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Applying Critical Realism in an interdisciplinary context: An interview with Berth Danermark

Berth Danermark and Jamie Morgan¹

Abstract: In this wide-ranging interview Berth Danermark discusses several things. First, his route into realism via community activism, an interest in the theory and practice of Marx and Engels and the philosophy of Mario Bunge, and inspiration drawn from Herman Hesse. Second, the formation of the Nordic Network for Critical Realism and realism's enduring foothold in Scandinavia. Third, the career trajectory that took him from research on urban planning to the formation of the Swedish Institute for Disability Research (SIDR). *Inter alia*, he discusses how the well-known introduction to critical realism and applied social science, *Explaining Society*, came to be written, some misconceptions regarding critical realism and methods, the challenges involved in undertaking disability research and the development of and influences for his work of concepts such as interdisciplinarity and critical methodological pluralism, as well as issues related to transdisciplinary research and professional collaboration. The interview concludes with some advice for researchers.

Key words: Berth Danermark, critical realism, interdisciplinarity, disability research, inter-professional collaboration.

Berth Danermark was until recently Professor emeritus, Swedish Institute for Disability Research (SIDR), School of Health Sciences, Örebro University.² Over the years he has published prolifically in Swedish and English on various facets of disability, method, interdisciplinary research and inter-professional collaboration, and on subjects as diverse as housing policy, drug use, class, social inclusion, representation in education and climate change. Professor Danermark is, however, probably best known to readers of this journal for his co-authored critical realist texts *Explaining Society* (Danermark, Ekström, Jakobsen, and Karlsson 2002 [2019]) and *Interdisciplinarity and Well Being* (Bhaskar, Danermark and Price 2018). *Explaining Society* has become one of the more popular introductions to critical realism and as such sits alongside the edited text *Critical Realism: Essential Readings*, Andrew Collier's *Critical Realism*, Andrew Sayer's *Method in Social Science* and, most recently, Hubert Buch-Hansen and Peter Nielsen's *Critical Realism*.³ *Explaining Society* is now in its second edition in English, its third in Swedish and has also been published in multiple other languages.⁴

Danermark is the author of a number of single and co-authored books in Swedish and English (e.g. Danermark 2014; Manchaiah, Danermark, Germundsson, and Ratinaud 2019) as well as edited texts (e.g. Chaib, Danermark, and Selander 2011) and various chapters in edited collections (e.g. Danermark 2006a, 2018; Danermark and Ekström 1994; Danermark, Kramer and Stephens 2006). Over the years, he has published in a wide range of journals. For example, *Disability & Society*, *American Annals of the Deaf*, *Scandinavian Audiology*, *Scandinavian Housing and Planning*, *Scandinavian Journal of Disability Research*, *Habitat International*, *Clinical Interventions in Aging*, *Work*, and *European Journal of Social Work*.⁵ While his contributions to *Alethia* and *Journal of Critical Realism* have been single-authored (Danermark 2002a, 2002b,

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² For information on Professor Danermark's work and related activity, visit: https://en.wikipedia.org/wiki/Berth_Danermark

³ See Sayer (1992); Collier (1994); Archer, Bhaskar, Collier, Lawson, and Norrie (1998); Buch-Hansen and Nielsen (2020); Morgan (2021).

⁴ *Explaining Society* was first published in Swedish in 1997 with a Swedish revision in 2001 and 2018. The English version was revised in 2019. The book has also appeared in Japanese, Korean, Spanish and Turkish.

⁵ See, Danermark and Jacobson (1989); Danermark, Ström-Sjölund and Borg (1996); Borg, Danermark, Samuelsson, Wästlund and Rönnerberg (1999); Borg, Danermark, Samuelsson, Wästlund and Rönnerberg (1999); Danermark, Antonson, and Lundström (2001); Danermark, and Gellerstedt (2004a, 2004b); Bhaskar and Danermark (2006); Möller and Danermark (2007); Boman, Kjellberg, Danermark and Boman (2014); Danermark, Englund, Germundsson, and Ratinaud, (2014).

2006b, 2011, 2019) the majority of his work has been produced jointly or as part of a research team (however see e.g. Danermark 1987, 1993, 1994, 1998, 1999).⁶

Danermark first studied sociology and earned a bachelor's degree in 1979 from Örebro University. He began his academic career in the same year at Örebro University, dividing his time equally between postgraduate study and a lectureship. He was awarded a PhD in sociology from University of Uppsala in 1986 for a thesis titled *Klass, inkomst och boende. Om segregationen i några kommuner* ('Class, income and housing. On segregation in some municipalities'). Immediately after his PhD he was appointed senior lecturer, he was then appointed Reader in Sociology in 1992, acting Professor in 1997, and transitioned to permanent Professor in 1999, all at Örebro University. He was Dean of the Department of Sociology 1987-1989 and Pro-Vice-Chancellor of the university 1989-1995. In 1996 he was guest researcher at Rochester Institute of Technology, USA.

In 2000 Professor Danermark was a founder member of the Swedish Institute for Disability Research (SIDR), and over the years he has been a member of various national Research Councils and advisory boards and has undertaken numerous roles as a government designated expert and research project leader.⁷ For example, he was a Member of the Research Council of Norway peer review committee on 'Health and Care Services' 2014-2015 and the 'Swedish Council for Working Life and Social Research' (Forte) peer review committee on 'social services and social relations' 2012-2016. During 2006-2016, he was a member of the 'Academic Network of European Disability Experts' (ANED), a network that provides independent scientific advice, and analysis related to disability issues to the European Commission and the EU Member States. Professor Danermark became emeritus in 2018.

The following interview with Professor Berth Danermark was conducted by Professor Jamie Morgan for *Journal of Critical Realism*.⁸

Jamie Morgan (JM): Perhaps we might start with how you became a critical realist. Over the years realism and critical realism have had quite a substantial following in Scandinavia...

Berth Danermark (BD): It is not easy to give a short answer to this. In order to understand the intellectual process which took me to where I am today we have to go back about fifty years in time to the 1970s. When I was in my twenties I was very much involved in community activities, such as non-commercial festivals for children, as well as alternative Christmas for homeless people, and an 'open house' for drug addicts, many of whom had psychiatric disorders. The community activist groups I was a part of were very dedicated to such activities and we spent a lot of time discussing the state of things, what the causes were and what the consequences were for affected individuals and for society, and what could be done about those causes.

In these discussions we often came to the conclusion that any particular problem is multi-faceted and complex, caused by many factors, biological, psychological and social. When I searched the literature – scientific and other sources – I was not satisfied with what I found. The answers were all reductionist. The explanations were either individualistic or structural.

⁶ For a sense of his range see also, Söderfeldt, Danermark and Larsson (1988, 1989); Danermark and Ekström (1990, 1991); Ekström and Danermark (1993); Danermark, Ekström and Bodin (1996); Danermark and Möller (2008); Germundsson, Hillberg and Danermark (2011); Danermark and Hanning (2012); Germundsson and Danermark (2012); Danermark, Granberg, Kramer, Möller and Selb (2013); Bickenbach and Danermark (2019).

⁷ Visit: <https://www.oru.se/english/research/research-environments/mh/disability-research/>

⁸ See also in this series Archer and Morgan (2020); Rescher and Morgan (2020); Porpora and Morgan (2020); Norrie and Morgan (2021); Lawson and Morgan (2021a, 2021b); Jessop and Morgan (2022); Elder-Vass and Morgan (2022); Sayer and Morgan (2022); Alderson and Morgan (2022); Groff and Morgan (2022); Little and Morgan (2022); Patomäki and Morgan (2023a, 2023b).

JM: So, your route into realism was via community organization rather than a more straightforward academic pathway? This seems to be something you share with Ruth Groff and Priscilla Alderson, who one might say were ‘predisposed’ to realism along similar lines.

BD: Yes, you are right. At that time I had not begun my academic studies. I mention this background because when I look back to that time, I now understand how important these experiences were for my formation as an intellectual. And as you indicate, this has also been the case for many intellectuals, not only critical realists. But to reiterate, in contrast to reductionism, my experience taught me that there was a complex interplay between what I would later call mechanisms at different levels of reality. Ever since then, the issue of complexity has been a central part of how I seek to understand society; this determined my later focus on interdisciplinarity, a subject which I’m sure we will return to later.

I should also mention a book that had a profound effect on me around this time, the philosopher Herman Hesse’s masterpiece *The Glass Bead Game* (Hesse 2000 [1943]). The book is a pacifist and anti-fascist battle script and I was at that time a member of the peace movement and we discussed the book from that perspective. But the more I studied the book (it is an extremely rich book) the more I was captivated by Hesse’s utopic vision of a world where you can see connections between different areas of knowledge, and in a world of very fragmented sciences combine these into an all-encompassing understanding. To quote Hesse, I ‘longed for philosophy, for synthesis’.

The book is about how to ‘play that game’ of synthesis and Hesse emphasized that the history of science and ideas has hinted at how to play the game. We should play this game every time we try to explain something in the real world. There’s no need to dwell on the book here, suffice it to say that it hints at concepts like mechanisms, levels of reality, deep structure, emergence and so forth. You can say that a combination of my social practice and Herman Hesse was the beginning of the road that took me to critical realism and the work of Roy Bhaskar.

JM: And, inspired by Hesse and in the context of work in civil society you...

BD: I began to study sociology at Örebro University in 1971 and became interested in the history of science and ideas and I took courses in this subject at Uppsala University beginning in 1975. These courses also paved the way for my interest in critical realism. But there were two further important facilitators before I came to critical realism.

First, I encountered Marx and Marxism during my undergraduate studies. I spent a lot of time trying to understand the scientific method Marx and Engels used and their conception of praxis. I came across John M. Somerville’s book *Methodology in Social Science: A critique of Marx and Engels*, which at that time I found very enlightening .

