What are the benefits of using critical realism as a basis for information systems research?
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Abstract
There are various reasons for doing research. One reason is to develop real knowledge by trying to solve real problems. Another reason is to get publish, cited and succeed as an academic. The argument in this paper is that Critical Realism (CR), as a philosophy for doing information systems research, may be helpful for achieving academic success but is useless and even harmful for doing real science. Still, the reason for the current popularity of CR could be seen as a response to the recent downfall of Postmodernism from its hegemonic position within social research, and while CR is not a good response to this crisis, the paper concludes by suggesting how the illness that CR proposes to remedy can be cured by selecting a sound philosophy of science.

Keywords: Information systems research, methodology, philosophy, critical realism

Doing research for solving problems or impressing peers?
In a videotaped information systems (IS) seminar, celebrating the book “Computers in Context: The philosophy and practice of systems design” (Dahlbom & Mathiassen, 1993), Mathiassen (2013) makes a comment about the difference between successful IS researchers, specifically naming two seminar participants who publish extensively in highly ranked journals and generally behave in a manner that make them into paradigms on how to succeed within the scientific community, and researchers like himself who are interested in action research and how to make technological and political change. Action research is a type of research that requires longitudinal commitment and involves interest in theories with practical implications, but is not a typical pathway towards academic success (e.g. Simonsen, 2009), while for somebody mostly concerned with making academic success it is implied that it might be better to engage with popular trends and fashions within the academic discourse.

If we look at the categorisation in table 1, one way of interpreting Mathiassen’s statement is that he is talking about the difference between the lower left quadrant and the upper right quadrant, although in this particular case, with the celebration of a book that has made an important impact on the IS community for several decades and named participants at a seminar who are known to large parts of the IS world, we are in both cases talking about scholars who could be described as being very close to the lower right quadrant.

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<th>No impact on society</th>
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<td>Impact on society</td>
<td>Applied research</td>
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Table 1. Four different alignments between theoretical and practical impact

Nevertheless, for somebody in the upper left quadrant wanting to move towards the bottom right corner, there are complimentary pitfalls in following paths that go by way of either of the two quadrants bottom left or top right. For instance, Nylehn (2008) argues that the main
reason why action research has been funded in Norway is because the funders were interested in the practical implications of the research and thus ignored whether the research would have any academic relevance. In a complimentary fashion, the critique raised by Sokal and Bricmont (1998) about much of the published social science in recent decades is that the “publish or perish” practice makes scholars engage with ideas and theories that are valued by journal editors but completely useless for society. The point is made particularly strong in the final chapter of the book when Noam Chomsky is talking about how this preoccupation with trends and fashions has disastrous consequences for research conducted by scholars from third-world countries who feel they have to engage with fashions and trends rather than researching problems that are important and useful for improving the world.

Although my history of doing IS research has been related to action research in Norwegian public sector organisations, the critique raised both by Nylehn and Chomsky resonate with my own understanding. Not at least is this worry substantiated by comments I have heard over the past decade from colleagues working within a health information systems research programme known as HISP, researching and developing health information infrastructure on a global scale (Braa & Sahay, 2012). To me it seems that Critical Realism (CR) is a nonsense philosophy that has suddenly become fashionable among social scientists and IS scholars, having a deeply disturbing effect on the academic community and being particularly destructive for IS scholars wanting to produce real knowledge and make real change (Øgland, 2016).

However, in the same way as Sokal and Bricmont were said not to understand what they were criticising in the response they got from some of the scholars they were attacking (e.g. Derrida, 2005), I see the risk that my understanding of CR as a bad philosophy of science is a result of not having correctly understood the philosophy. My aim for this seminar is consequently to have some of these possible misconceptions corrected and thus be convinced that CR may indeed be a useful philosophy of science for improving methods of IS research.

What is critical realism and why has it become so popular?

When looking at the impact of CR in various fields such as economics, sociology, theology, nursing and information systems research, my impression is that the philosophy means different things to different people. For instance, for Tony Lawson the philosophy of Roy Bhaskar was a way of articulating himself as a Marxist economist (Fullbrook, 2009). From what I understand, Margareth Archer’s sociological interest in CR also came from a Marxist perspective (Davis, 2015), and I get a similar impression from reading Andrew Collier (1994). However, there are others, such as Alister McGrath (2016), who see CR as a way of arguing against Richard Dawkins’s atheism in favour of spiritual realism and explaining his own conversion from atheism to Christianity.

