an entire community. Probably the most obvious example of the quasi-religious authority that is given to the pursuit of information, reviving the old meaning to the word 'profession', is

Dretske's "In the beginning there was information. The word came later" [Dretske, 1981, p.1].

This deliberate biblical reference is not supposed to portray the study of IS as a sect. Rather Dretske intends to signify his position. Yet, the religious metaphor highlights the importance which is given to information within the study of IS. Even the creation of the 'world' is relegated to second place. In addition, the metaphor does not just state one belief, but hints at a complex 'cosmology' characteristic of the study of IS that is evoked with this simple single mythical statement. Even though it would be simple to discard this one statement as insignificant, its power to form an effective myth should not be dismissed, because it is "not by listening to the fragmentary mythical stories, but by living within the social texture" [Malinowski, 1926, p.55] that such fragments become effective. For instance, Porter's article "How Information gives you Competitive Advantage" [1985b] has become something like the Ten Commandments of IS-strategy, because of the way in which his position has been taken up by others [e.g. Earl, 1988b], which warrants calling them his 'followers'. Dretske's statement and Porter's framework serve as cornerstones in the social texture of the study of IS, and the apparent necessity for belief, in information or in competitive advantage, disencumbers the study of IS of the conflict between epistemological and 'transcendental' questions.

In the shadow of this IS-ideology, different scholars have produced different but equally important positions in the ramifications of IS-theory and -practice. As a result, the entire study of IS looks like a loosely connected flock of sectarian groups, held together by the gospel of information and system. Sectarian religious groups are not known for their extraordinary tolerance. Different positions are defended with great alacrity. With the help of the concept of ideology, though, it is possible to explain the different beliefs and cosmologies that support these sects. It is a classical example of the versatility of the concept of ideology. In the chaos

of meaning an ideological stagnation makes activity on this basis meaningful, irrespective of a changing world.

However, the concept of ideology and the question of its relevance to the study of IS are themselves riddled by the emergence of 'transcendental' questions that challenge positions of knowledge. This means that even though an argument can be made, such an argument has to be understood to reflect an ideological framework. Challenging such a framework with a 'transcendental' argument makes it possible to unveil an underlying ideology. Yet it is impossible to prescribe future actions upon this revelation. Only an interpretation of the past is possible. An analysis in systems terms of thesis and antithesis will clarify this dilemma.

The concept of ideology and its relevance to the study of IS was discussed from two different perspectives in the thesis and the antithesis which has led to the observation that each of these positions is ideological. The positions taken in the thesis and the antithesis conserve their epistemological content and recreate it in whatever milieu crops up. They afford a self-regenerating intellectual perspective, which makes the situation of a phenomenon a matter of its own perspective and the conservative forces behind it. So, for instance, if one 'knows' what a system is, then there is no perceived need for reflection (or transvaluation). The ideological order of one's position allows only this order to be recognised. This means that a programmer sees a system in terms of lines of code and the systems analysis that stands behind it, whereas a computer illiterate user sees a system as the machine in front of him and the behaviour the man-machine interaction requires. Both persons project their understanding of reality on their involvement with 'the system'. Accordingly, they see what they can possibly understand. Described in systems terms, their ideological positions display homeostatic and autopoetic [Jantsch and Waddington, 1976] properties.

The analogy which can be struck between ideology, homeostasis and autopoesis is a hint at the ambiguity which emerges, when the epistemological progress which these terms can render is transcended by means of transvaluation. While homeostasis and autopoesis have become jargon within the study of IS, ideology draws attention to the intellectual side of conservative self-perpetuation which stands behind the application of the other two terms. In order to clarify how a systemic interpretation of positions can use the research on homeostasis and autopoesis, an analogy to Pankow's account of systems properties given in "Openness and Self-Transcendence" [1976] will be drawn. The critical doubt about positions as described above can be extrapolated beyond the subject matter of Pankow's account, if a position, as for instance the thesis or antithesis, is understood as a system of intellectual pedigree. Pankow argues that systems with a high degree of stability tend to have a low degree of resilience, that is to recover into an altered status of stability once they have been pushed out of the confines of their initial stability. In an analogy it can be argued that systems of belief have a degree of stability and resilience, and the more one position, or an individual systems ideology or a collective IS-ideology for that matter, is adhered to the less resilience does such a position contain.