JM: That’s not a book I’m familiar with, but as most readers are no doubt aware Marx was a major inspiration for early critical realism and a lot of Marxists were interested in realism insofar as it offered an explicit ontology to help make sense of Marx’s more diffuse discussion of his method, from the Grundrisse etc. – though there has also been some debate regarding whether Marxism needed an ontology and whether realism could serve that under-labouring function (see e.g. Creaven 2007). But your particular interest was praxis?

BD: That’s right. During my undergraduate studies I did not have the philosophical background to dwell on ontological issues. My focus was more oriented to method and praxis. The context was that my work with non-commercial children’s festivals got me thinking about how extremely commercially driven mainstream child culture was. This made me write a bachelor thesis analysing child culture in a capitalist society. To that end I turned to Marx (and Engels), searching for a methodological approach and discovered their work could under-labour my praxis, drawing on Somerville’s writings.

Somerville's intention was to analyse Marx's method in a very concrete way. He emphasized that in order to analyse Marx's method it is necessary to focus on and distinguish two categories of goal, the theoretical goal and the practical goal. The first (theoretical) goal is to analyse causes, tendencies, enabling mechanisms and counteracting mechanisms, etc. The second goal, praxis, is related to changes to social institutions and practices. For me the first goal was a step towards the second goal.

JM: So, you were focused on theory that informed practical changes to how things are done, in order to bring about constructive change?

BD: Yes and this became more and more important for me and when I and a colleague founded the SIDR twenty five years later it was one of the leading principles for our research program.

JM: And the second 'facilitator'?

BD: The second important experience for my path to critical realism was a course in Theory of Science I took during my PhD studies. We spent a lot of time reading and discussing Mario Bunge, especially his epistemology and ontology related to social sciences.⁹

JM: Quite a few critical realists hold Bunge's work on scientific realism and emergence in high regard, and as I recall Dave Elder-Vass and Heikki Patomäki mention him in their interviews...

BD: I am sure many critical realists, as you say, acknowledge and have been inspired by Bunge's work. For me, Bunge's work represented a serious and well thought out approach to theory of science. But despite your comment I have been surprised that reference to his work is not more prominent in the discussion of critical realist philosophy. Bunge was a philosopher of social science, but he also focused on the practice and problems of research in social science. He was already publishing on causality in 1959 and published a number of books focused on realist ontology and epistemology. Bunge's fundamental critiques of empiricism and positivism were my first encounter with his philosophy. His distinction between the transitive and intransitive – a familiar concept for critical realists – was very important for this critique. The fallacy of positivism, the reduction of the intransitive part of reality to the transitive dimension was, for me, very revealing.

Bunge's work was the first time I came across the concept of emergence, though the idea can be found in the non-reductive materialism of Engels and the work of Emile Durkheim (among others). What Bunge did was to place emergence at the core of his ontology. Furthermore, his 'transperceptual' concept is very similar to Bhaskar's concept of the 'transfactual'.

These are only some examples of Bunge's epistemology and ontology which I found convincing and his writings gave me a conceptual 'toolkit' in my search for a theory of science. One advantage of Bunge's texts was that they were relatively accessible to me as a PhD student. This accessibility was an important lesson later on when, together with three colleagues, I wrote *Explaining Society*.

JM: No doubt we will be returning to that experience, but if we summarise, so to speak 'where you were' at the time...

BD: In short, my trajectory brought together community organising, inspiration from Herman Hesse, interest in the theory and practice of Marx and Engels, and the philosophy of Mario Bunge and by this point (in 1983) I considered myself a realist of sorts. It was then that I first came across Roy Bhaskar's book *A Realist Theory of Science (RTS)*. And there it was, but as should be clear from our discussion so far, it was not the case that the ideas contained in *RTS* were wholly new to me.

⁹ Note from Jamie, visit: https://en.wikipedia.org/wiki/Mario_Bunge

JM: Though most consider *RTS*, along with Harré and Madden's *Causal Powers*, to be seminal...

BD: True. I meant more that it was not 'ground-breaking' for me in the sense that I had already assimilated some of the basic concepts and recognised what Bhaskar was trying to achieve. *RTS* was for me a coherent presentation, providing a foundation for a realist approach; a profound description of a realist theory of science. From then on I considered myself what later on would be coined as a 'critical realist' (the term critical realist was not in common use at first and Bhaskar and others used a variety of terms). *RTS* gave me concepts for consistency of theory and practice. But as experience has taught me, it is not always easy to 'walk my talk'.

JM: Given one of the things readers might be interested in is why critical realism seems to have enjoyed a significant foothold in Scandinavia, it is probably worth mentioning here how you were introduced to Bhaskar's work and whether others that you knew were similarly interested...

BD: Well, if you mean how others in Scandinavia 'came to be' realists (their intellectual journey), I'm not sure. I know that several were and are realists and that most of them have shared my interest in a critical realist approach to social science and its methodological implications. You might say the shared dominant focus was not first and foremost philosophical, although it was an important part, but rather to investigate how critical realism could underpin analysis of current social phenomenon.

I and my critical realist colleagues at my university found that there were quite a few scholars at other universities across Scandinavia whom might be called critical realists. I cannot of course mention them all here, but a few examples might illustrate the point. In the 1990s in Sweden, there was a dedicated critical realist group at Gothenburg's university under the leadership of Freddy Castro, and another at the University of Umeå, where Björn Blom and Stefan Morén made valuable contributions by introducing critical realism to social work. In Norway, Karl Höjer and Petter Næss played an important role in grounding critical realism's status in Scandinavia.

JM: And in the introduction I've already mentioned Hubert Buch-Hansen and Peter Nielsen, and their book.

BD: Yes. Their contribution in Denmark has also been valuable. I should also mention Thomas Brante's work at University of Lund in Sweden. His writings have made an important impression on other scholars.

JM: One could also mention the influence of Heikki Patomäki in Finland...

BD: The critical realists in Finland never really became an active part of our networks, maybe because their disciplinary focus was a bit different than ours (international studies etc., though there is some overlap with Buch-Hansen etc.).

JM: There are, of course, many others, but we may be getting ahead of ourselves here...

BD: Yes, perhaps we might come back to some of these names later. In any case, when meeting colleagues at various conferences and seminars, we discussed our experiences, challenges and successes, and talked about the possibility of collaboration, but it took some years before that came about. An important organizational step was the formation of The Nordic Network for Critical Realism. I don't recall the exact year the Network was created, but it was during the 1990s.

JM: And this is the period before IACR was formed in 1997 and when the UK-based annual Realism in the Human Science Conferences (begun in the mid-1980s) were coming to an end?

BD: I think so. In any case, once the Nordic Network was formed, our regular meetings and seminars were of great importance for all of us.

I should mention that one important contribution to the spread of critical realism in Scandinavia was the first IACR-conference organized outside the UK. At the 1998 IACR conference at Sussex University, I was elected to the board of IACR and I suggested that the next meeting be organized outside the UK.

I argued that since IACR is an international organization it was appropriate to sometimes place the conference in other countries. My proposal was discussed and there were some concerns about the risk that the number of attendants would be less than normal. However, eventually everyone seemed happy to give me the opportunity to organize the next conference in 1999 in Sweden. Since then the IACR conference has been regularly organized outside the UK and I think this is important for the global impact of critical realism. When I look back now at the 1999 conference, I am impressed by the high quality of the contributions, both the papers that were presented and the addresses given by keynote speakers.

JM: And I take it attendance was good?

BD: Yes the number of conference participants was surprisingly high and to reiterate, the range and quality of papers was very good. Many of the leading critical realists attended: Roy Bhaskar, Margaret Archer, Tony Lawson, Andrew Sayer to mention but a few, as well as others whose names are perhaps less well recalled today, such as Kate Soper. I think the conference was Roy's first visit to Sweden. Later, Roy frequently visited Scandinavia and this, of course, had an important impact on the spread of critical realism there.

While many of those who played a significant role in the creation of the Nordic Network have unfortunately passed away or are now retired, I am very glad that critical realism has continued to develop in Scandinavia. Norway seems to be the country in which critical realism has become most established. Persons such as Tone Skinningsrud and Lodve Svare, at University of Tromsø, Monica Kjørstad, at Oslo Metropolitan University, Lena Nyhus and Trond Jacobsen, at Inland Norway University of Applied Sciences, Lillehammer, and Petter Næss at Norwegian University of Life Sciences have all played an important role in this process.

I've already mentioned Lena and Trond at Inland Norway University of Applied Sciences, and there is a very strong critical realist group there. Leigh Price (editor of *JCR*) now has a position at the university. And in Sweden there is a group at University of Gothenburg where Gunnar Gillberg and his colleagues have played an important role, introducing critical realism to undergraduate and PhD students through their writings. I am also pleased to see that many doctoral dissertations at universities all over Scandinavia are being written based on critical realism. For example, Lena Gunnarsson, from Örebro University is well known to *JCR* readers. She wrote a thesis, *On the ontology of love. Sexuality and Power. Towards a feminist-realist ontology of sociosexuality*, and the later book has been very well received.

JM: OK, let's start to turn to how you came to write *Explaining Society* via some discussion of how you were introduced to Bhaskar's work.

BD: I am glad that you bring this up. Two things influenced our decision to write the book. The first was that, as indicated by what we have just discussed, many of the scholars in Scandinavia were interested in how critical realism could underpin their research in social issues. The other relates to Bhaskar's writings. His *RTS* is indeed, as you pointed out, a seminal book and his subsequent extensive publications has led to the development of critical realism around the world. These are outstanding. But as Tony Lawson mentioned in your interview with him, there were many other scholars who contributed to the development of critical realism. I and my colleagues read these other contributions with great interest. My own reading was focused on what might be called 'basic critical realism', which retrospectively Bhaskar emphasized was only 'one third' of his philosophical project.

Of course, I read his later texts (the other two parts), his work on dialectics and social science, and his meta-Reality and its elaboration of the conditions of emancipation. However, at the time we decided to write what would become *Explaining Society*, we decided to focus on *RTS* and 'basic critical realism'. Our intention

was to write an introduction to critical realism and applied social science. You could say that the first part of the book was an attempt to present critical realism in an accessible way to a wider audience. The second part of the book focuses on the methodological consequences of critical realism.

