



A Discussion of *The Immaculate Conception of Data* by Kelly Bronson

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Abstract

On November 14th and 17th, 2022, the RC-40 book club held meetings to discuss *The Immaculate Conception of Data* by Kelly Bronson. The meetings attracted diverse attendance across multiple continents and included scholars from a range of career stages. Everyone who participated is listed here as an author, as their comments form the core body of this review. We are offering a different kind of book review by presenting edited and organized excerpts of our conversation as the main text of the review.

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On November 14th and 17th, 2022, the RC-40 book club held meetings to discuss *The Immaculate Conception of Data* by Kelly Bronson.¹

Introduction to the RC-40 Book Club

The RC-40 book club has an open membership, whereby anyone with interests in the sociology of food and agriculture can join regardless of membership in the RC40. Members vote on books to read and attend the meetings on an open and voluntary basis. We hold two meetings to accommodate the different time zones of participants, who attend online from multiple continents. Membership includes people from a range of different career stages and institutions, and this was reflected as well in participation in the meetings that form the basis for this review. Our discussions have a loose format, focusing mainly on the ways the text progresses our knowledge and conversations about issues central to the sociology of agriculture and food, as well as how the text might inform our teaching and research. We record the meetings, transcribe them using AI software, and then, when possible, transform them into a book review by grouping comments, editing them, and in some cases, combining comments when multiple participants articulate different aspects of a point particularly well. Volunteers from the book club engage in this editing and writing process. This review is the first output of this process.

The format of the review is not accidental. We have chosen to adopt a conversational structure, heavily relying on comments from participants. These comments respond to each other and progress as a conversation. However, they also have dynamic and non-linear aspects whereby new ideas do not necessarily move towards a singular reading or ultimate conclusive point about the text. Comments are grouped into themes that emerged across the meetings. This structure is chosen to bring out interconnected, collaborative, and contrasting engagements with the text from the diverse perspectives of participants. We are experimenting with this format in the hopes that it can reflect how texts are read within academic communities, while also providing a provocative and practically useful review. Everyone who participated in the meetings is listed here as an author, as their comments form the core body of this review. We do not attribute comments to particular participants, in part because comments may have been edited and combined with others across the two meetings, and in part to represent the collaborative nature of our discussions.

The Discussion

While we have refrained from restructuring comments into a more traditional review format, our conversations did generate some overarching insights and themes. We have titled them: 'purity and politics', 'immateriality and capitalism', and 'other places, production systems, and post-colonial contexts?'. The rest of the article is thus presented along these themes and we conclude with the main take away message for the RC-40 community.

Purity and politics

A major contribution of *The Immaculate Conception of Data* to our work on digitalization in agriculture, and indeed, digitalization in society more broadly, is the central tenet of the book: that data are often conceptualized and discursively constructed as an unmediated representation of reality, generated without context and intention. The result is that the power structures implicit in data are invisible. Bronson effectively, and convincingly, describes how this characterization of data is mobilized by both agri-businesses trying to profit from datafication, and those movements trying to challenge the data privatization being mobilized by big business. Our group also appreciated how well-placed these insights about data were within a larger historical trajectory of industrial agriculture, and we acknowledged the potential for the text to be of great value in

¹Bronson K (2022) *The Immaculate Conception of Data: Agribusiness, Activists, and Their Shared Politics of the Future*. McGill-Queen's University Press. xiv + 224 pp. ISBN-10 0228011213, ISBN-13: 9780228011217



helping us to situate dynamics of digitalization in a larger context. We found Bronson's depiction of data's immateriality and promissory fantasies to be analytically provocative. Our discussion segments below illustrate the key ways in which we found this concept of the immaculate conception of data to be generative and to progress discussions about technology in food and farming in our research domains.

I love the discussion about purity. I suspect she's right, the people she's interviewing are trying to conceive of data as raw, that it's pure, you know, it's what's seen on the ground. And that having algorithms process the data seemingly removes human bias. This is what makes big data historically distinct. The data could be bad; it could be impure data. But Google will sift it all, right? And that creates a new kind of product.

One of the most important insights I found was the confluence Bronson identifies between agribusiness and activists in their commitments to data as the driver of improvement. Even though we think about them as being opposed, with resistance to big business from groups like Farm Hack, you can also see underlying logics that end up being similar. These two fields of actors, which differ in their ambitions for the use of data, share the same simplified vision of data and so on. And I think that for Farm Hack, and these members of the GOAT network, the message is that they're sharing the same utopia, the same statistical utopia and political utopia, and that might be a warning—they might use different technologies, and activists don't have the same economic power as the big corporations, but they're sharing the idea that agriculture can be data-driven. The use of this logic obscures the political nature of data, and can end up amplifying the power of big business.

