

The value of historically inaccurate reconstructions for the philosophy of science:

Some reflections on understanding, exemplifying and reinforcing

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Here I propose that philosophers can still benefit (in a nontrivial way) from philosophically biased and historically inaccurate historical reconstructions. In particular, I argue that historical reconstructions, even if philosophically biased, can play another equally important role: to enhance our understanding of philosophical theses about science by clarifying some of their concepts or applications. The plan is the following:

1. Historical evidence for philosophical purposes
2. Understanding and Selectivity
3. Historical and Philosophical Exemplification
4. Going back to the exemplar
5. Final remarks

Historical evidence for philosophical purposes

- It has been commonly assumed that history of science should provide the evidence for generating, supporting and falsifying philosophical theses.¹
- In order to objectively provide such evidence, historical data is expected to be obtained independently from the preferred philosophical view;² otherwise, the resulting reconstructions of the analyzed historical episode would be philosophically biased and thus, methodologically flawed.

¹ See Popper 1934; Kuhn 1970; Lakatos 1970; Laudan, 1977; Nickles, 1986, 1995

² See Pitt 2001, Schickore 2011, Kinzel 2015

One episode, different reconstructions

- Newton according to Berkeley (1734).
- Newton according to Brown and Priest (2004).
- Newton according to Vickers (2013).
- Newton according to Sweeney (2014).

Dilemma of Case studies

1. On the one hand, if philosophers have a case that is clearly not-philosophically biased, then it is also not philosophically relevant, because it is unclear what philosophical lessons to learn or how to generalize from it.
2. On the other hand, if philosophers have a case that is philosophically relevant, it is likely that it is also philosophically biased, because it may have been selected or tampered with to fit the point.

The responses:

Skepticism: The combination of the philosophy and history of science is mostly historically and philosophically uninformative (cf. Pitt 2001).

Deflationism: (philosophers) more modest expectations about the philosophical use of historical evidence (cf. Burian 2001, Kinzel 2015).

Optimism: Historiography of science is in general methodologically theoryladen and this is not problematic in itself (cf. Currie Walsh, 2019).

Understanding and Selectivity

Understanding and exemplifying

When trying to understand a phenomenon X through exemplification it is necessary to select a particular group of features of X that one believes are highly relevant for explaining X (and while doing so, one will be explicitly dismissing some features as not relevant or idle for the understanding of X). Thus, when exemplifying, a common and basic requirement is to remove distractors (or idle features). However, “before we can remove the impurities or other irrelevant factors, we need to engage in some analysis: we need to conceptualize the item in question as made from components — those we seek to exemplify, and those we do well to set aside. The analysis is often straightforward. Our prior understanding of the domain frequently enables us to identify the relevant components” (ibid, 81).

- **Recognition:** Identifying salient features of a particular object of study and generating an exemplar of such object guided only by the features previously selected.
- **Provision:** Presenting an exemplar of a particular object and explaining how the salient features of such an object are present in the provided exemplar.
- **Afterlightning:** Evaluating the soundness of the exemplar provided as well as the relevance of the elements previously identified as salient.

Historical and Philosophical Exemplification

- *Philosophical theses about science:* general explanations about the underlying mechanisms of scientific activity.
- *Historical Reconstructions of particular scientific episodes:* historiographical explanations of how to put certain historical data together, they assume a particular methodology that allows historians to distinguish between idle and relevant information when telling the history of such episode.
- *Philosophically Biased Historical Reconstructions (henceforth PBHRs):* historical reconstructions in which some parts of the ‘actual’ story have been ignored or dismissed in favor of the philosophical assumptions that have chosen.³

³ Cf. Martínez-Ordaz and Estrada-González, 2018.

Philosophically Biased Historical Reconstructions as Toy Examples

Are PBHRs mere ‘toy examples’?

- **Extra-simplistic toy example**
- **Minimally-contextual toy example**
- **Distractors-free toy example**

Good Philosophically Biased Historical Reconstructions and Reinforcement

Taking into account the nature of PBHRs, it is not difficult to consider that this particular type of reconstructions aims at being exemplars of specific

The episode is a concrete instantiation of the general concepts (the characters, the setting, the type of events to be expected, etc.), and each episode also contributes to the articulation of the general concepts. To be sure, this analogy is very imperfect, but it does express something relevant about the relation between concrete historical episodes and abstract philosophical conceptions (Chang, 2011: 111)

philosophical theses. Nonetheless, as not all toy examples are epistemically useful, and as some exemplars are better than others (Elgin, 2017); not all PBHRs can promote understanding to the same degree.

Good Philosophically Biased Historical Reconstructions (*Good-PBHRs*):

PBHRs that instantiate satisfactorily all the relevant elements of specific philosophical theses, and that, because of that, work as exemplars of them.

Historiographical Reinforcement

- **Strong Reinforcement:** This level of reinforcement is achieved when, given a philosophical thesis (T) and a specific, relevant historical reconstruction (H'), H' provides a rationale for (a significant part of) T.
- **Weak Reinforcement:** This level of reinforcement is achieved if, given a philosophical thesis (T) a specific relevant historical reconstruction (H'), H' supports the basic assumptions of T, contributes to a better understanding of T, illustrates mechanisms relevant for the understanding of T, or clarifies some of the concepts of the theory and their applications.
- **No Reinforcement:** The absolute lack of reinforcement occurs when, given a philosophical thesis (T) and a specific, relevant historical reconstruction (H'), H' does not instantiate any elements of T, nor does it contribute to a better understanding of the philosophical thesis in question.

See Martínez-Ordaz and Estrada-González, 2018: 267

Against weak reinforcement

Concerning weak reinforcement, the reader might wonder if, in cases where we risk damaging the historical record, philosophical 'fictional' case studies (invented purely to play the role of exemplars to philosophical theses) would not do just as well.

- "False Theories can still Yield Genuine Understanding" (De Regt and Gijssbers, 2017).
- Modal understanding (Le Bihan, 2017: 112).

Going back to the exemplar

Newton + Chunk and Permeate

- **Recognition**
- **Provision**
- **Afterlightning**

Sweeney, 2014; Brown and Priest, 2015; Brown, 2016, 2017; Friend and Martinez-Ordaz, 2018.

Final remarks

Can philosophers of science benefit (in a significant way) from philosophically biased historical reconstructions? And if so, how is that possible?

Exemplification → Understanding

Philosophically biased reconstructions – Exemplifications.

Good PBHRs → Understanding

The simple story we are met with so often in the literature, of the early calculus as a set of inconsistent propositions plus a logic, is plain wrong. Brown and Priest (2004) are typical of a subsection of the philosophy of science that assumes the early calculus can be reconstructed by making use of a paraconsistent logic. To motivate the application of a particular paraconsistent logic they dub 'chunk and permeate' (...) However, Brown and Priest are simply following a theme in philosophy of science which is completely entrenched. (Vickers, 2013: 186-90)

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