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Newspeak or Fusion of Horizons?

Looking for Alternatives in Information Systems Research

Suggested running headline: Newspeak or Fusion of Horizons

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Abstract

Only a hermeneutically oriented approach to knowledge can overcome the problems of incommensurability that arise in science, in general, and, information systems research, in particular. We argue that information systems research, especially when focused on systems integration, will advance if its problems are understood using Gadamer's concept of fusion of horizons. We extend Boland's work on the user's interpretation of the output of an information system by framing the problem in a more general way. Instead of an arbitrary administrative solution (Newspeak), we propose to develop a hermeneutic solution (fusion of horizons), one that begins by recognizing the important dimensions of difference that separate potential users of the same information system.

Keywords: information systems integration, Gadamer, hermeneutics, horizons.

1. Introduction

A dilemma similar to that which has arisen in the integration of information systems (how to accommodate within the same information system groups of users possessing distinct conceptualizations and interests, or as Kuhn (1996)

would put it, living in different paradigms) has been an important focus of discussion in the philosophy of science in the 20th century. Discussing this issue in Beyond Objectivism and Relativism, Bernstein (1983) has argued that the literature on philosophy of science points to a fundamentally hermeneutic understanding of both the natural and social sciences. It is important to emphasize that philosophic hermeneutics did not arise out of the issues in philosophy of science, but instead that a certain impasse in the philosophy of science, namely the central problems of communication and incommensurability, led Bernstein and others to introduce the hermeneutical discussion into the philosophy of science arena. In this context, we have taken up an attempt to approach the processes of information systems use, interpretation, and application, in terms of the categories of hermeneutics. In particular, we argue that a hermeneutic contextualization of the research on information systems integration can lead to a better understanding of problem at hand. We must explicitly recognize the hermeneutic context that is always present, though largely invisible when information systems are working as intended and the integration framework withdraws itself in its usability.

In what follows, section 2 introduces the tower of Babel problem and the Newspeak solution. Section 3 discusses the work in information systems research which recognizes the communicative/hermeneutic dimensions of information systems. Then, section 4 approaches information systems as a fusion of the user's and designer's horizons. In section 5 we conclude with a discussion of Heidegger's framework of the hermeneutic circle as augmented by Gadamer's concept of hermeneutic play and application as the contexts within which fusion of horizons takes place. We conclude that a hermeneutically oriented approach to knowledge provides a philosophically informed approach to the problems of incommensurability that arise information systems research.

2. The Tower of Babel Problem and the Newspeak Solution

In order to appreciate the importance of a hermeneutic analysis for information systems research (and especially the centrality of Gadamer's (2003) concept of fusion of horizons) we need to reflect on the difficulties that emerge in situations in which users possess different assumptions about the communicative context. One example of this set of difficulties is the so-called Tower of Babel problem (Smith, 2003) which arises in the context of research on the use of ontologies for information systems integration. The Tower of Babel problem has been a fundamental barrier in the way of developing general and reusable ontologies (Fonseca and Martin, 2004). The difficulty is that insofar as information system designers attempt to accommodate, in the same information system, groups of users possessing distinct ontological assumptions, they must address the problem of integrating information in ways that are compatible with the perspectives of all significant stakeholders. But how can this be done? It might be possible to work out ad hoc solutions for a particular, limited set of ontological assumptions, but such a solution would be incompatible with the technological strategy which aims at general and reusable information systems ontologies.

Nevertheless, a classic maneuver on the part of information system designers, when faced with the Tower of Babel problem, is to force all users to accommodate to the same ontology. Here the burden is placed on the users to adapt to the designer's presuppositions. In this case, the subtlety and ambiguity of differing perspectives is simply ignored. This solution was called *the Newspeak solution* (Fonseca and Martin, 2004), after the George Orwell's introduction of the term in his novel Nineteen Eighty Four (1992). Recall that in the technological society Orwell envisaged, there was an effort to create a reformed version of English (Newspeak) that was simpler and less capable of expressing different perspectives than traditional English. As in the case of Orwell's novel, implementation of the Newspeak solution in the context of information systems

integration will likely require administrative authority to ensure that all users conform to the same ontological framework.