But I think that reflects a select group of activists. Really, I mean, the universe of alternative foodies, alternative agricultural movements who are like, "yay, data!" is pretty limited. I think there are many others that would be much more skeptical of the data, and of thinking of data as a solution. The book may help us to think through the ways that this approach to data may be reproduced by many different actors, but it is not really an in-depth analysis of food activists engaged with digitalization more generally.

She does recognize some common patterns in the discourses around data by those who are engaged in a more optimistic view. She lays this out by using their words, to say: "well, we basically don't know what we're doing. We have all this ability, and all this possibility with running these numbers and gathering them, but we really don't know what we're going to do with it". It's a lot of hyperbolic talk. And within this hype, there is a real lack of any evidence or concrete insights about what the actual material consequences will be, nor acknowledgement about existing infrastructures that would make this useful or not useful. The book helps us see that there is a lot of hype around these technologies, but actually they often aren't delivering any sort of material outcome. In many cases, people aren't participating enough to actually generate meaningful data. Despite this, these companies are still talking about amassing data, even though due to the way that the data have been generated, it's kind of meaningless, even within their own parameters. It cannot possibly do the thing that they want it to do without broader uptake and use. So, they're just hoarding empty, meaningless data.

The above discussion illustrates some key cornerstones of our discussion about what the book illuminates about the novelty of digital agriculture, as opposed to previous forms of technological transformation. Large data sets and algorithms generate a sense that these technologies produce unbiased or pure empirical observations at an aggregate level. The seeming purity of the data allows actors and infrastructures that generate the data to be largely invisible. Even when things like ownership of data is challenged by activist groups, the social conditions of data production can escape critique, as data maintain a mystique of neutrality. Not all activist groups take up datafication in this way, as one of our comments highlights, but Bronson uses the particular activist groups of her research to demonstrate how the unique features of data produce a unique context for technological politics. In particular, the hyperbolic promises that can accompany new data-intensive technologies are often immaterial and hard to observe directly, making it difficult to meaningfully and critically engage with them.

Immateriality and capitalism

The notion of promises is linked to another theme of the text and our discussion: the possibilities for resistance to digital agriculture within the context of capitalist expansion and transformation in agricultural

production. As the comments below highlight, we considered how the ontologies of data and tech make resistance difficult, while also becoming a space for capitalist accumulation. This leads to the observation that the relations and new venues for investment are a more profound outcome of these technologies than material changes to agricultural practice, a pattern long observed by sociologists studying capitalism's incursion into agriculture.

These things do get locked in the ontologies in which these technologies get made. They get produced, and they get spread around. They start restructuring biological and social worlds. And so, at what point can we intervene? I like that the book is showing us why resistance is so difficult. Along these lines, I think the book also does a really nice job of providing some tools for resistance. It shows that all these narratives around data revolutions and the way people are talking about it are so abstract and imaginary and fantastical. This generates a question for resistance: is there any epistemological ontological dimension of data, of algorithms or data processing etc. that prevents digitalization from being a tool that can be used by more progressive and alternative advocates of food systems?

What Kelly Bronson doesn't say, is that while the groups promoting big-ag and resisting it might share the same commitment to algorithmic ways of knowing and improving agriculture, they differ on what data they value, and how they value data. The value of data, or what data values, is relational.

To bring us back to agriculture, one place Bronson did not go, but that might be interesting, is also to look at digital agriculture as a way to expand corporate capitalism beyond the physical dimensions of the field. So, also, to ask how far can these technologies go in order to create new added value that is not bounded by physical limits. To what extent is this just enabling the expansion of financial capital investments in a totally fictitious way, unmoored by any materiality?

This is perhaps something that differs about data. In agriculture, you need treatments that can address the biology of plants and animals. I mean, biotech purports to provide treatments that deal with the biology or biological risks of food production in less intensive or less damaging ways. And so that's what agriculture "needs" in terms of being better, even if we don't agree with it. Data can maybe give you information about that. It can maybe tell you what you ought to do, or ought to not do, but it doesn't actually treat the crops.

What kind of thing is data? And that's something that strikes me as potentially a little bit different from seeds or other types of agricultural technologies. It is derived from some elements of reality, but it's not quite the same as experiential embodied reality or material input. It's a different type of thing and requires these infrastructures in order to make it meaningful. Does this make it a distinct type of object within our capitalist economy and an opportunity for endless expansion?