The security which a position gives in ordering the phenomena of this world, or the sense of identity which an ideology conveys to the members of its community is one side of the coin. It must not be forgotten that the inertial effect which a position has, does not necessarily have to be interpreted negatively. There is also the positive side to stability and relative certainty which it entails. In a further extrapolation of the analogy to Pankow's account this relative certainty gives a degree of freedom within which action can be taken at 'free will', as long as the stability of the position is not violated. Probably the most famous example of this point is "The Great Inquisitor" by Fyodor Dostoyevsky in his novel "The Brothers Karamazow" [1958]. With deadly precision a position is argued in order to preserve the status quo of relative freedom, in spite of the clarity of the

consequences of this action, that is the increasing epistemological ossification and the decreasing 'transcendental' liberty. The Great Inquisitor has travelled so far on the road of stability that he has no trust in resilience or, in this analogy, 'transvaluation' of meaning and liberty at all. The dilemma between taking a position for the benefit of greater explanatory power and to the detriment of transcendental sincerity, or between stability versus resilience or freedom versus liberty lays plain open.

Transposed into the world of information systems, this metaphor highlights how a commitment to the stability of one position, whether that is a commitment to the practice of a systems development method or to a particular intellectual understanding of system and information, results in two effects. On the one hand, a greater security and certainty can be developed from within a position on the basis of the meaning it provides. On the other hand, it becomes more difficult to transcend that position without overthrowing its body of knowledge. Quite possibly both results are linked. Only if one works from within a position can there be a basis knowledgable enough on which to build alternative views. However, only transcending a position can mean that positions can be appreciated. How an IS-person stands in relation to this is a personal affair. For those who lack arguments or who are hesitant about abandoning cherished knowledge, the lecture of the Great Inquisitor stands as a warning.

In order to conclude this metaphor Arthur Koestler's novel "Darkness at Noon" [1940] can be used, because it takes up the dilemma between epistemological and 'transcendental' questions and the consequences for man. Here it is Rubachov who, once being a devoted communist, develops over time into a critical observer. His development is a consequence of his involvement in certain tasks which are masterminded by a perfectly logical elaboration of the communist theory, yet which go counter to his own grasp of justice and that of people he grows to respect. Yet, this disgust with his own actions only forces him to develop ever

more accurate communist justifications for these 'injustices', and finally he sees the necessity for his own death through the hands of the system, which he helped to justify. This novel is an allegory on the topic of a man struggling with his knowledge and the inadequacy of this knowledge, because of its systematic inertness in the *Alltag*. The institution of his (communist) position has set a process in motion, which, on the one hand, makes him ever more clear-sighted in adherence to this epistemological position, and, on the other hand, makes him sense ever more strongly the inadequacy of this position to transcend its own sphere. The (communist) meaning which he gives to his actions are only meaningful in themselves, yet clash with the great variety of possible meanings which he finds around him. Koestler finishes his novel by a staccato of actions which, detached from the struggle throughout the entire book, portray Rubachov at ease within his fate which leads to his execution. After having satisfied his urge to polish his knowledge of communist theory, he leaves the world of knowledge and enters the *Alltag*. Knowledge has become an empty promise like a snake's shed skin.

