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Why good data analysts need to be critical synthesists. Determining the role of semantics in data analysis

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Why good data analysts need to be critical synthesists. Determining the role of semantics in data analysis

This is a critical review paper which suggests a semantic model of learning from data and develops a corresponding research roadmap

Highlights:

- We explain why learning from data is more than just analyzing data, inlcuding a number of synthetic tasks
- We review and develop arguments from statistical learning under undertainty, workflow reproducibility, as well as philosophy from science
- We propose a learning model that highlights the roles of semantic technology in data analysis
- Based on this model, we review current analysis and workflow tools as well as work on the Semantic Web and data analysis
- We propose a roadmap of 8 challenging research problems which currently seem largely unaddressed

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