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Cats, carpenters, and accountants: Bibliographical foundations of information science

As someone trained in bibliography during the mid-1970s within the Soviet library system, I first encountered bibliographic theory as a conceptual framework for information organization and information science in general. Years later, I worked to disseminate these concepts more broadly (Maceviciute and Janonis, 2004). My longstanding conviction that bibliography forms the cornerstone of information science found welcome reinforcement in this fascinating work by Wayne de Fremery, an American scholar who shares this perspective. His arguments supporting this position are both compelling and innovative.

De Fremery presents bibliography, defined as "the creation and copying of data in social forms and the study of how this is done" (p. 25), as an enduring and vital force in information science and contemporary society. Rather than becoming obsolete, bibliography has transformed into an invisible infrastructure underlying our modern technological landscape, requiring careful attention to recognize its persistent influence. This conceptualization aligns with Birger Hjorland's (2007) view of bibliography as the epistemological, hermeneutical, and sociological foundation of information science. However, de Fremery extends this perspective further, positioning bibliography not only as fundamental to documents and information resources but as the underlying infrastructure of modern technological innovations, particularly in machine learning and artificial intelligence.

The book's first half masterfully explores the nature of lists - their existence, contexts, functions, and forms. It examines their social role in imposing order on chaos, while acknowledging both their limitations and capabilities. At the heart of bibliographic practice lies the descriptive account: a systematic representation of complex objects that captures essential patterns enabling object recognition and replication. This foundation proves crucial for understanding the book's subsequent arguments.

The second part of the work delves into bibliography's role in documenting "the choices and contingencies that have shaped human knowledge as it has been presented" (p. 127). Here, de Fremery constructs a compelling bridge between traditional bibliography and modern data science. The relationship between bibliography and machine learning proves particularly fascinating, as both fields fundamentally deal with pattern recognition and representation. Just as bibliographers create structured descriptions that capture the essence of complex objects, machine learning systems develop models that identify patterns within datasets.

De Fremery argues that modern AI and machine learning systems are, in essence, performing bibliographic work at an unprecedented scale. The "relationship between the descriptive features and the target feature in a dataset" (p. 203) mirrors the traditional bibliographic practice of creating structured descriptions that enable identification and categorization. This parallel becomes especially evident in how machine learning systems process and categorize information, essentially creating vast, dynamic bibliographies that adapt and evolve through algorithmic learning.

The author's interdisciplinary approach, drawing from linguistics, mathematics, history, and even Korean poetry, constructs a rich theoretical framework for understanding information phenomena. While the text demands considerable background knowledge to fully appreciate its arguments and metaphors, the intellectual journey proves rewarding. The author's careful construction of ideas builds to a crucial observation: "Although we have astonishing new bibliographical powers made possible by ever-expanding abilities to capture, copy, model, and socialize data, we do not yet have robust means for accounting for them" (p. 222). This gap presents an opportunity to reexamine and potentially reinvent bibliographic infrastructure for the digital age.

The implications for artificial intelligence and machine learning are particularly significant. Modern AI systems, in their processing of vast datasets and generation of metadata, are essentially performing bibliographic work at an unprecedented scale. The principles of bibliography - systematic description, pattern recognition, and classification - find new expression in neural networks and deep learning architectures. Understanding this connection could prove crucial for developing more transparent and accountable AI systems.

This thoughtful work will undoubtedly spark important discussions among students and scholars of library and information science. Its relevance extends to practitioners in digital humanities, bibliometrics, knowledge organization, and artificial intelligence. Rather than advocating for radical change, de Fremery invites readers to engage in a deeper understanding of how bibliographic principles have evolved to underpin modern information systems. This evolutionary perspective offers valuable insights for anyone interested in the future of information organization and processing.

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