Transposed into the world of information systems this metaphor highlights that even a complete commitment to an intellectual position can lead to its dismissal. Its absurdity is unveiled perhaps exactly because of the total commitment to its explanatory power. If a commitment to one way of treating 'system' is adhered to, whether consciously or unconsciously, then the commitment to a position with respect to 'system' can retain its stability only if an ideology patches up the gaps created by transcendental doubts. Otherwise an investigation into the notion of system is self-effacing. The smallest incident, or for that matter a lengthy process of development, which leads to the discovery of a working ideology can lead to its rejection, and to an acknowledgement of the futility of actions on the basis of ideologies. On the one hand, it is absurd to assume that it would be possible to know everything about system. On the other hand, even if it was possible it would not be enough. However strongly one argues from within a position that provides

meaning, one cannot escape the possibility of the inappropriateness of one's position. This position has to be abandoned like a snake's skin, because of the ever changing circumstances. The knowledge a position renders is outliving its appropriateness. Indeed, the very existence of knowledge affords its ultimate inappropriateness.

In contrast to the issue of stability, there is also the other side of the coin; the resilience which is denied by the stability of knowledge. The more emphasis is put on knowledge, the more commitment is bound up with it. Commitment is required not only to attain that particular knowledge, but also to the environment that facilitates the attainment of that knowledge. Thus, the consequence of knowledge is a partial commitment to that knowledge, which precipitates a collapse of a position when a new environment renders that knowledge inappropriate.

In the case of thesis and antithesis the striving for a stable epistemological position creates the homeostatic intellectual perspective on system that forsakes resilience in the face of change. As powerful as these positions might be in a scientific debate, they entail the danger of falling into 'ideology mode', for the reasons given above, when a new approach would be appropriate. However, the appropriateness of a new approach for each situation is only visible to those who take every situation as new. For those who see one situation as a homologous variant of a previous one, the necessity of a new approach to it is not apparent.

With respect to the relevance of the concept of ideology to the study of IS the following picture emerges. The quest for knowledge, which is the driving force behind this thought experiment and other attempts to increase the understanding of the world, has led to the emergence of science. Scientific knowledge, with its widespread and manifest application, has secured for itself a status of power and authority. This status has led to charges that it has succumbed to an ideology, where the adherence to the procedure of 'scientific practice' is more important

than the actual justification of science as a 'profession'. Thus, a position has been established for science within society that is nothing short of the communist position in Koestler's novel. The stability of this strong position necessitates the development of a theoretical framework which can accommodate and be accommodated within this position. A theoretical framework which puts emphasis on transcendence would destroy this powerful position of science, because it acts as a means to obliterate boundaries in any established epistemological position. Relativism as the ultimate expression of the scientific epistemology is, thus, the 'Great Inquisitor' of current science, which in spite of a vague understanding of its precarious position with respect to its transcendental sincerity presses on to fortify the scientific position in society. This potentially dangerous undermining of scientific liberty diminishes the resilience of science. Wittgenstein's remark that "we feel that even when all *possible* scientific questions have been answered the problems of life remain completely untouched" [1922, 6.52, p.187] is all too often only considered as a token tribute to fundamental doubts. For those seriously reflecting on this sentence of Wittgenstein and other, personal experiences, scientific theories, such as the concept of ideology, are gradually losing their meaning since they become systemic in so far as they display a 'life' of their own as described in the antithesis and experienced by Rubachov. The lack of control over such systemic 'lives' introduces an element of randomness to the complex systems the scientific position produces. Expressed in systems terms, the study of IS is subject to positive feed-back. A general sense of scepticism or even cynism is the consequence for anybody who challenges the epistemological imperative of (scientific) knowledge [Sloterdijk, 1988].

