On the Diversity of the Accountability Problem

Machine Learning and Knowing Capitalism

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Two types of algorithms

Algorithms that make important "cultural" decisions have recently come into focus: information filtering, access to credit, hiring decisions, etc.

These algorithms make decisions based on a ***model***; two general types:

- Model is explicitly coded (e.g. impact factor);
- Model is statistically derived by relating past data to a target variable (e.g. spam filter); these techniques can be used for personalization (a model *per user*);

The second type can make it practically very difficult to assess the model.

More fundamentally, the normative "core" is shifted towards the ***empirical made data*** and the ***target variable***.

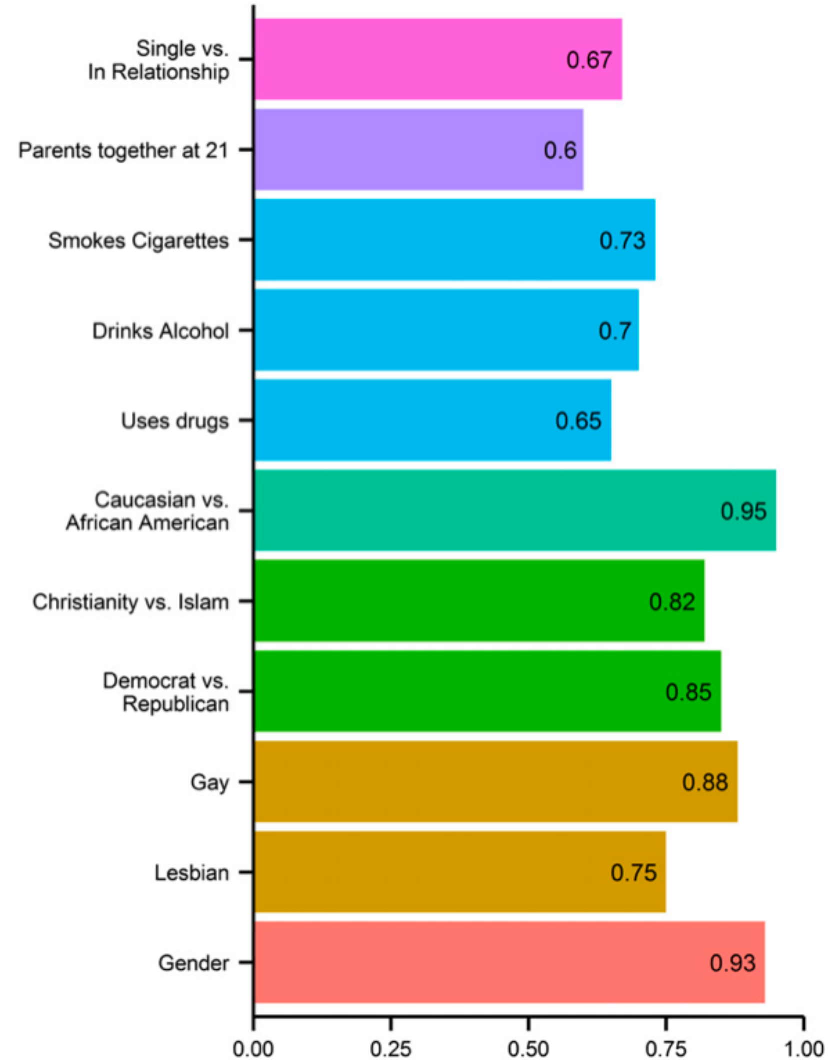
These techniques espouse "accounting realism" rather than "metrical realism" (Desrosières 2001); they are ***interested*** readings of reality.