While I can feel a certain level of sympathy for scholars who hold strong ideological or religious positions and want to show how such positions are rational by engaging with the philosophy of science, I am more worried about scholars with less explicit ideological or religious commitments, somehow having caught the CR virus and believing that the philosophy can be used as a philosophy of science. What I have in mind here are people like Alex Clark (2015), who focuses on the concept of realist ontology in nursing research but seems less clear when respond to question about non-observable realist ontology, or Douglas Porpora, who seems to believe that CR can be used as means for criticising American positivist sociology and trying to make it more similar to British sociology (Rutzou, 2015). Although it is quite possible that Clark and Porpora may have Marxist or spiritual agendas...
that are better articulated elsewhere, my impression from these two particular accounts is still that they believe that CR (e.g. Bhaskar, 2013) has meaningful implications for how research should be carried out beyond making philosophical speculations about the ontological reality of ideas like dialectical materialism or the incarnation of the soul.

**John Mingers's interpretation of critical realism**

Below follows an extract from the invitation to the CR seminar at the University of Oslo (Kempton, 2017). The extract includes a reference to the way Mingers et al (2013) introduced CR in their foreword to a special issue of MISQ on critical realism and information systems research.

> The strengths of critical realism is often described in contrast to the paradigms of positivism and interpretivism. In Mingers et al.'s words, critical realism:

> - "defends a strongly realist ontology that there is an existing, causally efficacious, world independent of our knowledge. It defends this against both classical positivism that would reduce the world to that which can be empirically observed and measured, and the various forms of constructivism that would reduce the world to our human knowledge of it."

> - "recognizes that our access to this world is in fact limited and always mediated by our perceptual and theoretical lenses. It accepts epistemic relativity (that knowledge is always local and historical), but not judgmental relativity (that all viewpoints must be equally valid)."

> - "accepts the existence of different types of objects of knowledge—physical, social, and conceptual—which have different ontological and epistemological characteristics. They therefore require a range of different research methods and methodologies to access them. Since a particular object of research may well have different characteristics, it is likely that a mixed-method research strategy (i.e., a variety of methods in the same research study) will be necessary and CR supports this."

> These ontological and epistemological claims have impacts both for which phenomena we study and how we methodologically approach them.

Although some may feel that the comments above give a concise description of what CR is, to me it is not so obvious because the way CR tries to solve the problems associated with the three bullet points can also be achieved by applying a non-realist philosophy of science like constructive empiricism (van Fraassen, 1980; Øgland, 2013; 2016), while the way Mingers et al contrast CR with positivism and interpretivism makes assumptions about the ontological nature of positivism and interpretivism may not be representative for how many scholars working within either of these particular paradigms think. For instance, do modern positivists share the belief of classical positivists that nothing exists outside of what can be measured and observed? Or are interpretivists assumed to be idealists that do not believe that the actual world exists? By applying caricature descriptions of positivism and interpretivism, I have a feeling that the CR enthusiasts are getting dangerously close to making a strawman argument.

To me it seems more useful to think of critical realism to be a mixture of two things, namely critical theory and scientific realism. If we think of critical realism as a variation of critical theory, then we see how it fits in with the Habermas distinction between how different research paradigms serve different interests; positivism serves technical interests,
interpretivism serves practical interests and critical theory serves emancipatory interests (e.g. Flood & Jackson, 1991; Orlikowski and Baroudi, 1991). Critical realism was originally developed within a context of the Marxist-inspired philosophies that was dominating much of academia in the early 1970s. What this means is that it is a philosophy that looks at the world from the viewpoint of power, politics, exploitation and struggle for freedom, something that makes it different from positivism and interpretivism where research tends to be less explicitly politicised.

This is how I understand the “critical” aspect of CR, which I consider to be an important aspect of the appeal of the philosophy, but the “realist” aspect of CR also links with Marxism in an important way. Within Marxist philosophy, class struggle is not a perspective or a social construction. It is an important aspect of the real world. In fact, my feeling is that CR is very similar to dialectical materialism, but a clever aspect of Bhaskar’s thinking is that he manages to unite his philosophy of science concerning the natural world and the social world, which is unlike earlier Marxist thinkers who would claim that social phenomena require a particular form of science (e.g. Øgrim, 1993).

