Matzner Tobias (2023) Algorithms: Technology, Culture, Politics. London, New York: Routledge. 202 pages. ISBN 978-1032290591.

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Tobias Matzner's recent book *Algorithms: Technology, Culture, Politics* starts with an often-recited dictum: "Algorithms are not neutral!" (p. 1) This widely accepted notion that algorithms embody biases with political implications reflects the outcome of extensive research and scholarship on algorithms. It is, however, not the conclusion that Matzner, professor of Digital Cultures at Paderborn University, seeks to draw. Instead, Matzner's relational reframing of algorithms takes the principle of non-neutrality as the starting point for a well-developed analysis of algorithms as a research perspective. In doing so, the book positions itself amidst a growing field of critical literature on algorithms.

Building on this premise, Matzner considers algorithms as "a research perspective that provides a link between the abstract and the concrete" (p. 6). Matzner critiques the current approaches in studies of algorithms, which often either abstract algorithms into broad analytical categories or reduce them to one or many components. He illustrates the former with concepts like 'algorithmic governmentality' (Rouvroy, 2013) or 'algorithmic culture' (Striphas, 2015), where algorithms are so generalized that their technical aspects are overlooked. In contrast to these abstract understandings of algorithms, other scholarship demands to "break [the algorithmic] ecology down into components and unravel its technical underpinnings" (Munn, 2018: 23), thereby neglecting broader social and cultural implica-

tions. Similarly, Seaver (2018: 378) dissolves algorithms into the human decisions underlying them, claiming that one can "press on any algorithmic decision and […] will find many human ones". While these perspectives are important for our thinking about algorithms, for Matzner they only consider algorithms as the "occasion of analysis" (p. 5). What Matzner aims at instead, is to describe a co-constitutive relation between the concrete and the abstract, such as the relation between "an academic essay originality score" and "the neoliberal university" (p. 36). Instead of abstracting or dissolving algorithms, what is sought is a perspective that, as Matzner puts it elsewhere, "resolves this tension by conceiving of algorithms as a relation between the abstract and the concrete that allows to capture both in their interdependence" (Matzner, 2024: 1799). Algorithms are abstractions that need to be complemented by concrete elements, such as hardware, networks, program code, and users. These elements do not, however, determine or constitute the algorithm; the concrete and the abstract co-constitute each other.

To unpack the above thesis, the book is divided into two parts, comprising three and six chapters, in which Matzner develops his argument with historical, theoretical, and empirical rigor. Part I establishes the theoretical framework, beginning with a historical perspective on the foundations of mathematics and the limits of computation,

punch cards and mechanical data processing, and cybernetics, demonstrating that algorithms have always been relational. An illustrative example is punch cards, which could be sorted by machines known as unit recording equipment (p. 23). While functions like sorting or counting are algorithms, a relational perspective illuminates the relationship of the abstract phenomenon of efficiency in administration and accounting to the concrete form of machinery.

The core of Matzner's theoretical thinking develops in a close reading of Karen Barad, interpreted alongside the works of Foucault, Haraway, and Butler. Central to this is Matzner's concept of 'radical situatedness', highlighting that algorithms do not have a single, fixed definition but that they change based on their context and the elements they interact with. As Matzner explains, algorithms "relate to particular, concrete elements that constitute them", yet these elements "are not external to algorithms; they are also changed by algorithms in a co-constitutive relation" (p. 50). While algorithms abstract from their material conditions, they are at the same time complemented by them. Depending on whether the focus is on energy, hardware, datasets, or programming languages, the situatedness and abstraction of an algorithm changes. In each complementary relation, algorithms become something different, a notion akin to Barad's (2007) idea of 'cuts'. Algorithms are a research perspective, making certain aspects visible, while others get out of view, depending on the situation that is being analyzed.

This lays the ground for Part II of the book, in which five chapters explore different forms of situatedness and the final chapter presents a conclusion. The style in which Matzner presents and exemplifies his thesis becomes even more crucial in this second part of the book: trained both as a philosopher and a computer scientist, Matzner is able to provide a perspective thoroughly grounded in empirical observation and theoretical detail. In these chapters, Matzner discusses algorithms in relation to material conditions, code, data, subjects, and humans, illustrating his argument with examples ranging from high-frequency trading and plagiarism detection software to text messaging apps and the more recent development of generative AI chatbots. These examples not only illustrate the arguments effectively but are compelling case studies in their own right.

Matzner's book provides a substantial contribution to recent literature on algorithms, providing an analytical framework that helps study algorithms in their situated abstractions. Generative AI chatbots, which are, due to the book's publication timeline, only mentioned briefly towards the end of the book, provide an interesting point here. Often designed as multi-purpose systems, their relationality and situatedness become particularly evident through their use and deployment in different contexts. For instance, a chatbot like ChatGPT can function as a writing tool for scientists, an assistant in customer service, or a subject of public debate on automation and displacement. Matzner's relational perspective highlights how these functions are not inherent to the chatbot itself but emerge through its interplay with data, users, and technical infrastructure, revealing broader abstractions such as the automation of intellectual labor. This perspective provides a framework to study not only what algorithms do, but also what they disclose.

The book is not an easy read, but it is all the more rewarding. It will be of interest to scholars in fields of science and technology studies, philosophy, cultural studies, and political theory, interested in developing a critical and theoretically grounded perspective on algorithms. It will also appeal to computer scientists interested in engaging with social science and humanities perspectives.

References

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