"I mistrust all systematizers and I avoid them. The will to a system, shows a lack of honesty [integrity]" [as edited by Levy, 1911, vol.16, p.5]. This quotation of Nietzsche is a strong assault on all those who try to systematise their subject matter. It is an even stronger assault on those who decrease systemic features in favour of systematic features in the study of IS. And it is an even stronger assault

on those who are subject to an IS-ideology. Nietzsche's statement captures the transitory nature of positions like the fragments in a constantly revolving kaleidoscope. Each fragment is a position with its own 'colour' and 'shape'. Together they make up a mesmerising image, but the next minute the image is different, because of the motion of the kaleidoscope. This motion is beyond the reality of the single fragments. Any attempt to 'explain and understand' the image with one of the fragments as a point of reference is, therefore, a conscious surrender to an ideology. Explanatory knowledge is confined to the limited 'colour' and 'shape' of the fragment. Explaining a system from within the position of one of the fragments, when it is obvious that everything is changing constantly, shows a lack of integrity.

This leads back to the central topic of the thought experiment: the attainment of knowledge within and about information systems as explained with the concept of ideology. The problem to know what knowledge is remains unresolved. The various approaches that put knowledge into the category of being or knowing or structuring [Grene, 1969; Furth, 1981] have not advanced our understanding, but merely transferred the puzzle of knowledge to the puzzle of 'the knower'. One IS-method which acknowledges the former [Stamper, 1988] fails to address the latter puzzle. Is knowledge really a matter of knowledge, or better, is it for the knower to know other knowers?

It seems as if the idea of knowledge, knowing and the knower derive from a desire for stability and consequently control and authority. Just as argued above, where the stabilising side of a position was mentioned, knowledge is seen as the secure haven where it is good to be. Yet, as with many desires this haven offers only a precarious security which depends on a certain dose of self-deceit. The attempts to get away from this conservative notion of knowledge, with their more dynamic and vague appeal, show that this self-deceit is faltering. To face the grim prospect of abandoning *all* hope in a somehow invariant knowing is very difficult, though.

Thinking about this thought experiment and about the issues raised, it seems necessary to dare. *Acting* accordingly is going to be the real test.

The question why thinking should make such a difference is easily challenged. After all, everybody thinks. Besides, it is widely granted that provided with sound knowledge any reasonable person should be able to make good decisions. This argument, though, is flawed. As this chapter demonstrated, sound knowledge is a mirage. It is an ideological statement *par excellence*. Consequences of decisions feed back into the *Alltag* in an unaccountable fashion. The 'goal posts' are shifting all the time. Thinking about this understanding compels the insight into the futility of arguing for the attainment of particular goals on the basis of a position. Arguing about information systems without a chance of anticipating the particular consequences renders IS-thinking and -practice meaningless. That most arguments about information systems convey some sense of meaning is a consequence of the coincidence of ideology and IS-thinking and -practice. However, this synthesis argues that thinking about this understanding counsels *nihilistic thinking* as a necessary precaution.

Nihilistic thinking is not a method, it does not follow rules. The very essence of nihilistic thinking, as propounded by Nietzsche, is the readiness to 'transvaluate' in order to dispose of a "negation of life" [Reese, 1980, p.393]. Because the human predicament eclipses all attempts to come to terms with it, nihilistic thinking inserts transvaluation as a means to break up positions, that misguidedly build on a particular *status quo*, leading to assumptions of superior validity and ultimately to a misuse of authority. Transvaluation does not happen with the ambition of achieving a particular improvement, because the particular consequences of transvaluations are unknown. Yet, by breaking up positions nihilistic thinking denies conceptions of value and meaning to restrict thinking and practice, and, thus, leads to the 'innocence of becoming' that characterises the human predicament

A consequence of nihilistic thinking is that not taking particular actions has consequences as well. Nihilistic thinking should, therefore, not be confounded with a negative attitude toward action. However, actions which are based on an intention to achieve particular goals are revealed to be naive, because they simplistically extrapolate premises into the future. Nihilistic thinking affords an evaluation of the expected consequences as transitory, because the expected consequences are always accompanied by unexpected consequences. Any action or the omission of action has the potential of influencing the future to such an extent that the achievement of particular goals becomes impossible. Thus, IS-thinking and -practice must take into account the ephemeral nature of achievements, when, for instance, the speeding-up of transactions means that human capabilities to check them are outpaced, or when multiple channels of communication are supplied, there is always the danger that messages do not get to the recipient because he used another channel of communication. Thus, the clearness of today becomes all too often the vagueness of tomorrow. In this process of change the human capabilities to reassess and to respond creatively become vital. The pretence of superior knowledge and effectiveness must not be sustained if information systems are not to degenerate into a systematic exploitation of the *status quo* with unexpected consequences for tomorrow.