Despite its efficiency from the perspective of the designer (if not the user), the fundamental problem with the Newspeak solution is that it cannot be implemented in situations where different users are required by the traditions of their own historical contexts to invoke different ontological assumptions. For example, Smith (2003) cites Guarino to point out to the difficulties of integrating accounting systems when different users are required by the historically distinct traditions of case law to utilize different accounting structures. Even the same vocabulary items may have different meanings in different historical contexts. In such cases, differences in user orientation cannot be arbitrarily dismissed. They result from differences of history which continue to constrain the interpretation of problems and the standards for solutions. They cannot be eliminated by the administrative fiat. Instead, they constitute what Gadamer would call differing horizons.

In the development of ontologies for information systems integration, differences among horizons can arise in cases where scientific "paradigms" differ, that is, in cases where scientific activity is an open, controversial and unfinished process. In such situations the recognition as well as the interpretation of data across paradigms is rendered to some extent incommensurable. Moreover, such incommensurability is often linked to cross paradigmatic differences in meaning in ways which preclude the implementation of simple translation procedures. In these cases, the system designer must begin by respecting the differences among scientific perspectives. He is not competent to decide issues which the communities of scientists whose views he wishes to record cannot unambiguously determine. If the information system is to be useful to members of more than one scientific community, then it will have to be constructed in ways that acknowledge the significance of alternative scientific perspectives (i.e., alternative horizons).

In our view, only a hermeneutically oriented approach to knowledge can overcome the problems of incommensurability that arise in science, and, especially, information systems research. The literature on philosophical hermeneutics, dealing, as it does, with problems of interpreting foreign perspectives, and, therefore, communication among persons holding different perspectives, must have central relevance to the research on the construction and use of information systems. In this paper, we argue that information systems research, especially when focused on systems integration, will advance if the problem is understood as involving a fusion of horizons of the different stakeholders.

3. Interpretation and Information Systems

We think the central questions of information systems research require an analysis of the interpretive, theoretical and practical human capacities which aim at expression through information systems technology. There is a growing work in information systems research which recognizes the communicative/hermeneutic dimensions of information systems (Winograd and Flores, 1986, Mallery et al., 1987, Coyne, 1995, Chalmers, 1999, Boland, 1991, Ingwersen, 1992, Benoit, 2002, Olson and Carlisle, 2001, Myers and Avison, 2002, Capurro, 2000, Hirschheim et al., 1995, Fonseca and Martin, 2004). In order to be able to apply this concept in information systems research it is necessary to consider the implicit and explicit assumptions made in the development of IS as suggested by Hirschheim & Klein (1989). A more pluralistic approach to IS research is suggested by many authors (Mingers, 2003, Mingers, 2001, Lee, 1991, Butler, 1998). Recently Chen and Hirschheim (2004) acknowledged that there is a need for paradigmatic pluralism.

We address these questions using the work in hermeneutics by Gadamer (2003) and applying it to information systems research. It is one of Gadamer's key insights that the user's "horizon" is key to the possibility that a text (and following Boland (1991), an information system) actually inform. In this paper

we explicate and develop the notion of horizon showing its relevance to information systems research. Boland (1991), building upon his own work on phenomenology in IS (1986), proposes to consider the information system as a text and shows the different meanings that a user can infer from a system's output. He says that "the output of an information system is not simply a representation of some aspect of the world being transmitted in as clear and unbiased a way as possible to its user. Instead, the output of an information system is an unfamiliar text to be read, interpreted and made meaningful by those who use it in ways that will always surpass any particular understanding the system's creator had in mind." While Boland focus on user's interpretation of the output of a system, here we try to extend his work by framing the problem in a more abstract and high-level way. We focus on the problem of integrating different information systems. We use Gadamer's notion of horizons to understand the interaction of the different interpretations of some part of the world targeted as the objective of the information system.

Traditionally, communication across conceptual frameworks has required a focus on hermeneutics – the art of interpretation. Because common frameworks cannot generally be taken for granted, information systems research should be concerned with communication among sometimes quite different conceptual schemes. This work is aimed at suggesting the explicit incorporation of such considerations into the research on information systems. Thus, it is necessary to analyze the role of the interpretive dimension that is always present in the information technology, but which has often remained invisible in the common situation in which the conceptual schemes of the creators and users of that technology have been relatively similar.

The above suggests a question: How do the different understandings of the problem play out when the system is used? In this paper we take a perspective in which users of information systems have their own horizons. Therefore we propose that information systems research see the use of integrated information systems as involving a fusion of horizons following the philosophic insights of

Gadamer (2003). When the resulting integrated information system is working as intended, one can say that it withdraws itself in its usability. The user does not see the information system anymore, he/she just uses it to accomplish an objective. We can say then that in this moment the different interpretations are integrated as one, they overlap, they match. In Gadamer's terms, this is a fusion of horizons.