JM: Given you knew Roy by this point, did the subject of the book come up in discussion?

BD: Actually, as far as I recall, when we started to write the first edition in Swedish in 1996 none of us knew Roy personally. I knew Roy personally after we had met at the IACR-conference I organized in Sweden. Later on, when we decided to translate the book into English, we discussed this with Roy and he had no problem with us limiting ourselves to the ‘first third’ of his work and not trying to write an introduction with the ambition of covering his entire project. For Roy, as he notes in his discussion with Mervyn Hartwig in *The Formation of Critical Realism. A personal perspective* it was all there in *RTS* anyway, although in a very rudimentary form.

JM: The book does also draw extensively on Andrew Sayer...

BD: That’s right. The first edition especially was very much inspired by his writings. The challenge for us was to achieve simplicity without falling into misrepresentation and while focusing mainly on applied social sciences, which, of course, made Andrew’s work highly relevant. The second edition is more independent of Andrew’s work, since in that edition we introduced a number of new aspects, such as interdisciplinary critical realist research. As your introduction notes, the book was first published in Swedish in 1997 and is now available in six languages.

From our Swedish perspective, we noticed that there was ignorance among many of our Swedish colleagues about critical realist texts. Bhaskar’s texts were philosophical and loaded with a philosophical jargon that was often a barrier to proper comprehension, especially among undergraduate and postgraduate students. Only a few critical realist works were explicitly focused on applied social sciences. Among the exceptions and most important was Sayer’s *Method in Social Science. A Realist Approach*. As we write in the Preface to *Explaining Society*, ‘The enterprise we undertook was to transform these philosophical texts into a text for researchers in social sciences.’

However, it was a risky project to write such a book. One might mislead the reader, lose important content or oversimplify. In order to avoid this we had a number of discussions with Roy and had Andrew review the final manuscript. The first edition was jointly written by four of us. Although we took responsibility for different chapters, we discussed the content in detail. The latest edition was edited by three of us, since one of the original authors (Liselotte Jakobsen) had withdrawn from academic life.

JM: And the work was joint?

BD: In the second English edition we added some new parts individually written by the authors and you will find the name of the respective author of each chapter given there. This indicates who the main author of the chapters are but we all contributed, more or less, to the content in each chapter. However, I want to take this opportunity to make it clear that the contributions my co-authors made were very significant, and actually more significant than mine. This is important to say because I feel that sometimes their contribution is downplayed, perhaps because my name appears first on the book, but this is simply due to our names being mentioned in alphabetical order.

I think I should also clarify something here. In your interview with Tony Lawson he is very clear that there is no unique critical realist *method*. We are also very clear about this in our book. We emphasize that it is not a critical realist *methods* book. The aim was to give ‘the reader a number of methodological guidelines for an explanatory social science based in critical realism.’ Sometimes I come across texts using ours as a book on ‘critical realist methods’. This is a misunderstanding.

JM: Your quotation does, however, prompt another question. Looking back over your research career, your work has been typically interdisciplinary and collaborative.¹⁰ You have over the years written on this, but was this approach a conscious decision or simply a facet of doing the kind of research that interested you, albeit one that then required careful thought in order to formulate a clear and effective framework?

BD: It would take too long to discuss my research career in detail since I have been involved in many different research contexts. But your more specific question (whether my interest in interdisciplinarity was a result of my early philosophical interest in issues such as complexity or if it was a result of my empirical research) can be answered simply. Both played an important role. Epistemologically, I was not satisfied with any kind of reductionism and it is this that gives an interdisciplinary focus to my research. Regarding your inquiry about the collaborative character of my empirical research, one must take into account that during my whole academic career I have been a part of a research team organized in centres or institutions. I have not conducted much research independently from such a context. So, you might say I have never been ‘a loner’ in this respect, although I have published a number of articles, chapters and books as single author.

JM: I am curious though, since your experience of collaborative and interdisciplinary work seems to set you apart from a lot of people who work in the social sciences. If you take a cross-section of journals, most work tends to be single or jointly authored. Research teams are rare. One might note they are more associated with natural sciences and especially laboratory work (or in social sciences, in economics, with groups of data-mining econometricians who churn out papers focused on statistical analytical tests). It strikes me that your research though is focused on issues that require multiple points of view and evidence forms... a situation that requires expertise that no individual is likely to have, perhaps... This goes against the grain in disciplinary social science...

BD: You are right to some degree. My experience might be a little bit odd in an international perspective. But in a Swedish perspective I do not think it is very odd. I would say that being part of a research group which contains two or more disciplines is quite common in Sweden. This is very often seen as a resource when it comes to, for example, applying for external funding. For instance, when I applied for positions at universities or for research funding the reviewers have most often seen my involvement in teamwork and co-authoring articles as a merit. However, in the beginning of my research career I mainly worked with other social scientists. You might say that the number of disciplines involved were few. I collaborated mostly with researchers in history, political science, social work, and economy. Later on, when I entered the field of disability, the number of involved areas of knowledge increased and included subjects such as audiology, cognitive psychology, development psychology, and pedagogy.

JM: Your response though does invite further questions regarding the challenges involved.

BD: It does, let’s start with two important ones encountered since my earliest experience in research. First, an organisational and practical one. As your comment suggests, the academic world is organized based on disciplines. The internal organization of universities is, with few exceptions, disciplinary. Research funding is most often based on disciplines, most journals are discipline oriented, and evaluation of academic merit is most often based on disciplinary criteria and so forth. This might seem to contradict what I have just said about typical work and expectations in Sweden (teamwork and collaborative research). And, yes it is indeed a contradiction. On the one hand you have the disciplinary organization of universities and on the other hand you have the creation of research groups and the need for teamwork and collaboration in order to address current main societal

¹⁰ In addition to previous notes see, for example, Lundqvist, Elander, and Danermark (1990); Yllmaz, Josephsson, Danermark, and Ivarsson (2008); Jerlinder, Danermark, and Gill (2009); Hillborg, Svensson, and Danermark (2010a, 2010b); Gustafsson, Peralta, and Danermark (2014); Manchiaiah, Danermark, Ahmadi, Tomé, Rajalakshmi, Zhao, Li and Germundsson (2015).

problems. This organizational contradiction is a challenge I have struggled with during my whole academic career. Sometimes successfully, and sometimes unsuccessfully.

JM: And second?

BD: Second, as my initial comments dating all the way back to my early community activism suggest, is the challenge of finding a philosophical foundation for conducting interdisciplinary research. When I started to review the state-of-the-art regarding interdisciplinary research in a systematic way I made two important observations. The first was the lack of ontological discussion in relation to interdisciplinary research. There was a lacuna regarding metatheory. When I looked for suggestions about how to evaluate interdisciplinary research, I could not find any philosophically-grounded criteria anywhere. I came across only a few scholars who touched upon ontological aspects of interdisciplinary research. For example, Finkenthal (2001).

These days, of course, there are quite a few critical realists dealing with interdisciplinary research, to mention just a few, Graham Scambler, Leigh Price and Pricilla Alderson.¹¹

JM: And what kind of questions were you asking yourself about interdisciplinary research?

BD: I started from the obvious one that addresses the possibility of consistency and compatibility (or its lack) across the disciplines, the basic ontological question, ‘What must the nature of reality be like for interdisciplinary work to be possible and necessary?’. Other intrusive questions included:

1. What is the role of disciplines in the process of interdisciplinary research?
2. Does interdisciplinary research assume teamwork or can an individual researcher do interdisciplinary research?
3. How can a PhD student conduct interdisciplinary research?

The first question was triggered by the second important observation I made when I scrutinized the interdisciplinary literature. There were often failures in the kind of collaborative work that an interdisciplinary approach requires. There was either a total breakdown in efforts to conduct research over disciplinary boundaries, or quite often the interdisciplinary team failed to integrate their findings. This meant work was failing to achieve what I term ‘epistemic emergence’, i.e. novel knowledge that would not be possible to acquire in purely disciplinary research.

JM: And you felt there was a basic ontological problem here?

BD: In observed cases of breakdown it was obvious that the teams had not acknowledged the need for at least some common ontological grounds. It is, for instance, ‘mission impossible’ to mix teams of hardcore positivists with post-modernists.

JM: This is an interesting point. I read a lot of work in ecological economics and Clive Spash, for example, makes a similar argument. He suggests that over the years ecological economics has confused the need for multiple perspectives with a kind of unstructured approach to pluralism that resulted in eclecticism and contradictions, precisely because there had been a reluctance to ask what might ground the consistency and compatibility of work undertaken – an issue he suggests begins with ontology and then moves to epistemology and methodology... When an approach mixes positivism (or logical empiricism), strong constructivism, and scientific realism without also considering adequacy and compatibility there is clearly going to a problem....

¹¹ Note from Jamie: for a recent example of his work see Scambler (2020). For some general discussion of method/methodology and application see Carter and New (2004); Olsen and Morgan (2005); Lipscomb (2006); Morgan and Olsen (2007, 2008).

BD: Yes, this is fundamentally correct. Eclecticism and contradictions are often the result of the absence of ontology. This is something I've come across in the literature. Furthermore, teams often become stuck at the multi-disciplinary level. The key reason here is a failure at the integrative phase of the process, and the reason for that is a lack of an explicit metatheory to facilitate knowledge integration.

In any case, I concluded that in order to be able to fully integrate findings and conduct effective interdisciplinary and collaborative work you need philosophy, and I could not see any other metatheory than critical realism that fulfilled the criteria for this challenge.

JM: OK, but it might be worth just briefly defining a few terms here for readers. What exactly do you mean by interdisciplinary research, is this, say, different than transdisciplinary or post-disciplinary (a term, for example, that Andrew Sayer is partial to) research?