As argued in chapter two, there is no single truth. To conduct the thought experiment with a conversational, that is dialectical, method, as outlined in chapter two, reflects the argument of the synthesis. Any knowledge which becomes totemised into an icon of stability prevents the development of a body of knowledge to retain its appropriateness in changing circumstances. The request to emphasise thinking rather than knowing is a consequence of the hollow nature of totemised knowledge and the necessity to retain abreast of the icons of science. The study of IS should embrace the opportunity of being a relatively young science, and the consequent chance to establish itself as the expression of a thinking rather than a knowing IS-community. The acknowledgement that we do

not know what information and system are, can be accommodated in the study of IS if thinking about these phenomena is encouraged. It should be encouraged, because, despite the stability that one particular understanding renders, constantly changing circumstances necessitate a flexible response. Thinking about system, without the pretence of knowing about system, will lead to philosophical arguments like in this dissertation. Here lies the chance of the study of IS as a science to demonstrate that a scientific approach can be philosophical and practical at the same time.

It is highly questionable whether a perspective that is nurtured on the stability of one paradigm will allow for enough variety to innovate knowledge. As mentioned above, the stability of various positions within the study of IS has the purpose to generate the basis of resilience. Unfortunately, there is no shortage of misguided IS-enthusiasm, and the imminent dangers of a collective IS-ideology spell trouble to the future of information systems.

Such a conclusion to the thought experiment stresses the opening influence of communication over the stifling influences of control. Many scholars recognise the need to be cautious with the power a position of knowledge renders. Having found out, for instance, that computer networks follow the law of gravity, that is they tend to go down, is a good starting point for an investigation. It draws attention in a humorous fashion to the helplessness which is experienced in the management of computer networks. Humour serves here to compensate for a lack of understanding. It is also an appeal to a scholar's responsibility to recognise the limitedness of his findings. The acknowledgement of this profound helplessness to design a better future shows the scope for the findings of this dissertation in current research. Three examples for the study of IS are given below.

Firstly, in the competitive field of expert systems, the emphasis on the knowledge side has to give way to an emphasis on why and how a particular result has been

produced. The promise of expert systems to supply the informed "answers" [Whitley, 1990] with which to control a certain task has been seriously challenged by the social problems such an approach entails. Questions of responsibility and applicability remain in the human domain and stress the need to communicate to the appropriate user(s) the "process" [ibid.] that leads to an expert system's output, in order to justify its use. The awareness that the richness and unpredictability of the *Alltag* bogs down attempts to obtain answers should prompt research in the direction of helping the user in the process of decision-making. The problems of life cannot be overcome by a print-out. As epistemologically sound as answers might be, they are utterly inert to transcendental challenges. Only the user can deal with them, and consequently there is a need for a technology that recognises this.

Secondly, in the case of information systems development methods, the choice of method has consequences which can only be considered from *outside* a particular perspective [Smithson, 1990]. Attempts to build the best method are put to rout by the constantly changing requirements of the volatile environment of information systems. The question of appropriateness and choice requires an informed treatment which is necessarily based on an ability to think through the issues in a way unimpaired by the vagaries of a particular task, meaning or value. Any attempt at epistemological soundness will lead to a profusion of theory that is eclipsed by a reality that does not play by the rules. Only if the human predicament could be described by a complex but exhaustive account, then would information systems development methods have a chance of success.