4. Information Systems as Tools to Facilitate Communication: Interpretation and its Difficulties

Users of information systems possess a kind of location with respect to both information systems and the objects which those systems are normally conceived as representing. Our claim is that, when under the control of a competent user, a properly designed information system becomes an instrument through which a domain of objects or events may be perceived. In this case, the elements of the system are not construed by the competent user as representations of an objective world, but as occasions through which that world is perceived via an inferential process grounded in the horizon of the user.

Information systems are tools which human users employ to facilitate communication about, access to, and action in, the multifaceted world (Winograd and Flores, 1986). Thus, we need an analysis of the role of the interpretive dimension that is always present in the use of information technology. The goal of this analysis of information systems is to understand the conditions that would enable the community of users of information systems to communicate and learn from one another when they possess different initial presuppositions concerning the context of the communicative activity.

It is not our purpose to propose a conception of information systems which operate independently of human users. Human activity takes place in a context of values and meanings whose implementation and communication is the purpose of information systems. Hence, those implementations and communications are not separable from the human users of the technology. The coming into being of

meaning (Gadamer, 2003) is a human interpretive phenomenon regardless of what the technology of the day may be. As such, the use of information involves an interpretive dimension, and the role of information systems technology must be understood in this hermeneutic context. Nevertheless, the structure of the interpretive process interacts in significant ways with the current technology. Insights into the hermeneutic dimension will enable a deeper understanding of the use of information systems technology.

In general, communication can only be achieved by accepting and appreciating prior differences in perspective. Therefore, instead of an arbitrary administrative solution (*Newspeak*), we propose to develop a hermeneutic solution (*Fusion of Horizons*), one that begins by recognizing the important dimensions of difference that separate potential users of the same system. In this way we hope to enable negotiation of effective communication among users committed to disparate conceptual frameworks, or ontological assumptions. Accordingly, we now turn to a description and analysis of some of the central and relevant hermeneutical aspects of the communicative task.

Horizons

In order to set the context for our remarks, we begin with a brief review of one of the key insights of the philosophical hermeneutics of Gadamer. Central to his perspective is the view that the processes of understanding are always carried out in relation to certain historically conditioned prejudgments that provide the framework of assumptions in terms of which an investigation is carried out. Such assumptions are historically constituted. Accordingly, they cannot be arbitrarily altered to suit the convenience of systems designers. They are aspects of what Heidegger called “thrownness.”

Without such perspective constituting assumptions, the processes of understanding, and, in particular, understanding communication, cannot go forward. More specifically, the British philosopher, R.G. Collingwood (1959), argued that the meaning of a communication cannot be understood apart from

reference to the issue, or set of possibilities, it may be presupposed to address. Gadamer (2003) introduced the term "horizon" as a metaphor designating such frameworks of presuppositions about what is possible.

According to our analysis, horizons must meet two conditions. First, competent communicators must know the dimensions along which the objects and events of the domain of inquiry may vary, as well as the extent and direction of such variation. This knowledge of background variation specifies the ground of perceptual experience. It represents what is taken for granted. Second, the data must be orderable by communicators along dimensions that are systematically uncorrelated with the background variation. In this way the horizon specifies the possibilities – the "edges" of the world which can stand out in the act of perception. But this characteristic of "standing out" depends on the communicators' knowledge that the background variation is uncorrelated with the ordering of the data which they have chosen to observe. It represents what is in question.

In this way a horizon is a context from which a particular view of a given domain can emerge. As understanding unfolds and new considerations, or issues, come into view, the horizon is said to shift. Although horizons constitute limits on what is immediately accessible, they are not static. They are, as the metaphor suggests, open to movement, growth and development.

In taking this position, Gadamer acknowledges the importance of currently held presuppositions, or "prejudices," for the activity of understanding. There is no reference to an absolute foundation that constitutes a necessary and sufficient starting point for the growth of valid understanding. The horizon of any project grows out of the local historical and practical context of those engaged in it. On the other hand, to say that a horizon is the result of historically local conditions is not seen as entailing that a horizon is a prison from which one may not escape, regardless of its lack of appropriateness. In the course of a developing investigation, a given horizon not only shifts, it can also become an object of reflection, and evaluation. It is possible, in Gadamer's view, to come, to a degree,

to reflectively discern between enabling and disabling prejudices. Accordingly, neither the dogmatism of an absolute standpoint, nor the skepticism of a locked in set of conceptual blinders is compatible with Gadamer's understanding of horizons.