BD: This is a tricky issue. When Roy and I started to write the book about interdisciplinarity we discussed the terminology. What we actually were writing about is not the interaction and relations between different disciplines but between different levels of reality. Bringing this ontological aspect on interdisciplinary research was very important, but to use the concept inter-levels research was not an option.

JM: I'm not quite sure what you mean here by 'level'. Are you referring to stratification of reality and how one aspect of reality is emergent from another (social, biological, chemical, physical etc; where activity within each does not 'violate' that of others, but 'emergent' strata cannot be explained entirely in terms of 'lower' strata) or are you referring to depth realism (real, actual, empirical)?

BD: I am (we were) referring to stratification of reality, although depth realism is a fundamental aspect of the ontology I support for interdisciplinary collaborative research. Without depth realism, some team members run the risk of actualism and committing the epistemic fallacy, which would make research collaboration difficult and confused both in implementation and in terms of different expectations, focus, emphasis and interpretation of findings.

In any case, if we wanted to be understood and make a contribution to the field, we thought it best to stick to the concept of interdisciplinarity. However, the issues were more complicated. Research we were interested in was not only based on knowledge from different levels (strata), but also based on knowledge from different areas of knowledge at the same level. So, to give a short answer to your question, 'what do I mean when I use the term interdisciplinary research', I am referring to research drawing from knowledge production in different areas of knowledge, both from different levels of reality (e.g. social, biological, chemical, physical etc.) and from different areas of knowledge at the same level (e.g. economics, sociology etc.). I and a colleague at the SIDR, Professor Jerker Rönnerberg, named the former vertical knowledge integration (different levels of reality) and the latter horizontal knowledge integration (different areas of the same level).

JM: So, in your approach to interdisciplinarity, a key issue is an ontological distinction which leads to a problem of epistemology?

BD: Exactly. In order to achieve integration of knowledge and hence knowledge emergence one has to come to some agreement regarding basic ontological understanding of reality in order to avoid epistemological problems such as eclecticism.

JM: And the concept of transdisciplinary research?

BD: This is also a fuzzy concept and has acquired many different meanings. In the beginning it was, and for some still is, used more or less as a synonym for interdisciplinary research. But nowadays the concept most often refers to a particular type of knowledge integration, that between researchers' and practitioners' knowledge. The

aim of the process is to merge different types of knowledge to form a deeper and wider understanding of a phenomenon. Readers may be interested in Mikael Stigendal and Andreas Novy's 'Founding transdisciplinary knowledge production in critical realism: implications and benefits,' published in *JCR* a few years ago (Stigendal and Novy 2018). This is an excellent introduction to the issue of how to approach the challenge of this merging. Researchers who do not focus on epistemology and ontology do not dwell on the consequences merging may have for the outcome of the research. But for many this is an important aspect of transdisciplinary research.

As Stigendal and Novy and others point out, one has to recognize that there are different types of knowledge and a common way to address this is to go back to Aristotle and distinguish between episteme, techne and phronesis.

JM: Roughly meaning science or theoretical knowledge (episteme), and then two forms of more practical knowledge, making and craft skills (techne) and practical wisdom (phronesis)...

BD: However, although I understand the importance of distinguishing different *forms* of knowledge, I have never been satisfied with this approach because it does not investigate and discuss in-depth the different epistemological processes for these types of knowledge in relation to ontological considerations. The issue of merging different types of knowledge has been a subject of concern for much of my research. The first time I came across this kind of question was when I had to deal with disability research together with persons with disability.¹² People with disabilities were acknowledged as experts based on their personal experiences and you might recognize this as the third form of knowledge (phronesis). This is one kind of knowledge that differs from what I later came across when merging knowledge from different groups of practitioners, or professional experts if you wish, the second form of knowledge (techne).

Anyhow, the epistemological processes are very different for different types of knowledge and this can have significant impacts on the outcome, crucially involving their understanding of the object for research. In order to deepen my knowledge in this area I turned to the theory of social representation.

JM: As I understand it, this is a branch of social psychology focussing on how groups or communities have systems of values or beliefs which influence how they communicate.

BD: Yes and no. Most importantly there is a cognitive system of values, ideas and practices which, according to Serge Moscovici, the founder of the theory, enable individuals to orientate themselves in their material and social world and to master it (Moscovici, 1973: xiii). However, there is a lot more to it than this, and some critical realists might find it surprising that I mention this theory, since it has latterly become more social constructivist-oriented. However, I have been more interested in the original texts by Moscovici. I have not found any strong arguments based on his writings for the shift in orientation towards the strong social constructivist approach which has taken place over recent decades. Moscovici's writing is perfectly compatible with Roy's discussion of the transitive dimension. To me, it seems that Moscovici's theory has been 'hijacked' by strong social constructivists. For them, any talk about reality and ontology is taboo.

In any case, Moscovici transforms Durkheim's collective representation to social representation. He acknowledges that there are different forms of knowledge. He focuses on common sense knowledge (social representation) and contrasts it with scientific knowledge. Social representations help people to orient their daily lives. It is about lay-persons everyday conceptualizations of their natural and social environment.

JM: Given what you've already said about your work, which implies a need to incorporate very different concerns and points of view, this would seem to have obvious appeal; though as your previous comments on a need to avoid eclecticism and the role played by ontology and meta-theory also suggest, drawing on critical realism in some sense?

¹² Note from Berth: see the discussion later related to the claim 'Nothing about us without us'.

BD: Yes, I think that the original theory of social representations benefits from a critical realist approach and the main issue here is a familiar one regarding philosophy of science. The relation between common sense and scientific knowledge is a longstanding topic of discussion among researchers in the field. Many social representation theorists claim that science can be regarded as and studied as a social representation and that scientific knowledge should be included in social representation analysis. Science is just one type of knowledge among others and has no privilege over any other forms. Many of them even argue that scientific knowledge construction *relies* on common sense.

JM: I guess the obvious response is that the underlying issue is not necessarily ‘privilege’, but rather the nature of the object of inquiry and the possibility of truth claims made in its regard. Philosophy of science allows for the distinction between ‘context of discovery’ and ‘context of justification’ of some focus of inquiry, a point that in no way suggests science is infallible or that social representations are irrelevant or that no adverse power relations may pertain, insofar as they may be integral to the phenomena under investigation...

BD: Yes and this is a problem. Many social constructionists tend to conflate all of these. You are also right that power relations are not much addressed by many social representation theorists. This is the reason that I and a colleague of mine focus on this (see Danermark and Germundsson 2011).

However, what Moscovici wrote is that *there is a dialectical relation between different types of knowledge* and that there is a transformation of common sense, the type of knowledge that his theory is about, through contact with scientific knowledge and also a transformation of scientific knowledge following its penetration into the public arena. This is not the same as regarding *all* types of knowledge as a social representation or all social representations as the same. There is a difference between lay persons’ social representations (common sense), expert/professional social representations and scientific knowledge of a certain phenomenon, these distinctions disappeared later on with the constructivist turn. But I think the distinction is very useful.

JM: Useful at least insofar as it implies different concerns within both a stratified reality and between disciplines at the same ‘level’ – an added complexity to your previous distinction between vertical and horizontal integration in interdisciplinary research that must allow for *how* scientific knowledge and lay persons’ social representations, as well as expert/professional social representations relate to each other...

BD: Absolutely, this is what Moscovici is suggesting when he says that there is a dialectic between these different forms of knowledge. In Chapter Seven (Eight in the later edition) of *Explaining Society* we discuss the relations between science and expert/professional knowledge and practice (we can return to the book later). The reverse, how different forms of social representations influence science, has to be analysed in detail and I am still struggling with how to understand this dialectical relation between different types of knowledge. For instance, how does expert and professional knowledge influence scientific knowledge and what are the consequences for scientific knowledge production? What epistemological mechanisms are involved in this dialectic? This does not mean that scientific work is not influenced by different forms of social representations. Indeed they are. Moscovici says that these forms of knowledge ‘sneak into science’. But my concern is *how* this process looks. This is an important aspect of transdisciplinary. When I did research on the mechanisms that influenced inter-professional collaboration the issue became an important part of my research. How do two or more groups of people, such as different professions, collaborate if they do not share the same social representation of the phenomenon they are to collaborate on?

Questions are difficult to answer if the understanding of the phenomenon differs across ‘What is the problem?’, ‘What has caused it?’, ‘What shall we do about it?’ and so on. This can be a major obstacle for collaboration. These types of questions are also relevant when it comes to transdisciplinary research. Based on my reading of Moscovici’s texts and other researchers in the field I concluded that there are three driving forces:

interests, needs and desires. Furthermore, there are three important mechanisms in the epistemological process related to lay persons and experts/professionals: distortions, additions and omissions (Danermark & Germundsson, 2011). In order to have a social representation of a phenomenon that works for them experts often overemphasize some aspect and can also neglect some aspects.

JM: That's quite a lot to digest, an example might help illustrate your point here.

BD: In my research I encountered a conflict between social workers and staff in child and youth psychiatry. They were supposed to collaborate to support youth with drug abuse and psychiatric problems. The social workers' understanding of the issue (i.e. their social representation), was that the main problem was psychiatric disorder and that this has to be dealt with before they could intervene and address the drug abuse. You could say that they brought the psychiatric problem to the fore and made this the primary problem. The psychiatric staff's professional social representation was the opposite: they claimed that social workers must first deal with and solve the problem with drug abuse because this is a prerequisite for them to be able to intervene and cope with clients' psychiatric problems.

JM: You might want to clarify a little more...

BD: Well, the example does not in itself illustrate a conflict or a tension between science and two professions' social representations. It is an example of how two professional representations are in conflict due to the epistemological mechanisms I just mentioned. But the example is relevant because it highlights a problem. You can't say that one of the professions is right. Both representations are rational given their needs and interest in relation to their professional tasks and duties.