Bronson starts the book talking about selling the future, and maybe that's where the money is coming from. It's an imaginary future where we won't have enough food resources to feed our population, and this future makes data valuable. But what is actually being fixed or addressed? Or what is the solution that's offered by all of this datafication? This question got me thinking about the digital frontier, and discussions about this new landscape that data provide, as a type of new spatial fix, right? There's this glut of data being produced that Bronson talks about in the conclusion. And so there are these entire industries and technologies being manufactured around the overproduction of data. With so much data being produced that then needs to be mined, and refined, you get entire institutions arising to address the issue of overproduction. So, it really doesn't look to the problem of agriculture. It looks to fixing the problem of mass production of data.

That's a really interesting way of thinking about how big data becomes important. Because the promise of big data is, if you have these huge volumes of data, it's going to generate insights beyond any individual's brain power. I think that's slightly different than what Kelly's calling the Immaculate Conception, which is the pretense that there's no human idea of what goes into that data. I think a lot of it's just like, "we have volumes of data, how can we make volumes of data a solution?" But what's the value all this data can bring, relative to how much investment is going into data? Because for farmer decision making, they might be orienting to a lot of specifics related to their farm, and then it's not necessarily going to improve their profitability. How does it improve the profitability of the techies that are selling it? That's not really clear, unless they can sell it on to others saying that "we're collecting data that we can then monetize", but the jig's almost up on that too. So it really is an overproduction problem that may reach its own kind of limits and profitability.



The value of data depends on who, what relations, interests it serves. It is valuable for those who benefit from it the most. Data are produced, sold, exchanged. Market exchanges do not only obey prices (economic value), but also symbolic (reputation) and political value (the ability to influence public policies, public decisions, etc.). These are dimensions at stakes with data. They might allow, at least temporarily, for establishing or holding a position, however, they are not based on the investment returns of corporations, but rather on the investments they are capable of. The term “promise capitalism” fits well.

And to bring it back to the opportunity to use the book for critique, I like the idea that data is relational: it connects different interests, and offers a new venue (or at least a promise of return on investment) for perpetuating them. Paying attention to data as relational is a way to bring agency back in. Rather than imbue data with agency, which is what the ICT is about, and what Bronson warns scholars against, one should connect data to agents’ interests.

To summarize, the book illustrates how the seemingly immaterial and objective aspects of data obscure the power relations that generate data and are advanced by their accumulation and use. In doing so, the book enables us, as readers, some ways to critique data by offering some language, conceptual tools, and empirical basis to see the tangible effects of hyperbolic talk and claims of accurate neutrality.

Other places, production systems, and post-colonial contexts?

We also noted lingering questions and topics outside the scope of the book. In particular, we wondered about the extent to which the findings of the book were specific to a North American context, and how its insights might be interpreted across a broader geography. By placing data intensive technologies within a historical context, there was an opportunity to see how these technologies are consistent with the mantras of the green revolution and its colonial tendencies, but Bronson does not explicitly engage with links between the immaculate conception of data and imperialism. Given the globalist agenda often associated with agri-tech, we saw this as an important direction for future work. Considering the relations between data and colonialism, the valuation and privatization of knowledge are blatantly linked to infrastructures of data extraction and processing; a connection that Bronson touched upon, but did not fully explore or interrogate.

One thing she doesn’t talk about is how this story plays out in non-western settings. Take Vandana Shiva’s critique of monocultures of the mind, where she has a critique of bio piracy and intellectual theft of traditional knowledge. That is a very different sense of ownership. I feel like it’s dancing in the background of some of the literature that Bronson mentions in this book, but she could have centered it more. That’s one of the unfortunate things about the Immaculate Conception of Data. She’s really engaging with debates among Western people about data and agriculture, and so open-source versus proprietary data is a very well-worn story there. But, just as in the GM food debate, you have the additional layer of Western ideas of ownership and intellectual property versus, say, the idea that knowledge is generated locally. And that is different from what the activists featured in the book are talking about. The Bill and Melinda Gates Foundation, for example, supports the Alliance for a Green Revolution in Africa, which imposes methods, including digitalization, rejected by a majority of West African farmers, some of whom cultivate sweet potatoes and sorghum, traditionally grown because they are adapted to the climate.