Bhaskar’s main achievement, as I understand it, is that he unites dialectical materialism with scientific realism, which was the state of the art in the philosophy of science in the 1970s. In other words, he manages to produce an effective response to Popper’s (2002) attack on Marxism as pseudoscience by aligning his version of Marxism with philosophers of science who were dethroning logical positivism as the hegemonic understanding of natural science and replacing it with scientific realism. He gives Marxist philosophy a sound scientific articulation, or at least so it may have seemed at the time.

For me, the problem with the quotes from the MISQ text is that it appears to tame CR into a mainstream philosophy of science that proposes to solve some technical challenges concerning mixed-research methodology and conflicts between positivism and interpretivism while this is not the nature of CR at all. On the contrary, it is a highly ideologised perspective on what can be achieved by science and how the scientific process works.

Why did John Mingers become a critical realist?

I have not read everything John Mingers has written about critical realism, and neither do I know enough about him for making psychological speculations, but from my own research on how to look at information infrastructures and the bootstrap strategy from the viewpoint of critical theory (critical systems theory, CST), Mingers was one of several voices in the CST debates in the 1990s (e.g. Mingers, 1980; Flood & Jackson, 1991; Ivanov, 1991; Mingers, 1992; Tsoukas, 1993; Flood, 1995; Midgley, 1996)

CST was part of a trend in the 1980s of looking at operational research, management science and information systems from the viewpoint of critical theory of thinkers like Habermas and Foucault. As can also be seen in the writings from the Scandinavian tradition of IS research from this period, an important line of conflict between schools of systems science was between interpretive researchers and critical researchers (Bjerknes et al., 1987). While the critical researchers had sympathy for how the interpretivists looked at the real world beyond what could be seen through numerical measurements and statistical analysis, they nevertheless felt that the interpretivists did not put sufficient emphasis on the political nature of the situations they studied. CST grew out of an intellectual environment of various Marxist and post-Marxist perspectives. According to Midgley (1996), what distinguishes CST from other types of systems thinking are the following three commitments:
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- **Critical awareness** – examining and re-examining taken-for-granted assumptions, along with the conditions that give rise to them.
- **Emancipation** – ensuring that research is focused on “improvement,” defined temporarily and locally, taking issues of power (which may affect the definition) into account.
- **Methodological pluralism** – using a variety of research methods in a theoretically coherent manner, becoming aware of their strengths and weaknesses, to address a corresponding variety of issues.

The third point is particularly interesting because the mixing of methods is an important theoretical and practical challenge regardless of ideological perspective. Flood and Jackson (1991) represented a school of addressing the methodological pluralism problem by means of developing a methodology what would guide the researchers and practitioners in and out of different social paradigms, depending on what particular paradigm was useful for a given methodology. The premise of the idea was a classification of system methods according to a scheme that evolved into the diagram in figure 1.

![Figure 1. Classification systems thinking practices according to the SOSM model (Jackson, 2003)](image)

If one were to used the system of systems method (SOSM) in figure 1 as part of an action research project, using the five-step cyclic process of canonical action research (Davison et al, 2004), the first step of analysing the problematic situation would be done by selecting a method from the category of “soft systems approaches” under the “pluralist” column in the diagram. The planning and implementation of an intervention (e.g. developing an information system) would then be done by means of selecting appropriate methods from the “unitary” column, while the evaluation of the intervention and articulation of learning would be done by means of applying methods from the “coercive” column.

This approach caused controversy for several reasons, but one issue that was pointed out by many was how the unitary, pluralist and coercive methods were originally developed and meant to be implemented within the context of positivist, interpretivist and critical research. Mixing them together in this manner and claiming that it could all be done within a context of CST seemed unrealistic (Mingers, 1992; Tsoukas, 1993).
For instance, Rosenhead and Mingers (2001) took a different path, arguing the need for establishing an overarching philosophy of science that would give meaning to the various system methods in a manner that would be perceived as meaningful for researchers and practitioners. However, for a time it seemed unclear how this could be done. While Flood (1995) explored the multi-paradigm perspective by using postmodernism as an umbrella philosophy, which only seemed to make the process less successful (Øgland, 2013), at some stage Mingers must have discovered CR and realised that this looked indeed like a perfect philosophy of science for making the multmethodology approach work.