In any case, it is meaningless to ask which of their understandings is more truthful in ontological terms. The relevant distinction is epistemological, and *this epistemological process differs from a scientific analysis of the problem*. In the former (the process) there is a rational ambiguation between epistemology and ontology. A profession needs an understanding of the issue they have to deal with. The main issue is not whether this is more 'truthful' than another professions'. They need an understanding that makes it possible for them to solve the problem in the most efficient way. In the latter (scientific work) there is a need for disambiguation in order to reach explanation. This is an issue one has to deal with in transdisciplinary research and I have not seen much convincing in-depth research focusing on the dialectics when these types of knowledge are merged in transdisciplinary projects but maybe there are some.

JM: We might be getting ahead of ourselves a little again. There is surely more to say about the specifics of your early research career that brought to the fore the kind of issues that then underpinned *Explaining Society*.

BD: OK, let's backtrack. My degree dissertation was in the field of urban sociology and as your introduction notes, after my Bachelor degree I was employed by Örebro University, both as a lecturer and as a PhD-student in an interdisciplinary team. I worked at the Centre for Housing and Urban Research from 1979 to 1999. Initially I was part of a team focusing on municipality urban planning, analysing the room for action local politicians had in the field of urban planning. Our overarching research focus was the determination of the most basic mechanisms for the formation of local urban planning and its outcomes.

My task was to conduct comparative research on housing segregation in three selected municipalities. The results were presented in my thesis dissertation in 1983. Immediately after this I was invited to take part in a governmental investigation on Swedish housing policy. In 1984 I then wrote a report on the development of housing segregation in Sweden during the post-war period. In the report I tried to apply insights from realism (mainly based on my reading of Bunge), and the report gained some attention as an interesting contribution to the discussion of Swedish housing policy. At that time the core political issue was whether to privatize the housing sector.

JM: An issue that attracts very different attitudes from left and right.

BD: In Sweden at that time, the Social Democrats were against privatization but the centre-right opposition were in favour. Around then I became involved in two international research projects, one was a comparative study of housing privatization in Russia, Sweden and the UK, and the other was a study of housing provision in European growth regions in the UK, France and Sweden.

JM: And how was this work received?

BD: I recall that later in 1994 during the final debate before the election between the leaders of the main political parties, the Social Democrat leader produced our final report on privatization in housing policy in European growth regions. He waved it and claimed it was scientifically proven that privatization hampered economic development in the country.

The Social Democrats won the election and there was no housing privatization in Sweden at that time. This was the first time the research I was involved in was acknowledged at an important national level and my first concrete experience that it could have an impact outside the academic community.

JM: But given the subjects you have taken an interest in and the nature of your research I expect not the last time...

BD: No, my second such experience was when together with a PhD-student, Mats Ekström, we conducted a number of studies focused on urban renewal and well-being among elderly people. We found that when elderly people were forced to leave their home due to extensive urban renewal they suffered from this forced relocation.

JM: You would think that was fairly intuitive, given that with age comes connections to people and place and being forced to abandon somewhere one has come to think of as home is liable to have consequences for mental and physical health, if no attempt is made to mitigate these effects...

BD: Yes you are right but it was the first time it was scientifically demonstrated. We noted for instance a substantial effect on mortality among these people, which is indeed a serious finding. This became headline news in the leading Swedish newspapers and I was invited to comment in the media and by different institutions to present our findings. Based on the results of our findings the media accused profit seeking housing companies of carrying out housing renovation in such a brutal way that people died. I was also approached by lawyers asking me to testify in favour of their clients when they planned to sue companies. These clients had relatives who had passed away shortly after the forced relocation. This was something I consistently declined to do, since our work did not support an extreme view of such individual consequences; but instead they referred to our article. As a result of the media angle taken on our findings, I became something of a scapegoat among agents involved in urban renewal, despite that I was not responsible for these more extreme accusations and for some of them I became 'persona non grata'.

JM: And I guess this put you in a difficult position since research access in sensitive contexts depends on reputation, trust and perhaps a degree of anonymity despite 'reputation' being a factor...

BD: Well, to a certain degree this did hamper the possibility of getting further important data for my research in housing policy, since I often needed data from these actors.

It is also worth mentioning that the study was my first attempt to explicitly use critical realism as a metatheory for my research. The results were presented in Mats Ekström's outstanding dissertation *Residential Relocation, Urban renewal and the Well-being of Elderly People. Towards a Realist Approach*. At this time we

also started to consider writing a book presenting critical realism for a Swedish audience, which as we have already discussed, resulted in *Explaining Society*.

JM: It might be useful here to just briefly summarise the key arguments in the book. Readers are likely familiar with the first part introducing critical realism, but your argument in Chapter Six on ‘critical methodological pluralism’ and Chapter Seven on practice in social science probably warrant some comment.

BD: First, as noted earlier, Chapter Six is Chapter Seven in the second edition (and Chapter Seven is Eight and so on). Regarding Chapter Six/Seven, we first of all claim that we do not exclude a priori any type of method, but we strongly argue that choice of method must be guided by metatheoretical considerations. These considerations also inform the conclusions that can be drawn from the results methods produce. The aim of the chapter is to try to lay a more systematic foundation for the choice of method. We also emphasize that in most cases it is profitable to combine methods in practical research work due to the fact that the object of investigation is very complex. Within social science the phenomena are contextually defined. In an open system we must allow for many influential powers and the decisive question is how different methodologies can convey knowledge about generative mechanisms. Consequently, moreover, strata and emergent powers, mechanisms, open systems and intentionality are some of the central considerations determining the view of design and method.

We also argue that, since the social sciences deal with open systems, causal conditions in particular must be analysed as tendencies, which has consequences for methods. Finally, when we talk about *critical methodological pluralism* we mean that there is most often a need to use more than one method, but the choice of method must be based on a critical review of the nature of the phenomenon under investigation and what kind of conclusions can be drawn from the outcome of the method.

JM: So, research design should be sensitive to (and thus iterative in response to experience of research in) the nature of that which is under investigation (rather than determined a priori), and ought to allow for multiple methods and different categories of method, as appropriate? A *learned* and structured pluralism, rather than an eclectic ‘anything goes’. These are issues that Wendy Olsen and Dave Byrne have taken a lot of interest in and many of them also come up in Bob Carter and Caroline New’s edited text *Making Realism Work* and Paul Downward’s edited text *Applied Economics and the Realist Critique*. And Chapter Seven/Eight?

BD: In Chapter Seven/Eight, we address two important aspects of social sciences. First, we argue that the social sciences are of great relevance to social life and that the knowledge they provide can be emancipatory. Knowledge of structures, mechanisms and tendencies is in a broad sense highly conducive to good planning. A conclusion of our discussion is that in order to make better use of social scientific knowledge there must be a change in the division of work between scientists and practitioners. In the chapter we also claim that a precondition for making social science relevant is to acknowledge the distinction between agency and structure. Here, we argue that it is necessary to know what basically shapes social life. Society consists of two separate phenomena, which are nevertheless related to each other: acting people and social structures. Agency and structure are not two elements of the same process; instead we have to deal with two different phenomena.

JM: And this implies?

BD: Critical realist analysis implies a more limited role for the social scientist and an extended role for the practitioner. We too often see that social scientists go beyond what social science enables. Our conclusion is that what social scientists should provide practitioners with is not prescriptions but social scientific theories.

JM: To what end?

BD: A foundation for planning. It is up to practitioners to estimate how mechanisms may manifest themselves in specific cases. And to be able to do this, practitioners must make use of social scientific theories, specifying the structures and mechanisms that are relevant to the field.

JM: So, your first ‘aspect’ is that social sciences are of ‘great relevance to social life and that the knowledge they provide can be emancipatory’ (but that social science must be more aware of its limits and role in terms of the work of practitioners). And the second?

BD: The second aspect we discuss in the chapter involves the relationship between research and a critique of society. Fundamental to the critical side of social science is the standpoint that explanations of social phenomena must be subject to critique. The argument is a familiar one in critical realism, our explanations of social phenomena in themselves comprise a critique of them. Most often social science research is about social problems or challenges. When analysing these issues the research often reveals structural conditions that produce these ‘ills’. Social structures are political and hence a critical realist analysis of such structure implicitly and/or explicitly results in critique.

JM: It strikes me that these (agency, practice, critique, change...) are all issues that lead back to lay social representations and the problem of social construction (voice, power and empowerment and so on) as you have indicated above and this seems a convenient point in the discussion to turn to your work at, and the creation of, the Swedish Institute for Disability Research (SIDR).

BD: This too might benefit from a step back. We might first discuss the development of my work on disability research. Let’s start with something short on the organizational context and then discuss the theoretical and political issues associated with disability research.

I became involved in disability research in the mid-1990s. I was asked to write an application for research funding for a project focused on hard-of-hearing youth. The intention was that the research would be conducted in collaboration with the Audiological clinic at the University Hospital in Örebro. The application was successful and I was appointed as principal investigator (PI), but I was hesitant at first because I was not that familiar with the subject, although I had written a thesis on the subject during my bachelor studies (for those not familiar with the Swedish system, as an undergraduate at the time, one wrote dissertations).

Örebro is a national centre for schools for deaf and hard-of-hearing pupils, and after graduating many of them remain in Örebro. As a consequence there is a concentration of deaf or hard-of-hearing people in the town. My university recognized an opportunity and wanted to establish research in this field, since there was easy access to data related to all the challenges they encounter.

JM: That sounds a little cynical, given what motivated you to enter academia in the first place, I expect you entered into the research with the understanding that it had the potential to be constructive and beneficial?

BD: It was not at all cynical. As you have noted, social commitment has been my driving force from the very beginning. Those we intended to research faced multiple challenges both during their education and after when starting a family, seeking work and continuing in that work.

At the time there was no similar research focus in existence in Sweden. A lot of the issues involved were interdisciplinary and the university and the audiological clinic decided to jointly form a research centre. This was named the Ahlsén Research Centre. At the Centre we conducted interdisciplinary research on different topics related to hearing. One was about youth with hearing impairment. Note that I am not talking about deafness. Many of these young people described a loss of identity. They felt they did not belong to either the hearing world or to the deaf community. At that time most of them did not master sign language. This search for an identity took many forms. Some of them felt left out and they were also often excluded from fellowship with others. Studies we conducted confirmed this exclusion but also other important aspects of the life of these youths.