When colonialists looked at farmers in colonies, like in India, they often said that ‘we need to teach these farmers what scientific agriculture looks like, and what productive agricultural looks like’. Bronson compares this discourse to the agri-tech companies today, where they define the problem in terms of data deficit; that is, farmers do not have enough information, and the information that they have is not good enough. So, there is a lack at the center of this discourse, which is portrayed by these companies as people either lacking certain skills or certain information, and the idea that data will provide them with these skills. So, the idea that farmers lack something or that farm workers lack something echoes the colonial project.

It really is about different ways of relating to land (...) What these technologies can do if they are made based on these extractivist logics, which is what is happening with big data: you’re trying to extract as much as you can. This contrasts to the Maori [Indigenous New Zealanders] worldview, as we’ve been looking at in our own research. In our work we find that if it’s your data, like if it comes from you, if it comes from the plant that you’re in relationship with, if it comes from your land, you have to follow a guardianship model. It’s not an extractive model. I think that’s an interesting way to think about the logics. I think most of the people in Bronson’s book are Westerners who have a specific way of thinking about their relationship to land, which

seems to be guided by an extractivist logic.

Yes, the book is a little bit partial because it engages mainly with one part of the world where of course this kind of dynamic is much more pronounced. Especially now that there is a tendency to export this digital revolution to the Global South, then we have to think about how it confronts Indigenous knowledge, Indigenous ontologies, and completely different ways of relating with nature. So then again, my question, which is basically a research question that I have, is: could we imagine a Maori community taking these digital technologies and reshaping them in such a way that it can be compatible with a Maori ontology? Or is there something fundamental about framing information as data, as tiny bits of information, that we then aggregate and collect and reprocess, that is fundamentally incompatible with this model?

In short, the conceptualization around the *Immaculate Conception of Data* is situated in a North American context, and may be unique to it. This is a limitation of the text, and we agreed that empirical work on the politics of data in agriculture outside of North America and Europe, and taking a post- or anti-colonial lens, is essential for better understanding these technologies in the future.

We also wondered how the context of smallholder farming and more diversified forms of agriculture might shape the conversation about big data in different ways. Much of the work on the datafication of agriculture is particularly applicable to industrial scale production and arable crops like corn and wheat. Is the conception of data so immaculate in these more diverse contexts? Is the politics of generation, control, and access of data so easily obscured? We considered how the insights from Bronson's research might apply to these contexts, and thought the promissory elements of data-driven agriculture, paired with issues of access and applicability, generates different kinds of questions about big data.

The big concern to me is how can smallholders access this technology and how will it benefit them. The reality, for example, in Brazil and USA, is different. And for small farmers, it's different between Brazil and the USA and other parts of the world. I have two questions about this; if it is safe for small farmers to use these data? And if it is safe, how can small farmers use this for their benefit in reality? There's a real difficulty in actually demonstrating what are going to be the material consequences for smallholders, if they go to all this trouble to learn new apps, to learn coding, to do all these other things. Is it going to be worth the investment of time, learning, resources? How will it really impact smallholder farming? The promise is sitting there but we don't know.

But it's also not useful for a farmer whose profit margins aren't about finding that little teeny squeeze of efficiency, which is true for a commodity crop farmer as opposed to a specialty crop farmer. So, I think that there is a real limit to what this data can do beyond commodity crop farming.

Conclusions

In conclusion, the concept of the "immaculate conception of data" gives us the tools we need to confront this current expansion of data-based technologies in agriculture. It helps us to identify what is the same about datafication in relation to historical trajectories of agricultural transformation, and particularly how datafication supports the reproduction of capitalist relations and the continued expansion of agribusiness. It also helps us to see what is distinct: data is immaterial but characterized as objective, and its promises are inherently future-oriented, giving it an air of unquestionable inevitability and functional anti-politics. The empirics of the book are situated in a particular place and cultural-economic context, and in some areas, we wondered if the analysis could have been extended if the geography of the case and global relations of datafication were interrogated in more depth. Nonetheless, Bronson's text lays important groundwork for enabling these analyses to happen.

To sum up, the following quote from our discussion captures well our general conclusion:



I think that there are places where Bronson didn't go far enough in her critique, and obviously, yes, we're seeing some kind of history repeating itself. But I also think there's a real chance here for Bronson's book, for this idea of the Immaculate Conception of Data, to capture the epistemic closure that is occurring with datafication. And I think what Bronson's book gives us are some tools to maybe crack that open a little bit. It demonstrates some of the steps involved in cracking open this closure to allow for reality-based knowledge as opposed to a promissory note of what will happen if you just follow us, and believe us.