Fusion of Horizons

Moreover, communication among persons is possible, according to Gadamer, only because they are able to effect a mutual "fusion" of their respective horizons. It is important to understand that the fusion in view is not seen to be the result of translation into a more basic, neutral language. Gadamer is clear that, in general, no such neutral language exists, nor can exist. Rather, fusion is the result of a serious effort to engage and learn from the other by entering into and learning the other's language through coming to an appreciation of what is at issue for the other. That is, one comes to appreciate both what the other takes for granted and what he or she takes to be in question. If necessary, such an appreciation might entail the mutual development of a new common language – a process through which the horizons of each interlocutor can be altered. Moreover, the degree of communication (fusion of horizons) that is necessary will depend upon the practical requirements and limits of the task at hand. Considerations of the context of application are essential components of the hermeneutic problem. We take the notions of horizon, fusion of horizon and context of application, to indicate dimensions fundamental to our conception of information system users.

We assume that users are situated in horizons which have been conditioned by the concrete historical contingencies (e.g., accounting case law) that constitute their own thrownness. Even more, since horizons are never fully explicit, every attempt to explicate them would presuppose a further horizon of possibilities. Thus, they cannot be fully implemented in information systems. The impossibility of a full explication and computational implementation of a user's horizon is part of the reason for our view that the user and the act of using are ineradicable components of an information system. The 'coming into being of meaning' which Gadamer speaks of is something that happens within the experience of the user.

Accordingly, we must acknowledge the central position of human users of information systems if we want to understand the actual function of those systems.

The significance of the human user is not simply that there are inevitably aspects of his horizon that escape formal explication. More specifically pertinent is the fact that the underlying horizon constitutes an embodied perspective on the world. Such thrownness is a fundamental aspect of the user's connectedness with the world. From one of Gadamer's key insights, we can say that rather than being merely a problem to be overcome, the user's thrownness is a key to the possibility that information systems actually inform. It is only because the user has a historical location, and thus a horizon of possibilities in view, that he can discern meaning at all. For all the difficulties, conceptual and practical, that the fact of thrownness produces, the possibility of meaningful communication through information system technology requires a human horizon. Indeed, the mutual and effective use of information systems technology requires fusions of horizons among the whole community of users who utilize the technology.

5. The Hermeneutic Circle, Application and Play

But what are the moments of the process through which horizons are fused and evaluated? How is such fusion possible? We argue that this is achieved through a dynamic process which Heidegger (1962) described as the "hermeneutic circle." For Heidegger, this involves movement among two concerns – structuring human understanding in relation to the dimensions of analysis and synthesis (the parts and the whole). Heidegger is saying that the process of understanding involves a continual back and forth dialogue between those perspectives aimed at apprehending the whole, and those that aim at apprehending the parts. One never steps outside one's thrownness – the fact that one comes to the project of understanding with assumptions about the whole. But one can, and must, reflect on those presuppositions, while keeping the object of inquiry, "the thing itself" clearly in view.

To this description of the hermeneutic process Gadamer has added two crucial elements: application and play. First of all, he has recognized the importance of application in the hermeneutic process. Instead of conceiving the process of understanding in terms of analysis and synthesis alone, he has shown the importance of the dimension of application to that process. Understanding takes place in a context in which the concepts involved enter into some sort of practice. This requires a kind of judgment about what to do that eventually reflects back on understanding itself.

Secondly, Gadamer has pointed to the inevitably playful nature of the hermeneutic process. In play, the participant is no longer trapped in a subjectivism in which the play is a kind of predicate over against the participating subject. Instead, the participant loses him or herself in the play, becoming – as it were – the predicate of the play. We think hermeneutic play is the context in which fusion of horizons (understanding of the horizons of one's interlocutors, for example) takes place. As such, along with the concern for application, play will be central for the hermeneutic process required for overcoming the problem of communication among users holding different perspectives. To be effective, information systems designers must structure a context that allows users and designers to engage in the spontaneity of mutually interpretive play.

In conclusion, the Gadamerian philosophic tradition concerning horizons and fusion of horizons provides admirable guidance for approaching the analysis and design of information systems. This becomes especially clear in those situations where users hold differing perspectives. The value of the Gadamerian perspective will stand out most clearly when attention is shifted from the fixed structure of finished systems to the processes involved in system design and use. These processes, moving in hermeneutic fashion back and forth between informal starting points to formal finish systems will most directly reveal the relevance of the hermeneutic dimensions which we have described.

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