In other words, even though CR should be a poor philosophy of science, if one were to look at how CR entered into the systems discourse from a “science in action” perspective (Latour, 1987), I think it should be easy to see that it was a philosophy that was discovered at a time of a general crisis, that the philosophy seemed to solve the crisis, that it was marketed in an effective manner. However, when one looks at the generation and migration of scientific ideas from this Latourian perspective, what matters is not that the idea is particularly good for solving problems but it is whether it manages to invade a scholarly community. To me, this seems like a reasonable explanation for why a bad philosophy of science suddenly ends up becoming the latest fashion in social science and information systems research.

**The problem with scientific realism**

What I see as a key aspect of CR is the emphasis on ontology and what Bhaskar refers to as the epistemic fallacy. This latter point I read to mean that ontology does not depend on epistemology. In other words, things can exist although we do not have knowledge about them. There may be life in outer space even though we do not yet know. In one of the video interviews, Bhaskar talks about the importance of this issue with relation to global warming and climate change. Even though we should not have sufficient knowledge to fully understand the impact of man on the climate, it would be irresponsible not to act in a cautious manner and take political action for preventing disaster from happening (Placenza, 2013).

Although I agree with the moral and political point Bhaskar makes, I think his response to the “epistemological fallacy” is to create an ontological fallacy. The fact that we do not know whether there is life in outer space does not mean that there is life in outer space. It only means that we do not know. The fact that 97% of all scientists or climate researchers believe that global warming is happening and that the planet is in danger does not necessarily make it so. The only thing we know is that the scientific models of the climate are making alarming predictions and there is a general trust among scientists in the usefulness of these models for predicting how the atmosphere develops. Ontology has nothing to do with this. The models describe dynamics of how we believe the climate develops, and when there are observations these observations can be used for testing the model, but no matter how adequately the data may fit with the model, we know absolutely nothing about the parts of the model that cannot be confirmed by observations. Of course, as we have trust in these models, believing that they are useful representations of what is happening in the real world, we may not feel any need for further confirmations to believe in the predictions produced by the model, but the model itself will never be a true representation of the real world. A model is always a simplification. It is never true. The aim of science is not to find the truth, it is to produce useful models of reality (van Fraassen, 1980).

To me, the ontological fallacy in Bhaskar’s thinking becomes particularly prominent when we read about how CR talks about a nested world of the Real (mechanisms), the Actual (events) and the Empirical (experiences). To explain what I mean by this, let us remember that the
modern university is an outgrowth of the monasteries of the medieval Church where scholarship was largely aimed at the study of religious texts and using this as a basis for understanding how the physical and social world works. Science grew out of religion. For understanding CR we have to take Bhaskar’s background into consideration.

Bhaskar’s father was Indian and his mother English. Although they belonged to two different religious traditions, Hinduism and Christianity, their spiritual lives were guided by Theosophy, which is “is a collection of mystical and occultist philosophies concerning, or seeking direct knowledge of, the presumed mysteries of life and nature, particularly of the nature of divinity and the origin and purpose of the universe. Theosophy is considered part of Western esotericism, which believes that hidden knowledge or wisdom from the ancient past offers a path to enlightenment and salvation” (Wikipedia).

Although I believe I’ve heard Bhaskar say that this was not a philosophy he was actively a part of himself, clearly it was a part of his childhood environment, and in his later philosophy he also returned to the ontology of spirituality and philosophy of religion and spirituality. In the late sixties and early seventies, when he developed his philosophy, Marxism was a dominant philosophy in most universities, which is an atheist ideology, but, as Popper (2002) leads us to see, the similarity between atheism and theism is that these are ideologies that make ontological claims that cannot be falsified.

For example, let us assume an unobservable mechanisms in the real world to be that there are demons responding to how we think and act, corresponding to what we learn from reading the holy books within the religious tradition we are socially a part of. An actual event that illustrates this is a story told to me by Johan Sæbø (2007) about developing information systems in Botswana. While they were discussing information systems development with the local representatives, an actual event took place in the shape of a school being attacked by demons. This caused immediate action in the sense that the school had to be evacuated, and the administration had to call for the local priest to conduct rituals of exorcism to drive the demons out of the building. I do not remember what was the experience on the empirical level, but one might for instance imagine that the attack of the demons was experienced by somebody behaving in a manner as though she was having an epileptic attack.