For instance, we noticed that the proportion of hearing impaired youth who left secondary school and continued with higher education was much lower than among the normal hearing population, although their grades were easily good enough for university study. Our research revealed that they were in many cases not encouraged to continue with higher education because persons around them (in their environment) had lower expectations of them in terms of higher education. When I look back at the research we conducted, I think we contributed to an increase in knowledge about their fragile situation and hopefully our results paved the way for change.

JM: And this became your introduction to disability research?

BD: That's right. Then, after some years, my university and Linköping University decided to investigate the possibility of founding a national research institute with a broad perspective on disability. I and a colleague from Linköping University, Professor Jerker Rönnerberg (I mentioned him earlier), were appointed to present such a proposal. In 2000 the Swedish Institute for Disability Research (SIDR) was established. Subsequently Jönköping University also joined the Institute.

The official mission of the SIDR is to pursue 'An inclusive, interdisciplinary and competence-developing research environment with significant impact on a knowledge-based societal development of people with disabilities.'¹³

JM: And you saw great potential in this?

BD: Yes. The establishment of the SIDR gave me the opportunity to fully focus on interdisciplinary research and combine this with social commitment. Right from the start we decided to apply to the Swedish Council for Higher Education to set up an interdisciplinary doctoral program with a PhD-exam in disability research. The application was approved and I became the head of the program. One part of the program was a mandatory course in Theory of Science in which I introduced the students to critical realism and interdisciplinarity. I invited Roy to give lectures on the course and this was the beginning of a longstanding and very fruitful collaboration with Roy. He frequently visited SIDR and gave lectures on the course and in 2010 Roy became Honorary Doctor at Örebro University. You might recall that Roy says in the book *The Formation of Critical Realism. A personal perspective* that after 2002 he turned to the 'logic of the concrete' which took him to 'applied critical realism' (Bhaskar and Hartwig 2010:196). At that time we started to write the book on interdisciplinarity and health. His move towards applied critical realism coincided with my focus on interdisciplinarity and disability research. For me, it was very important to discuss these issues with Roy and I learnt a lot from these discussions. These went on until he passed away in 2014. I also think being part of the development of applied interdisciplinary research in an environment like SIDR was important for Roy.

JM: Having discussed disability research with Priscilla Alderson, I am curious as to how the Institute conceived the concept of research in this field. Priscilla commented at great length on the problems of power relations and perceptions in dealing with the young, differently abled and others who find themselves categorised and entangled with different institutions. She, for example, placed emphasis on the benefits of collaboration and co-research with those being researched (so they were not mere subjects of research but voices in the process).

BD: This is absolutely a very important aspect, but to make sense of it, first I need to say something here about how disability was discussed in the 1990s and early 2000s. As interviewing Priscilla Alderson no doubt has made you aware, disability research is embedded in an ideological and political context which is something of a minefield. Binary concepts have been numerous. For example, normal vs abnormal (or un-normal), tolerance vs intolerance, impairment vs disability, medical vs social, disability research vs disability studies, person-first language vs identity-first language and so on.

¹³ Note from Berth, visit: www.oru.se/english/research/research-environments/mh/disability-research

I approached the field heavily influenced by activists. Based on their own experiences of being disabled a number of radical activists, some of them dedicated Marxists, turned their focus to the structural mechanisms in society, which they identified as the core issue. One of their main aims was to turn away from perceiving disability as an individual phenomenon. It was society that *produced* disability.

JM: So, you were sympathetic to the more radical perspectives that were available? (radical in the original sense of focused on fundamentals, rather than radical in the pejorative sense of connoting unwarranted extreme views).

BD: I was, yes. I thought this view was an important step towards a perspective I sympathized with. However, this radicalization of the disability movement brought with it a profound conflict between what can be simplistically described as body vs society. This too could be self-limiting.

JM: You might want to just briefly sketch what you mean by this opposition...

BD: In the academic discourse there was an intense debate on the definition of disability. The mentioned radicalization of the disability movement was reflected in this discussion (recalling what I said earlier about Moscovici and dialectics, this might be an example of how activists' representation of disability influenced science in the dialectical relation between science and representations). Some authors wanted to reserve the concept of disability only for society-produced limitations in functioning. They were convinced that this was the primary thing to focus on. Disability was first a question of distribution of resources in society, and hence an issue of power. They saw disability as a socially constructed phenomenon, not in metatheoretical terms but in a very concrete material way. Following this approach, the issue became politicized and the disability movement became very strong in some countries and made real progress in terms of legislation and distribution of resources.

It was in this context that we approached disability as a complex phenomenon which has to be studied in an interdisciplinary way. Our suggestion that this is an interdisciplinary field was met with scepticism thirty years ago and by some still is, although it has become more common to understand disability as a phenomenon caused by mechanisms at different levels.

One of my first actions at the Institute was to write an article in which I linked interdisciplinary disability research and critical realism. This was first published in Swedish in 2001 and a version appeared later in *Alethia* (Danermark 2002). Around this time I came across an article by Simon J. Williams titled 'Is anybody there? Critical realism, chronic illness and the disability debate' (Williams 1999).

JM: The Williams article appears in *Sociology of Health & Illness*, (the site suggests it was published in 2001, presumably this refers to the transfer online of archived issues, since it appears in volume 21, issue 6, November 1999). And the article resonated with you?

BD: That's right. What we both tried to do, independent of each other, was to acknowledge that there was a need to overcome the distinction between body and society.

JM: And reproducing this binary presumably had consequences and this was why transcending it was important?

BD: Yes, we saw this binary conceptualization as a limitation in trying to understand the breath of disability, an unfortunate reductionism. But as I mentioned previously, among many activists and also in the academy the distinction was prominent. It is important, therefore, to have the history of disability in mind. Many people with different kinds of impairment had very bad experiences of how medical experts over decades had tried to treat the 'problem' and in many cases 'cure' the impairment. Some radical activists accused those in healthcare of severe abuse in connection with attempts to solve the 'problem' and if possible make them 'normal'.

JM: An example might help illustrate the point.

BD: You might recall the thalidomide scandal in the 1960s. Thalidomide (sold under the name of Neurosedyn) causes limb defects and a number of children were born with deformities. These children faced a number of challenges and among the most demanding was the forced use of prostheses. Another was the recommendation from healthcare professionals to the parents to place their children in an institution.

JM: There's an interesting trilogy of documentaries by the Canadian filmmaker John Zaritsky exploring different aspects of the scandal and its impacts.¹⁴

BD: Yes, and the history shows that this is only one of many examples of how 'experts' in the medical field have violated the interests of, and needs among, persons with disabilities. Hence, there was understandable scepticism and in many cases hostility towards healthcare. The catchwords among the various disability movements in contrast were diversity and tolerance. I fully acknowledge that, but when I met people with different types of impairment I recognized that they were also very much occupied with their body. They frequently encountered social obstacles which limited their opportunities for a fulfilling life, but they were also aware of limitations imposed by the body.

So, I was convinced that an interdisciplinary approach to the subject was necessary and in our research program at the SIDR we, therefore, took account of biological, psychological and social aspects.

JM: And you felt there was a different take that could be brought to the complexity of the issue?

BD: Yes, but as I've said, there was a great deal of understandable scepticism and suspicion among activists. Around the time of the creation of the SIDR, the World Health Organization (WHO) published the document, *International classification of functioning, disability and health: ICF*. This was a highly authoritative document with the stated purpose of bridging the gap between a medical perspective and a social perspective on disability. In the document, the WHO emphasizes the need for a bio-psycho-social understanding of disability. The document, however, was not endorsed by many activists. Many were afraid that if medical experts became a part of research, as members of a powerful profession their suggestions for 'improvement' with a focus on the body would dominate at the expense of other professions focus on structural issues and that this would not benefit the users. There had been, as we have mentioned, too many examples of such outcomes in the past.

JM: And I take it you wanted to overcome this scepticism?

BD: Yes, that was an important endeavour for the SIDR. It was not always an easy task to do this. Let's go back to your points about power relations and the role of people with disabilities. As I mentioned above and as you might know from your interview with Priscilla, the disability movement has a motto: 'Nothing about us without us'. This is an important aspect of disability research. The inclusion of people with disabilities in research can take place in different ways, from just being a partner when identifying an area that needs to be researched to being fully engaged as co-researchers. This was one way to address the problem of scepticism.

At the Institute, most of the time, we have collaborated closely with different disability organisations. For example, they have had a seat on its Board. We have frequently interacted with these organisations and very often with individuals, sometimes as a discussion partner during the research process and sometimes taking an active part in the process.

JM: Towards this end I expect there are many people with disabilities who have wanted to study on your postgraduate program?

¹⁴ Note from Jamie: *Broken Promises* (1989); *Extraordinary People* (1991); *No Limits: The Thalidomide Saga* (2016). Visit: https://m.imdb.com/name/nm0953508/fullcredits?ref =m_nmfm_1

BD: Yes, and our universities specified that we should recruit persons with disability to our PhD-program. I myself, for example, supervised doctoral students with disabilities. For example, a student with severe visual impairment. Furthermore, in my research I interacted intensively with the Swedish Confederation of the Hearing Impaired. I was very often invited as keynote speaker at their annual conference and was invited by their local organisations in Sweden and Finland to talk about my book *Att (åter)erövra samtalet. En bok om hörselnedsättning och kommunikation* (Danermark 2005a). In English *(Re)Capturing the Conversation. A Book About Hearing Loss and Communication* (Danermark 2014). The Institute also offered a doctoral course on the theme ‘Nothing about us without us’.

