Data: a content storage account

Cyrille Imbert*[1]

[1]Archives Poincaré, UMR 7117 – UMR 7117 – France

Résumé

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Key words. Data – Scientific Data – Storage – Content – Causal account of data – Relational account of data – Epistemic and non-epistemic roles – Artifacts

Data play a crucial role both in science and society. This role keeps increasing with the ongoing datafication trend, which raises many ethical, political, and epistemological problems with interwoven theoretical and regulatory dimensions. In this context, satisfactorily explicatory analyses of the notion of data (in a Carnapian sense) are specifically needed. Existing accounts are not lacking. Data have, for example, been characterized as causal traces, or items issued from such traces (Rheinberger 2011), research outputs with evidential value (Leonelli 2015), facts, pieces of information, representations, values of variables (Humphreys 2013), or lacks of uniformity (Floridi 2008) (see (Lyon 2016; Kitchin 2022) for reviews and discussions). It is usually agreed that a satisfactory definition is yet to be found.

This presentation aims to present and defend a novel account that characterizes a datum as a cognitive and material artifact aimed at storing content.

I emphasize that a storage account clarifies why data are local (content generation and storage artifacts are local) (both human-made (since they involve storage, and content individuation relies on concepts) and given (since data involve storing and are accessible in our cognitive environment). It improves on causal and evidential accounts, which are targeted at features of scientific data and do not generalize well. By contrast, the present account is general: scientific data are simply data used in scientific contexts. This aspect is important since data "travel" across science (Leonelli and Tempini 2020) and social fields of activities and, for this reason, call for a unifying notion of data. Finally, the account is flexible (storage is not necessarily digital; data may have several functions beyond their evidential role; there can be empirical and non-empirical data, and data about real, formal, and fictional objects) but not trivial (any symbol on a sheet of paper or any fact does not qualify as a storage artifact).

Selected references

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*Intervenant

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Mots-Clés: Data, Scientific Data, Storage, Content, Causal account of data, Relational account of data, Epistemic and non, epistemic roles, Artifacts