![Figure 2. Understanding mechanisms related to information systems development in Botswana](image)

Although some people may find the way CR supports a spiritual reading of the world to be evidence of its correctness (e.g. McGrath, 2016), others disagree. This is particularly evident
among Marxists who committed to CR before Bhaskar started developing his spiritual philosophy and were displeased with this (Creaven, 2009), although others discovered the ontological fallacy even before Bhaskar made his spiritual turn (Magill, 1994). Contrary to the religious example, the beauty of CR from a Marxist perspective was that it provided a credible philosophy of science that showed how the concept of God is an illusion while concepts like class warfare, oppression, false consciousness, critical awareness and emancipation/liberation are real aspects of the social world, and not something that is socially constructed, as some postmodernists would argue.

The way Hacking (1999) puts it, from a feminist perspective it might be useful to think of gender roles and sexist oppression as socially constructed rather than some law of nature, which makes possible to develop strategies for influencing the forces that contribute to social injustice. However, in a Marxist understanding of the world, it is not a question of how different perspectives makes us look at things differently but the way capital exploits labour is a fact of life, and when representatives of labour do not see this, this is most easily explained by how they have been manipulated to develop a false consciousness that works against their own interests. As Postmodernism is currently less popular than it used to be, perhaps due to how some have seen it as supporting the ideology of neoliberalism and thus working against the ideals that made it interesting as an academic philosophy of research in the 1990s and 2000s, CR seems to be a philosophy of social science that appears to solve a lot of central philosophical and political problems at the same time.

Nevertheless, the problem with CR is the same as Postmodernism. While Postmodernism makes ontological claims in the direction that there are multiple “truths”, every perspective is equally important and what is real is a matter of negotiation rather than discovery (Mingers, 2004), CR makes the exact opposite claim, namely that there is a deep truth out there, even when it is beyond our means to know anything about it. Both philosophies are hopelessly inadequate as philosophies of science because they are concerned with the “truth” of matters that are beyond epistemology. While a postmodernist would say that the existence of God is malleable because it depends on whether we are addressing it from a theist or atheist tradition, a critical realist within a theist tradition would say that God is the ultimate mechanism while a critical realist within a Marxist tradition would claim the opposite by referring to dialectical materialism as non-observable reality that defines everything. Postmodernism and Critical Realism are equally useless as philosophies of science.

**Harmful effects of using CR as a philosophy of IS research**

Something that distinguishes information systems research from studies of religious texts, at least in the case when information systems research is being carried out from within a computer science tradition, is that one expects that the outcome of research should have implications not only in how we interpret something but also in how interpretations and various claims to insights has practical consequences in how to develop information systems and information infrastructure.

The problem with CR is not that it started out as a philosophy trying to explain why Marxist ideology is true, or that Bhaskar later made a spiritual turn and in later years was concerned with spiritual reality, but the problem is that the philosophy confuses science with religion and ideology. Religion and ideology are an important aspects of what motivates people, including natural and social scientists, but scientific truth is not the same as religious or ideological truth. For example, Luhmann (1984) presents this distincton by saying that the scientific system and the religious system are two different systems within the overall social
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system. In order to distinguish between the two, Luhmann says that science is concerned with the dichotomy true/untrue while religion is concerned with the orthodox/unorthodox.

Although I think this vocabulary is important and useful, I think it is important to remember that both science and religious deal with truth and orthodoxy, although in slightly different ways. In religious discourse one might talk about concepts like “true believer”, “the truth shall set you free”, or “I have found the truth”. Complimentary, in natural science (and social science) we describe the statistical level of confidence we have in our estimates and the level of uncertainty we are willing to accept before deciding not to reject the null hypothesis in our experiments, showing that science in practice is more concerned with belief that truth.

In fact, when we look at how the scientific process works and what scientific discoveries are like, the idea that science is a search for the truth is a very poor description of what is actually done. Mathematical equations describing gravity can be useful for explaining and predicting how far a projectile may go, but it is not the truth. The purpose of the scientific model is that it gives a useful description of how the phenomenon unfolds. Models are never true, but they should always aim at being useful (Box et al., 1978). For instance, for explaining and predicting the trajectory of cannon balls, gravity is essential but air resistance may be ignored in the model. However, when shooting other objects, winds may something that has to be taken into consideration. Critical realists try to explain this by referring to the world as an open system with mechanisms like gravity being something that can only be properly observed in closed systems that are artificially created under laboratory conditions (Collier, 1994). Nevertheless, this is turning the problem on its head because what ultimately matters is that our models of gravity make sense and such models can never validate parts of reality that is unobservable. Our current model of gravity is not the “truth” about the phenomenon we associate with gravity but it is the best description we have come up with so far. The purpose of science is not to find the “truth” about phenomena that are unobservable, but it is to make useful models of reality (van Fraassen, 1980).