These though are just a few examples of our efforts to respond to the movement’s motto. Having said all this, it remains the case that there are significant power relations involved in doing the kind of research the Institute has done. Power relations are tricky issues to cope with, since many of these relations are built-in to structures and for some of those involved power relations remain ‘hidden’. So one of the things I tried to do was to make all involved aware of those power relations. For instance, I wrote a book (in Swedish) that specifically addresses power relations, titled *Samverkan. En fråga om makt* (Danermark 2004). (which translates as *Cooperation. A question of power*), as well as the chapter, ‘Interprofessionell kommunikation, kunskap och makt’ (which translates as ‘Inter-professional communication, knowledge and power’) (Danermark 2008), and the already mentioned chapter I wrote with Per Germundsson, ‘Social representation and power’ (Danermark and Germundsson 2011), in a book I edited with Mohamed Chaib and Staffan Selander. I also included power as a theme in the book on interdisciplinarity and health written with Roy Bhaskar and Leigh Price (Bhaskar, Danermark, Price 2018).

I should also say here that my interest in power was not new. The research I did with Mats Ekström on housing renewal in Sweden in the mid-80s brought this to the fore. It became very obvious to us how those considered ‘expert’ can easily influence others who are less knowledgeable. John Gaventa and Steven Lukes’ writings on the third dimension of power captures this (the capacity to shape a ‘world view’). This insight has followed me since and I have done a lot of research that takes this into consideration (including the references just mentioned).

JM: Overall then, the SIDR and its doctoral program were conceived in difficult circumstances...

BD: I would not say *difficult* circumstances. It was a very interesting and challenging time.

JM: Given this is an interview for *JCR* I should really steer the discussion towards the role critical realism played at both the Institute and for you...

BD: I think our explicitly critical realist interdisciplinary approach was a constructive part of trying to overcome the conflict between the medical and social perspective. Insofar as critical realism could provide a metatheory to make sense of interdisciplinarity and provide it with coherence, then critical realism was from the very beginning an important part of how I conceived the role of research at the SIDR and of the doctoral program.

That said, introducing critical realism as a common metatheoretical foundation for research in the SIDR was challenging. While the researchers that became a part of the Institute were realists of sorts, most were not explicitly critical realists.

As I’m sure most of those reading this interview will have encountered, researchers often feel they do not have time to get to grips with complex philosophical issues. It can be difficult for them to see the point or grasp the connection between their way of conducting research and in-depth philosophical development. They are focused on other things.

JM: And this can be a self-reproducing problem – since those who lack early training lack familiarity and find it difficult to engage with the process or communicate it to others later, and this propagates from generation to generation of researchers...

BD: Well, knowledge of theory of science was not that profound and many researchers did not see the need to delve into metatheoretical questions. However, a collective recognition of the value of interdisciplinarity provided a point of convergence from which we were able to agree some common philosophical grounds. While familiar to critical realists these took a form that non critical realist researchers could appreciate (matters we have already discussed), such as levels of reality, the importance of interplay between mechanisms and a non-reductionist perspective.

Of course, as one of the leaders of the Institute and head of the doctoral program, I was constantly coping with challenges. The SIDR grew rapidly and was soon by far the largest research centre within disability research in Sweden. With this came a lot of administrative work and sometimes the workload was very intense. But for me personally, this was the most creative and important period in my life as a researcher. I developed a close collaboration with Roy, which, to reiterate, played a significant role in my development and deepened my understanding of the nature of interdisciplinarity. Although being one of the leaders of the SIDR was very time consuming I did my own research and broadened my theoretical and empirical research.

JM: And what form did this take?

BD: The most important part of my own development was my understanding of interdisciplinarity and it's close relation to ontology. I developed an understanding of the nature of interdisciplinary work that I later described in a number of publications (e.g. Danermark 2001, 2002a, 2002c, 2004b, 2005b, 2006c, 2009, 2018, 2019).

JM: The latest of which has been your 'Applied interdisciplinary research – a critical realist perspective' (Danermark 2019). It might be worth reprising the main points here in order to summarise how your thinking has evolved over the years and where your thinking is at now...

BD: Before I do that it should be kept in mind that if you go to the literature on interdisciplinarity and the discussion about definitions, you will see that a common denominator is that there are *two or more* areas of knowledge involved and most often interdisciplinarity is about a phenomenon that only requires areas of knowledge that are not too far from each other. The discovery of the DNA-structure is a well-known example of successful interdisciplinary research between areas of knowledge that are close to each other. At the start of my career I was doing research in collaboration with other social scientists. As I mentioned above I mainly worked with other researchers in sociology, social work, political science, macro-economy and history. This, of course, had an impact on the interdisciplinary work conducted. These were all adjacent disciplines, or more correctly, areas of knowledge. These are 'close' together and it was not a big challenge to study the interactions between areas of knowledge at different levels. For instance, in the analysis of housing privatization and economic growth areas, we could easily establish the interaction between structure and agency and how mechanisms at different levels interacted. Briefly, when the housing market was privatized this resulted in either a shortage of labour power or a demand for higher salaries because the labour force could not afford housing in high growth areas. Such mechanisms made many companies reluctant to establish themselves in these areas and this in turn hampered economic growth. The integration of knowledge to a wider understanding of the situation was not that difficult.

JM: You seem to be working up to suggesting there are many foci requiring collaboration between a wider and more numerous range of disciplines...

BD: That's right, there are many current social issues such as climate change, healthy aging, gang crime, energy consumption and inflation that cry out for interdisciplinary research and to be successful each must include a wide range of areas of knowledge. Research on disability is another and in contrast to my previous work required a greater range of areas of knowledge. With disability research, I came across a whole range of research areas at

different levels, from genetics to ethics. As we have already discussed, there was a great need to overcome the reductionist features in this field of research. First of all, in order to fully understand disability one has to overcome the division between body and society. In our book *Interdisciplinarity...* we write:

It is worth stressing that, ontologically-speaking, bio-medical causes do not have greater importance than other causes. It simply already is the case that other causes are at play, such as psychological and social causes, whether socio-economic or cultural. It seems likely that the longer we take to understand the aetiology of a condition, the more pressing will be the need to account for the non-bio-medical causes—the psychosocial causes—such as behaviour and lifestyle. (Bhaskar, Danermark and Price 2018: **)

Thinking about and exploring these questions has been a major part of the work I have done to develop interdisciplinary research. They are not only related to ontology and epistemology but also practical issues. For example, which faculty should our research institute be connected to? The faculties at my university were organized according to disciplines. We decided to become a part of the Faculty of Medicine for practical and economic reasons. In the short term this meant some in the disability movement associated us with a medical approach which they disapproved of and it took some years to overcome this misunderstanding.

JM: Though your phrasing suggests you eventually succeeded...

BD: Yes, I think that we at the Institute have been successful in this endeavour. But before I turn to your original prompt and reprise the main points in my recent ‘Applied interdisciplinary research’ article, I should say something about some of the issues I and my colleagues had to deal with in the establishment of a new PhD-program in disability research. On a metatheoretical and a theoretical level, creating the program was not that difficult to cope with them. But the Institute’s PhD-students came up with a number of questions that were difficult to give a straightforward answer to.

JM: For example?

BD: A common question was, how should interdisciplinary be reflected in an individual doctoral thesis? We recruited students from many different disciplines to our PhD-program. They, of course, had to narrow their research focus in order not to be overwhelmed by the work required for their dissertation and it was natural that a PhD-student with a bachelor degree in psychology would focus on a psychological research issue for his or her dissertation and so on.

JM: This is obviously self-limiting, but at the same time not unreasonable. How did you encourage them to look beyond their discipline, while also ensuring the research remained manageable (i.e. ‘doable’ within the constraints imposed by the need to establish a degree of expertise, satisfy likely examiners and complete within a specified time period)?

BD: Looking beyond their own discipline was indeed an issue we had to deal with. The solution we came up with was that a dissertation in disability research must include a section where the doctoral student situated his or her research in an interdisciplinary perspective. We also encouraged them to write articles with co-authors from other areas of knowledge, on the understanding they could include these in the thesis, but at the end of the day their contribution to disability research was limited based on their focus and expertise. For many of the doctoral students this was a challenge. One of the problems some of them faced was that being a member of an interdisciplinary doctoral program meant they might not get sufficient constructive comments to strengthen and develop their research further. There were sometimes no students in their own field of expertise in the seminars able to discuss in-depth the paper they presented during their studies.

Another issue the students brought up was how a dissertation in disability research would impact their career. After graduation many of them have to compete for a position at a university. How competitive is a PhD-degree in an interdisciplinary subject compared to a PhD-degree in a discipline such as sociology? There were many other questions raised in the context of the PhD-program.

JM: Let's turn to the article.

BD: OK, but it might be useful to contextualise the article and summarize the main points using an example of interdisciplinary research I was very much involved in, deafblindness, or more specifically Usher Syndrome. This is a genetic disease that affects both hearing and vision.

The first thing to acknowledge is the issue of disambiguation, and avoiding an epistemic fallacy in the form of not separating the object of research and the process of knowledge production. We've mentioned the epistemic fallacy already and it is likely a familiar concept to a *JCR* reader. I see avoiding this as an important prerequisite for interdisciplinary research.

In the article, I describe interdisciplinary research as a process from a planning phase to intervention. I provide a figure in the article which illustrates this (Danermark 2019: 372). The first step (the first phase) is to make a preliminary overview of which areas of knowledge are required to solve the research task (an eventual resolution of the phenomenon). This overview is always preliminary, since it might be necessary to include new areas later on in the process.

If we turn to the research on Usher Syndrome. When we started to conduct this interdisciplinary research our first task was to describe the condition from all conceivable perspectives. Deafblindness was not researched much and the state of the art was very fragmented. Our research was possible because we had access to a unique database for this population. A colleague of mine, Professor Claes Möller, had over a number of years collected data on different aspects of the condition from almost all persons with Usher Syndrome in Sweden, and we continuously supplemented this with new data. It was very time consuming but necessary and rewarding. It became a source for research focusing Usher syndrome which was unique in the world.

JM: And next?