Thirdly, in the case of computer-based information systems in developing countries, the introduction of hi-tech equipment has not resulted in a parallel modernisation of services. Avgerou [1990] points out that only "within an extensive program of actions for administrative reform" [ibid.] that accompanies computerisation can the "snowball effect to requirements for other changes in the

organization" [ibid.] be accommodated. In fact, "the intervention amounts to organizational transformation" [ibid.] in such a way that only a discerning assessment by an independent mind can hope to fathom the profundity of variety which is needed to manage such a tumultuous change. Knowledge derived from previous experience plays an important part in the successful response to such a transformation, but only the ability to transvaluate gives the clout to assess such experiences without adopting with it a framework of meaning and value that might have lost its appropriateness.

CONCLUSION

Thinking and acting are the cornerstones of this synthesis. The study of IS should not resign into a pursuit of knowledge. The belief that the accumulation of knowledge, or the 'production' of knowers, is its only task, falls short of a thorough assessment of the consequences. It has never been and it certainly is never going to be enough 'to be in the know'. In our world of sophistication, the ability to transvaluate is going to retain its importance in order to sift all the knowers. DeMarco's statement that his method is a 'communication device' hints at the understanding that nobody can come forward with the right answers. Only nihilistic thinking will keep people abreast in the jungle of *res cogitans*. Acting responsibly in the *res extensa* is a different issue. It is the real challenge and it needs different qualities. But at least thinking matters through in a nihilistic fashion, can prevent action based on a misguided claim of superior knowledge.

Part III: Conclusion

"Those things for which we find words, are things we have already overcome"
Friedrich Nietzsche, Götzendämmerung, 26

10. Epilogue and Further Research

The thought experiment is a representation of the result of my research in an argumentative form. With hindsight I can evaluate my research from the distance which I gained during writing up the dissertation. I have emerged again from academic work into the *Alltag* where all our actions have to stand up to the question: so what? This is especially valid in the case of a scientific treatise, which aims at contributing to the body of our knowledge. The question in this case is: what does the thought experiment tell us? I will try to give a personal account of what the thought experiment demonstrates. Therefore, the academic style of the previous two parts will be dropped in favour of a style which is more appropriate for such an evaluation.

A proposition recurring throughout this dissertation has been that it is impossible to reach an objective and universal meaning for 'information system'. This raises the question whether that proposition is just an excuse for not coming to the point. Especially the critical stance towards the concept of knowledge seems to caricature the ethic of scientific research. Yet, the sceptical stance towards knowledge, that it is impossible to know what knowledge is, is not new. Consequently, this cannot be the contribution of my research.

Neither is it new that we do not really know what 'system', or for that matter 'information system', is. The question of system and its juxtaposition to *a* system highlights the dilemma of the difference between ideal and reality which has

characterised much of occidental thought since Plato formulated his theory of ideas. Evidently, I cannot claim to have made that contribution either.

Nevertheless, I think that there is some 'news value' in my research. The controversial debates that followed the seminars which I gave in November 1989 and 1990 at the LSE as well as the discussions I had with staff and students there, were not just a consequence of an inability to communicate my ideas. There is an element of challenge in the ideas that is new to the study of IS. I will try to work out that element and suggest further research.

Further research is, as I hinted in chapter one, a tricky issue for a research that is so critical of scholarship. Again, the ideal of scholarship has to be seen in the light of real scholarship. There can be no question that all too human influences pervade scholarship. Pride, pressure and promotion impair the ideal of 'pure' research. Yet, I would be the last to lament the human conduct of human beings. I believe (and I am afraid there is not much else to be done) that researchers will pursue knowledge in a 'proper' way, and that they will always strive for the ideal. How effective and relevant such research will be is another matter on which I shall comment upon later.