Consequently, it might be said that the binary concepts Luhmann uses for characterising religious and scientific discourse are exactly the opposite of what he is saying, namely that science is about belief and religion is about truth, but in order to understand what is wrong with CR and how it can have harmful effects on IS research, the important thing is not the choice of words in Luhmann’s definition but rather how he distinguishes the scientific and religious discourses as belonging to two different systems.

If we return to the problem of developing information systems in Botswana, the question is not whether the key mechanism in the real world is a spiritual conflict between good and evil or whether it is a post-colonial perspective on oppression and liberation, but it is a question of either or none of these perspectives can function as a model for allowing us to explain and predict what is happening in a manner that can be helpful for developing information systems.

To be more concrete, figure 3 shows the cyclic process model recommended by Davison et al (2004) for doing canonical action research on information systems development. The logic of this model is that the research team starts by diagnosing the situation, which means that they try to arrive at a description of the situation that conjectures the key problematic dynamics and thus makes it possible to go to the next step of planning how to do information systems development. The plan is subsequently implemented, evaluated, and in the final step the outcome is used for reflecting on whether the diagnosis had grasped the problem sufficiently well.
From the viewpoint of CR, the logic of the action research cycle is that the diagnosis could be used for trying to hypothesise the central real-world mechanism that characterises the problematic situation, and the planning, implementation and evaluation of action could be seen as an attempt to experience on an empirical level how an event unfolds and thus use this for confirming the mechanism hypothesis.

However, as what we get is only an empirical sample from the part of reality that is observable, the data will only confirm part of the model we may have articulated for explaining the mechanisms. Of course, it might help to go cycle through the action research a few more times, but we can never capture data that will confirm non-observable parts of the mechanism. This is clearly seen if we look at the Botswana example from the viewpoint of the later Bhaskar, assuming that the model of spiritual conflict between forces of good and evil is the central mechanism, perhaps leading us to the conclusions that the ISR team should include a priest for dealing with possible attacks of demons as a key success factor for succeeding in this environment, but the method does not alter our opinion about whether the mechanism in question is of spiritual nature or not. The only thing the action research method does is to aid us in the study of how to develop appropriate actions, given that the model we use for diagnosing the problematic situation is reasonably effective.

Nevertheless, what the use of CR as a philosophy of ISR seems to suggest is that we can actually get a deeper understanding of the real world of spiritual phenomena by means of doing empirical research. The important issue here is that CR starts with the premise of a spiritual world, something we cannot observe directly but nevertheless see as a necessary consequence of the real world when we investigate actual events by means of empirical experiences (e.g. McGrath, 2016). Of course, for atheist Marxists who are more in line with the early Bhaskar, the spiritual world does not exist. It is superstition created and used by the ruling class for manipulating the working part of society to do their bidding.

So does the spiritual world exist or does it not? Is the reality of the social world that there is an ongoing battle between social classes or is it not? Early versions of CR seem to imply one thing, and later versions imply the opposite. What is correct? The action research model in figure 3 does not seem to provide any answers. What that model does is to start with a model (diagnosis) and then test the usefulness of this model in terms of what the model recommends in terms of action. It has nothing to say about the ontology of non-observable aspects of reality. Perhaps there is a spiritual reality, perhaps not. From the viewpoint of somebody
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trying to develop information systems in Botswana the ontological question does not matter, but what matters is that the model used for articulating the problematic situation captures social and natural reality in a way that is helpful for producing meaningful action. In other words, the question of whether the ISR team should include an exorcist as part of the team is not a question of ontological realism but an epistemological question of what knowledge (what theoretical model) is useful for solving the problem.

An interesting aspect of spiritual ontology in the context of ISR in developing countries is that there might be conflicting ontological perspectives between the local practitioners and the academic staff from European countries running the research programmes. Of course, as for instance Neil deGrasse Tyson has pointed out in some of his popular talks (e.g. NotPercy203, 2013), there are many scientists with religious beliefs, but the percentage of scientists that are true believers is significantly lower than in the population in general, and when it comes to high achieving scientists the percentage is even lower. This poses an interesting question when atheist scientists are conducting information systems research in environments where religion and spirituality is an important part of how the world is understood. From my perspective, developing an ISR strategy based on CR is intrinsically harmful in the way it insists on filling science with cultural and religious ideology.