BD: When building up this database we came across a number of results that were difficult to understand and explain. For instance, we found that the level of anxiety and suicidal thoughts were much higher among men than among women in this particular population. This was surprising because in other disability populations as well as in the general population in Sweden this gender/biological sex difference was the other way around. Why was this not the case among persons with Usher syndrome? At this point we had to decide which areas of knowledge we should address in order to find out.

JM: Meaning where to place the emphasis for investigation within an interdisciplinary focus?

BD: Correct. After discussion we concluded we needed expertise in a very broad range of areas, from genetics to ethics. At that time we knew the genes that cause Usher Syndrome, but we did not know if the genes' influence was sex-specific. Moreover, were there, for example, social mechanisms involved? Was the social norm of being the 'breadwinner' affecting men in this population more than in other populations? If so why? Were there cognitive mechanisms, psycho-social mechanisms etc. involved...

JM: So, a complex of possibly relevant mechanisms to sort through?

BD: Yes, and in order to sort this out we had to study each relevant area of knowledge in-depth. This is the second phase of the process: a redescription of the different components of the phenomenon where experts in each of these areas of knowledge conduct what we might refer to as disciplinary studies, while also keeping in

mind that this is not done in isolation from other researchers in the team. A constant interaction and exchange of ideas between the researchers further fuels these in-depth studies.

In the third phase, the researchers in close interactions try to figure out which are the most important structures and mechanisms and how they interact. This is a multi-disciplinary phase including retrodution/retrodiction and involves a high degree of cross-disciplinary understanding. I myself for instance had to learn about issues such as cognition because cognitive capacity is very important for those with Usher Syndrome. They sometimes have to process just a tiny section of information, due to their limited hearing and vision, in order to understand their environment and what is going on around them. I also had to acquire some elementary knowledge in audiology. This was, of course, very challenging and time consuming but is a necessary part of the process. It lays the foundation for a successful integration of knowledge to a wider understanding of the research, and this is the fourth phase. This learning process takes you to the fifth phase, which includes an interdisciplinary understanding of the phenomenon. When the team has reached this phase, it is in a position to play an important role in intervention.

JM: So, if we summarise these five phases:

1. Preliminary overview (what are the relevant levels and areas of knowledge?);
2. Disciplinary studies (but with awareness of what others in the research team are doing);
3. Multi-disciplinary engagement, retrodution/retrodiction and pursuit of cross-disciplinary understanding (learning);
4. Integration of knowledge and knowledge emergence;
5. Interdisciplinary understanding of the phenomenon, potentially leading to intervention.

BD: The process described is similar to the general process of critical realist informed research we describe in *Explaining society*.¹⁵ But in this context there are some aspects worth highlighting. If you recall I made the point earlier that researchers need to be aware of the limits of what they can offer to practitioners. Researchers can present the outcome of research in terms of structures and mechanisms involved but must avoid overbearing prescription ('do this, do that' etc.). However, if we refer to the research on Usher Syndrome, some of the researchers in the team were themselves active as doctors at the clinic where many of the persons with Usher Syndrome were clients. That meant the step from research outcome to intervention was not as great as it might have been.

JM: I suppose the relevant question is, what was achieved, i.e. 'Did the process provide an answer to the questions posed?'

BD: Yes and no. Research is ongoing. Our work showed the issue to be very complex. Many social factors seemed to play a significant role, social norms, distribution of resources, social networks etc. These were all important, but we still do not know if there are cognitive mechanisms and genes involved. This outcome was in itself instructive. Sometimes it is not possible to come to an unambiguous conclusion about which mechanisms are most important. Reality is just too complex. This, however, does not imply the research undertaken is meaningless or worthless.

JM: Given how wide-ranging your research interests are and how prolific you have been there is a great deal here we could go on to discuss, but perhaps this is a convenient point to start to draw this interview to a close...

BD: My research did not stop when I retired. I formally retired at age 67 in 2018. During the years following my retirement I was connected to Örebro University as professor emeritus, but after three years I relinquished

¹⁵ Note from Berth: in the *Interdisciplinarity* book we also refer to the concept of a 'necessarily laminated system' and found this useful.

that title and am now an ‘independent’ retired professor. Retirement has been a form of liberation for me in that I have left behind all the administrative work that the leadership of a large national institute entails. This has allowed me to devote myself to what is meaningful, interesting and personally rewarding. After my retirement I gave talks at conferences, taught critical realism and interdisciplinarity on courses at different universities in many countries, acted as opponent for dissertations, member of committees for evaluation of research applications or positions at universities and so forth. I also did some writing.

During the first years after retirement I was much occupied with all of these tasks, but more recently I have slowed down, although I am still active in the academic field. One reason is that after my formal retirement I moved to Italy and it brought with it many challenges, such as learning Italian and becoming part of a smaller community with social codes that were new to me. In Calabria on the tip of Italy where I live it is very rare that people speak English and the lifestyle is very laid back and after decades of a very hectic academic life this is a welcome change.

JM: Finally then, over the years you have influenced several generations of researchers directly or indirectly, do you have any advice to pass on?¹⁶

BD: That’s quite an open-ended prompt. Your interview with Bob Jessop ends with a discussion about democracy and the many planetary crises. Bob underscores the growing concern about the decline or death of liberal democracy. I think this is an extremely important discussion. A major threat here is the growing criticism of science and scientific knowledge. We have only seen the beginning of how the internet and social media can undermine a serious, knowledge-based approach to global challenges, and not only in relation to the climate crisis but also other crises. There is constant questioning of scientific investigation of problems.

JM: Presumably, you aren’t just referring to criticism of particular scientific findings here, but rather to the corrosion of public discourse, checks and balances and institutions, the rise of misinformation, cynical manipulation and the undermining of the legitimacy of science and evidence derived from investigation, (at the extreme, displaced in public discourse by a melange of strongly held belief and ‘my truth’)..

BD: Yes you are absolutely right. There is a very broad spectra of issues involved in this ‘corrosion’ as you call it. There seems no limit to this, from alien conspiracy to Jewish complots... But my concern here is the criticism of science and scientific knowledge and this is the overarching problem we now have to address. The problem is that ‘alternative world views’ seem to be endorsed by a large proportion of the population. Radical constructivism and relativist standpoints have promoted this, whatever the good intentions of some of their theorists have been. Of course, activism and personal commitments, political and economic, are important, but the problem with the current and growing distrust of science and with the standpoint that all knowledge is infinitely relative is that it implies that we cannot compare and evaluate the validity of knowledge; it denies that something can in fact be true despite what I think as an individual. This is an extremely dangerous attitude. It is antithetical to everything I have tried to achieve during my career regarding transdisciplinary research.

However, some scientists who have previously endorsed strong constructivism seem to also be worried by these developments. Climate scepticism, for example, has helped change their mind. Bruno Latour addresses this concern in his latest book *Down to Earth* (Latour 2018). He notes, ‘There is no longer a shared horizon from which to orient political decision-making’ (Latour 2018: 32) and in order to reclaim ways of knowing-in-common he suggests an alternative horizon needs to be ‘mapped out anew’ (Latour 2018: 33). Latour seems to be moving on from his previous ‘corrosive critique’ of knowledge production and now appears to be coming to the defense of science.

¹⁶ Note from Jamie: for further work on the application of critical realism and applied work drawing on critical realism see Brönnimann (2022); Fryer (2022); Bukowska (2021); Wiltshire and Ronkainen (2021); Ritz (2020); Jagosh (2020); Arroyo and Åstrand (2019); Price and Martin (2018); Fletcher (2017); Steffansen (2016).

JM: I hope you are right. But this isn't quite advice in the sense I meant...

BD: No but it leads nicely into that advice. Of all the things I might say, I'd remind readers of the three key concepts that all those who advocate critical realism tend to hold in common: ontological realism, epistemological relativism and judgmental rationality. Mention of this triad is, of course, not exactly a revelation for people familiar with critical realism, but their importance bears repeating. For me, these three are critical realism in a nutshell and, moreover, this triad is the 'antidote' to the dangers posed by some kinds of relativism.

Ontological realism refers to a reality independent of our understanding of it (the intransitive dimension). It claims that reality has an objective existence and there is both a natural and a social reality 'out there' (neither is just in my head or solely a product of what I say or believe). Comments on the recent work of Latour notwithstanding, over recent decades it is ontological realism that has been the main victim of postmodernism and post structuralist critique. Richard Rorty, for example, exclaimed in an interview in a philosophy journal 'Realist grow up!'. The work of critics like Rorty depends on a sophistication that disguises its basic fallacies. It is seductive yet unserious, but somehow gives the impression the author is more mature and more open-minded than the rest of us. So, one piece of advice is not to fall for this kind of seductive and unserious rhetoric.

I would also remind readers that there is a critical realist response to the position of those like Rorty and it is related to the second concept, epistemological relativism. Scientific work is a social activity and our understanding of reality is *influenced* by social conditions, but it is not socially *determined* and that is a huge difference. In any case, Roy often referred to 'embracement' and critical realism embraces a form of constructivism. David Elder-Vass, for example, argues that critical realism is by no means contrary to all forms of social constructivism and relativism (Elder-Vass 2012). Norms, cultures, economic systems, gender, and so forth are all creations of human beings and are hence dependent on how we think about them. Elder-Vass claims that when we change our way of understanding these dependent social constructions, we also change the social world. This is at the core of moderate social constructivism, which is fully harmonized with critical realism. So, another piece of advice would be to recognise the epistemological difference between strong and moderate constructivist claims.

Finally, we come to the third concept, judgmental rationality. Knowledge is fallible, but not equally so. Claiming that we are in no position to say anything about which description or explanation of reality is currently better justified (and thus the one we currently hold to be true) is a very dangerous claim. Discussion of planetary crises clearly illustrates this danger and the need for something better. Critical realism offers a comprehensive approach to this endeavour. Informed by critical realism, we can conduct scientific analysis in order to discriminate between different theories and claims. My third and last piece of advice is, therefore, to apply critical realist guidelines to applied research.

Notes on Contributors

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