As explained in chapter two, this dissertation is not trying to impose a scientific fact, but to demonstrate an argument with the aim to communicate its relevance. The reader has to decide for himself whether ideology and information systems are indeed connected. Speaking for myself, I think the connection is quite fruitful. I set out to approach it by means of sociology. From an initial understanding of sociological theory I gained in lectures on Organizational Theory and Behaviour and on Information which I took at the LSE, I started a more thorough study of basic principles of sociology and especially of the sociology of science, knowledge and religion. By doing this I neglected the opportunity to approach it by means of semiology, which was much closer to my previous experiences from the M.Sc.-

course which I attended at the LSE prior to this research. The work of de Saussure, Barthes and others offers tremendous scope for building a bridge from semiology to the study of IS. This would be one direction of further research where sound scholarship can bring a vast body of literature into a relevant connection to the study of IS. However, during the course of my research, I got less interested in the possibility of interdisciplinary scholarship, and more in its effect and relevance. Therefore I pursued the argument of ideology and information systems along those lines.

Another direction of further research would be to look at power and authority. As the concept of ideology in its political sense suggests, there is a whole body of literature on how power and authority and its use affect our knowledge. The writings of scholars like Feyerabend who has written about "anarchic" [1975] approaches to the philosophy of science can be the starting point for such an investigation into the politics of knowledge. I see this as a consequence of a primary sociological investigation into the concepts of ideology and information systems. Not only does the sociological perspective of these two concepts afford a treatment of power and authority, as has been mentioned in the thought experiment, but this finding also demands an investigation into how power and authority are handled. The question of living with ideologies and the sources of power and authority that support them leads directly to literature of politics.

A third direction of further research is to investigate the 'unphilosophical' treatment of information systems. Why do people take information systems for granted and busy themselves with research programmes, prototypes, conferences, etc. when the signs are indicating that we do not even know what information systems are let alone what their consequences are going to be. I see this as the most interesting consequence of my research. The discussion I intended to set in motion with this dissertation leads directly to questions of cosmology. Information systems can be seen as today's catalysts of many business problems. That many

information systems have not solved them but rather created additional ones is indicative of the ideological nature of the persistent dynamic of computerisation. How this ideology exerts its momentum, what consequences this has and how these consequences can be managed are, in my opinion, the most interesting directions for future research.

In my opinion, those are the three most important areas of further research emanating from this dissertation. However, evaluating the thought experiment from within a scientific framework is not enough. The intense preoccupation with scientific questions has put me often in the position to my research that Rubachov took toward communist theory. The motto above this chapter has its meaning here, because the aseptic clarity of the results of scholarship has not satisfied my curiosity. The thought experiment was set up in order to communicate the 'learning curve' that resulted from my interest in the combination of ideology with information systems. The suspense which I experienced during the course of the research of never being able to find stable foundations for knowledge in the shifting ground of social reality is the message of its synthesis. In the thesis, the danger of ideological feed-back overriding experience was seen as a threat to knowledge. In the antithesis, the danger of a detachment of scholarship from the *Alltag* was seen as a threat to knowledge. The formulation of these two threats and the suspense that is attached to knowledge as a consequence of these threats is the 'news value' of the dissertation. Keeping doubt at the forefront of one's research, rather than in its background makes a big change to scientific activity. Not to start on a basis of simplistic assumptions, but on a basis of doubt is virtuous in this respect.

This exhortation is ever new and ever old at the same time. Its general 'philosophical' quality is as old as philosophy itself. That it emerges from a treatment of the subject of 'information system' in the light of the current debate to 'soften' the study of IS is its contemporary relevance. As such it has an

unsettling power, because it links IS-thinking and -practice to general philosophical questions, and it shows that it is analogously unfathomable.

The three directions of further research that I indicated above seem to me to support that point. All three of them as well as this dissertation itself point to a wider framework, whether that is semiology, politics, the humanities or the *Alltag*. Moreover, even the confines of these domains are limited and a general appraisal of system where *everything* is of, potentially equal, importance has to be imagined. The effectiveness and relevance of this research converges then on a question of ethics, in the widest meaning possible of this word.