Indeed, I believe ISR in developing countries by use of CR could be attacked from a Marxist post-colonial perspective in the sense that trying to replace a spiritual understanding of reality by an atheist understanding could be seen as part of a project of how capitalist nations try to expand their control over the world’s natural resources by taking ideological control of nations and continents in ways that may not necessarily be in the self-interest of those nations and continents.

Of course, the central problem here, and the inherit criticism of CR, is that CR claims that it is possible to develop scientific knowledge about parts of reality that is not open to observation. Some people believe that demons is an important part of reality, others do not. From the viewpoint of CR it is possible to solve this question as it is simply a matter of finding out whether something exists or not, but how do we know whether there is life on other planets? We may argue that the evolutionary science and the vastness of the universe would make this likely, but we do not know. Science is not a question of finding the truth about things we cannot know anything about, it is a question of developing useful models of reality that makes us solve problems. Of course, useful models of reality that also fit with empirical observations and have predictive power tend to be treated as true statements about the world, but, as Kuhn (1996) points out, sometimes we are fooled. Theories and models that were seen as “the truth” in one period of history, for example the pre-Copernican view that Earth is the physical centre of the universe, was replaced by other models and theories at a later period of history. From the viewpoint of Kuhn, the way large changes in science happens by mean of paradigmatic changes is an important part of scientific evolution, and such changes typically involve radical changes in ontological representation.

Using CR as a philosophy of social science seems to contradict the very essence of what science is, namely to develop useful models of reality, and replace this idea by turning science into a process of ideological or religious indoctrination. The point is not whether we agree with the early Bhaskar’s Marxist perspectives, the spiritual ideas of the later Bhaskar or have completely different ideological and religious perspectives. The point is that CR makes ideology and religion into the core of scientific philosophy, describing the scientific process as an attempt to search for the “truth” aspects of a non-observable world, which is exactly
what ideologists and religious leaders are concerned with, but which is completely opposite to what makes science work, namely to claim and test whether certain models of the world may be useful in an explanatory and predictive way.

**Is there nothing of use in critical realism?**

What are the benefits of using critical realism as a basis for doing information systems research? In the introduction to this paper I argued that there are two strong motivations for doing research. We may either focus on helping society by developing real knowledge aimed at solving real problems, or we may focus on promoting our own academic careers by engaging with fashionable ideas that may not necessarily have any relevance for solving the problems that the IS community need to focus on.

My answer to the title question that there may be short-term benefits of using CR as a basis for doing IS research for those who want to discuss fashionable ideas while they still are in the vogue. From a long-term perspective, however, I think CR is harmful for IS research and should be abandoned as quickly as possible.

Nevertheless, I do not think that previous efforts to understand how CR can be used as a basis for IS research has been a complete waste of time. One of the reasons Mingers (2004) believed that critical realism was useful for the IS community was because it appears to solve the problem of clashing social science paradigms in mixed-methods research when mixing positivist and interpretivist approaches. This is particularly important in IS action research where interpretive methods are used for diagnosing a problematic situation while positivist methods are used for testing a conjectured solution, but CR is unworkable because of its false claims concerning the role of ontology in scientific research. However, the problem Mingers believes he has solved can be solved in a much easier and robust manner by adopting the sound philosophy of constructive empiricism (van Fraassen, 1980; Øgland, 2013; 2016).

In the case of the Botswana example, Steven Brams (1980) has shown that it is quite possible to use game theory for analysing problems involving interaction between the spiritual world and the material world by looking at the conflict in the Book of Job and other stories in the Bible. Whether Brams believes in the Bible or not is totally irrelevant to his analysis of the dilemmas, conflicts and stories he analyses. What he presents are mathematical models describing various scenarios, selected from a sacred text, analysing these models in a rational manner by means of mathematical reasoning, and thus coming up with solution spaces that explain why the conflicts unfolded the way they did or predict how they would unfold in a different setting. In other words, game theory is an example of how to theoretically diagnose a situation for the purpose of identifying the solution space that can be used for designing actions (figure 3).

When it comes to the alternative Marxist reading of the Botswana example, Elster (1985) has made the argument that Marxism as a social theory can be made sound in the context of conventional science by replacing the philosophy of dialectical materialism with traditional science and game theory. By exemplifying his argument through use of traditional game models like the Prisoner’s Dilemma and Stag Hunt for describing problems of collaboration and defect among members of the working class in a capitalist society, Elster explains how social experiments can be designed and tested in a rational manner, refining Marxist theory within local settings by confirming or rejecting testable hypotheses in the style of what was shown in figure 3. Although Elster was part of an ideological community when writing about
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this, the purpose of his writing is to show how a social theory can be investigated in a scientific manner, without ideological commitment.

What Brams and Elster illustrate is that there is no need for any ontological commitment for doing social science. In fact, it is their lack of ontological commitment that make their projects scientific. Rather than making ontological speculations about political and spiritual reality, the approach suggested by Brams and Elster is simply to admit that a model is a model of reality, which means that it is not reality itself, and then investigate the explanatory and predictive power of such a model. Brams’s personal religious beliefs or Elster’s personal political beliefs are completely irrelevant in this context. Of course, we may predict or assume their religious and political beliefs by means of their research interests, but the research method itself is uncontaminated by ideology and religion and may be replicated in all sorts of environments where it might be of use.

However, there is an important similarity between what Brams and Elster does to what Mingers find useful in CR, and that is the way their game models can function within the context of mixed-methods research as a bridge between positivist and interpretivist research. The interpretivist challenge in this context is to diagnose the problematic situation and come up with the game model, while the positivist challenge is to formulate and test the action hypothesis by means of quantitative data and statistical methods. As game theory itself is the theory of conflict, any attempt to use game theory in an action research study on information systems, organisations and change could automatically be seen as an example of ISR from a critical theory perspective (Orlikowski & Baroudi, 1991).

The difference between this and what CR suggests is that what unites interpretivism and positivism is not the real phenomenon that the model represents but it is the model itself. The important point here is that the model is something we can analyse and understand while reality is not. We can make models of reality and compare such models by means of how useful they are for explaining and predicting what will happen in the observable part of the real world, but we can never be fully certain that the model is a true representation of reality. In fact, if a model is going to be useful it is most likely a simplification and consequently untrue by default.

**Call for a revolution in information systems research**

The point I have been trying to make in this paper is that not only is critical realism a fundamentally unsound philosophy of science, it is also harmful for doing information systems research because it turns the research project into a political or religious indoctrination project. From this perspective, it is alarming to observe the rise of popularity of this philosophy among social scientists in general and information systems researcher in particular.

According to Marx and Engles (1970), the ruling ideology in any community is the ideology of the rulers, and when it comes to information systems research, the rulers are those who get their works cited. While CR may be relatively harmless as a meaningless fashion that is likely to create a lot of publications and then be replaced by something else, thus presenting an opportunity among IS scholars who want to get their work published and cited while being less concerned with solving real problems and pushing the IS field forward, it can have a disastrous effect on those who want to do real science. Particularly from the viewpoint of those interested in doing IS action research, I would describe CR as a disaster and a sign of a crisis that needs to be confronted by means of a revolution.
Despite the serious threat represented by CR, I think it is important to realise why Mingers believes that Bhaskar’s philosophy solved the problems related to the CST debate. There are two important factors here, as I see it. Firstly, critical realism is a realist philosophy of science. As has been argued in this paper, this is part of the reason why it seems to solve the mixed-methods research challenge by bridging positivism and interpretivism, but, as argued, it is also the reason why the philosophy is dangerously inadequate as a philosophy of science and needs to be replaced by a non-realist philosophy that solves the exact same challenges.

Secondly, critical realism was developed within a context of critical theory, so it reflects a worldview that puts emphasis on justice, solidarity and values generally associated with the left side of the political spectrum, although individual defenders of critical realism may not always belong to this group. For example there has been some interest in critical realism among advocates of the Austrian school of economics (Martin, 2009), which could be seen as people from the liberal side of the political right finding the philosophy useful, which could also be seen as an important reason for replacing CR with a philosophy of science that can be used within a progressive context without the risk of being hijacked by contrary political ideologies.

In my opinion, it is time for members of the Scandinavian school of IS research to return to their roots by recognising how IS research of Kristen Nygaard and others was founded on both ideological beliefs and scientific method, but where the method (interpreting action research by means of operational research) made it possible to separate scientific method from political ideology (Øvrelid, 2014). Rather than continuing to explore philosophical frameworks like critical realism, where ontological commitment turns science into ideology, we need IS researchers to engage with philosophical frameworks that makes it possible to conduct engaged research in a manner that is scientifically sound.

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