One way of approaching an ethical justification would be to say that the entire research has been tremendous fun. It has been really the fulfilment of an idea that was at the back of my mind for a long time. But is such a hedonistic argument enough? Not even Adam Smith sanctioned blind hedonism, despite his advocacy of personal achievement as the best way to overall benefit. Certainly I could argue that the development I underwent, intellectually and otherwise, is going to be reflected in my future life. Yet again, this is a very personal consequence which is not really satisfying scientific standards, even though it is enough for the *Alltag*.

The problem now is to avoid a scholarly discussion about what is a proper ethic. From a nihilistic point of view every ethic could be discarded as empty. However, taking rather a sceptical perspective on the matter allows to acknowledge a pluralistic scenario, without sacrificing the point of view that things are going to happen exactly the way they are going to happen. The question of ethics is, thus, not simply to be answered, but to be understood as a challenge of the human predicament.

The 'so what'-question should be introduced to the thought experiment in the light of this sceptical perspective. The historicist and relativist perspective of the thesis

falls short of offering a convincing answer. In its dependency on assumptions, frameworks, etc. it is too much bolstered by the value it attaches to its findings as to be flexible enough to take the charge of self-importance. From the point of view of the thesis the 'so what'-question must seem a usurper. The realist perspective of the antithesis is not much more resilient in this respect. It has not the power to transcend its own basis of *Alltag* and scholarship, and the dualism that goes with it. Not even the nihilistic perspective of the synthesis has the power to come to terms with the challenge of the 'so what'-question. While thesis and antithesis can be challenged on the basis of their assumptions, the synthesis can be challenged on the basis of its doubt and its suspense. Of course it is easier from the point of view of the synthesis to retort 'what does it matter', but then that would be a very narrow ethical path.

This path is made narrow by the necessity to relinquish the hope for invariant knowledge. As mentioned in chapter nine, the stability of one's perspective had to be abandoned entirely to be able to face the 'so what'-question. The price would be a very high degree of resilience, because any position could serve as a perspective. The cost would be that any position had to be left as soon as doubt bites. From a theoretical point of view this 'living on the edge' is a possible solution. From a practical point of view it seems questionable to me whether it is possible to give up all stability and to enbosom oneself to resilience. As mentioned in chapter nine, it seems to me only because we have a certain basis of stability do we have the chance for resilience and vice versa. But then, this already becomes a game of words.

There is an inherent undercurrent of elitism in this thought of 'living on the edge'. Not only is it supposed that one strives for an ideal, which sets one apart from those who do not, but also does the consequence of high resilience entail a determination to sacrifice stability which is not endearing. The preservation of the ego in a world of changing deceit, where knowledge is power and power is

knowledge leads to a growing suspicion "that was a certainty in ancient cynism (Kynismus): that things must first be better before you can learn anything sensible" [Sloterdijk, 1988, p.xxix].

The question remains whether this dissertation is a contribution to the body of our knowledge. It is expected that what I have to say should contribute. This is a peculiar expectation, which is what Peter Sloterdijk meant when he wrote that "the inversion of the relation between life and learning is in the air" [ibid.]. Regardless what my intentions were, there could be no guarantee that I would succeed in providing a contribution to the body of our knowledge. The trials of life force what I have to say into the maelstrom of society. What the result of this will be is beyond my control, because "it must be admitted that the structure of our social environment is man-made in a certain sense; that its institutions and traditions are neither the work of God nor of nature, but the results of human actions and decisions, and are alterable by human actions and decisions. But this does not mean that they are all consciously designed and explicable in terms of needs, hopes, or motives. On the contrary, even those which arise as the result of conscious and intentional human actions are, as a rule, *the indirect, the unintended and often the unwanted by-products of such actions*" [Popper, 1952, vol. 2, p.93]. Thus, only if we inverted the relationship between life and learning could there be a contention that a body of knowledge can be advanced by design. I am afraid, therefore, that the answer to the question whether or not my dissertation is a contribution to the body of our knowledge is: it depends!

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