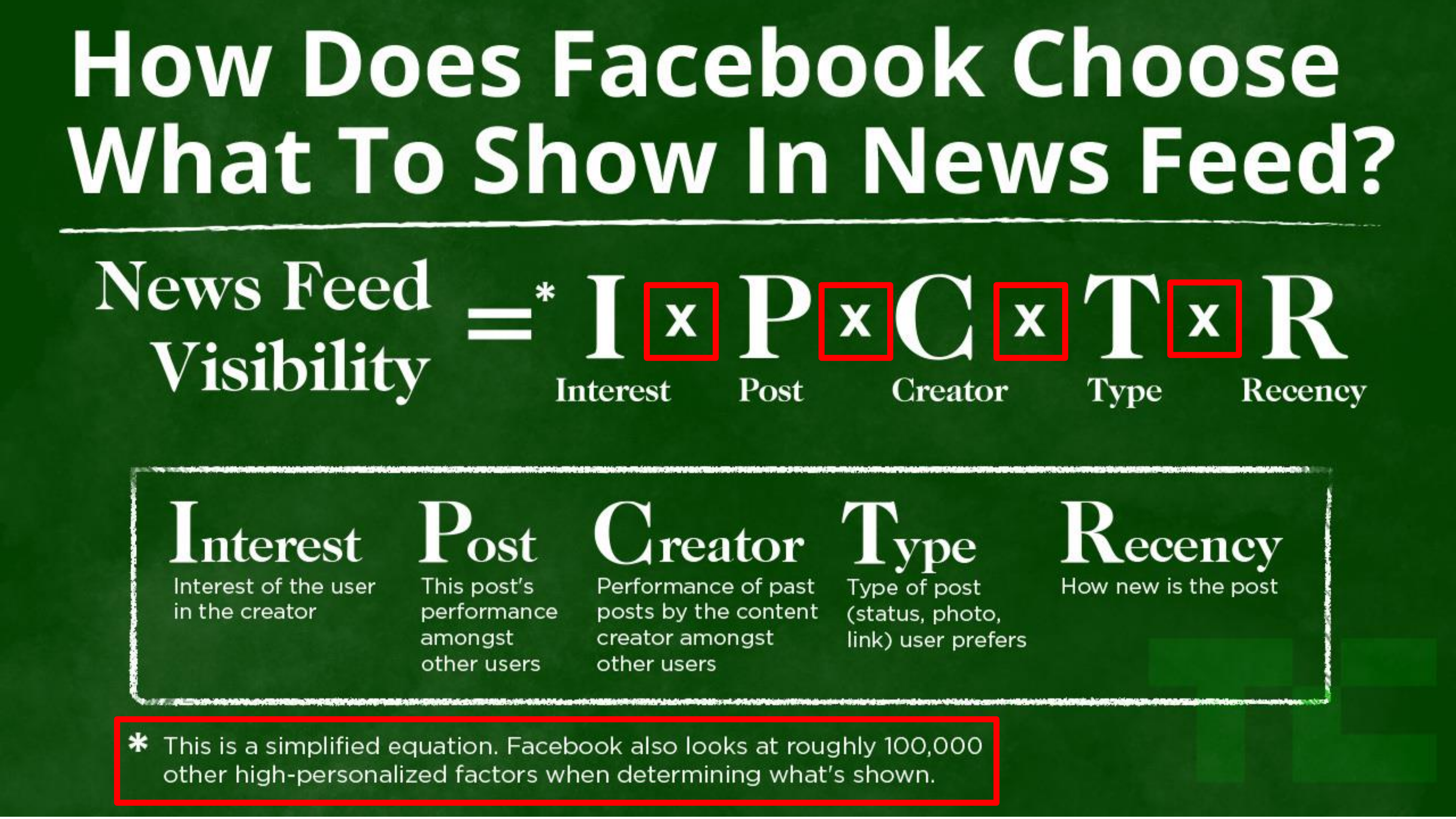
Reading structured reality

"*Facebook Likes can be used to automatically and accurately predict a range of highly sensitive personal attributes including: sexual orientation, ethnicity, religious and political views, personality traits, intelligence, happiness, use of addictive substances, parental separation, age, and gender.*" (Kosinski, Stillwell, Graepel 2013)

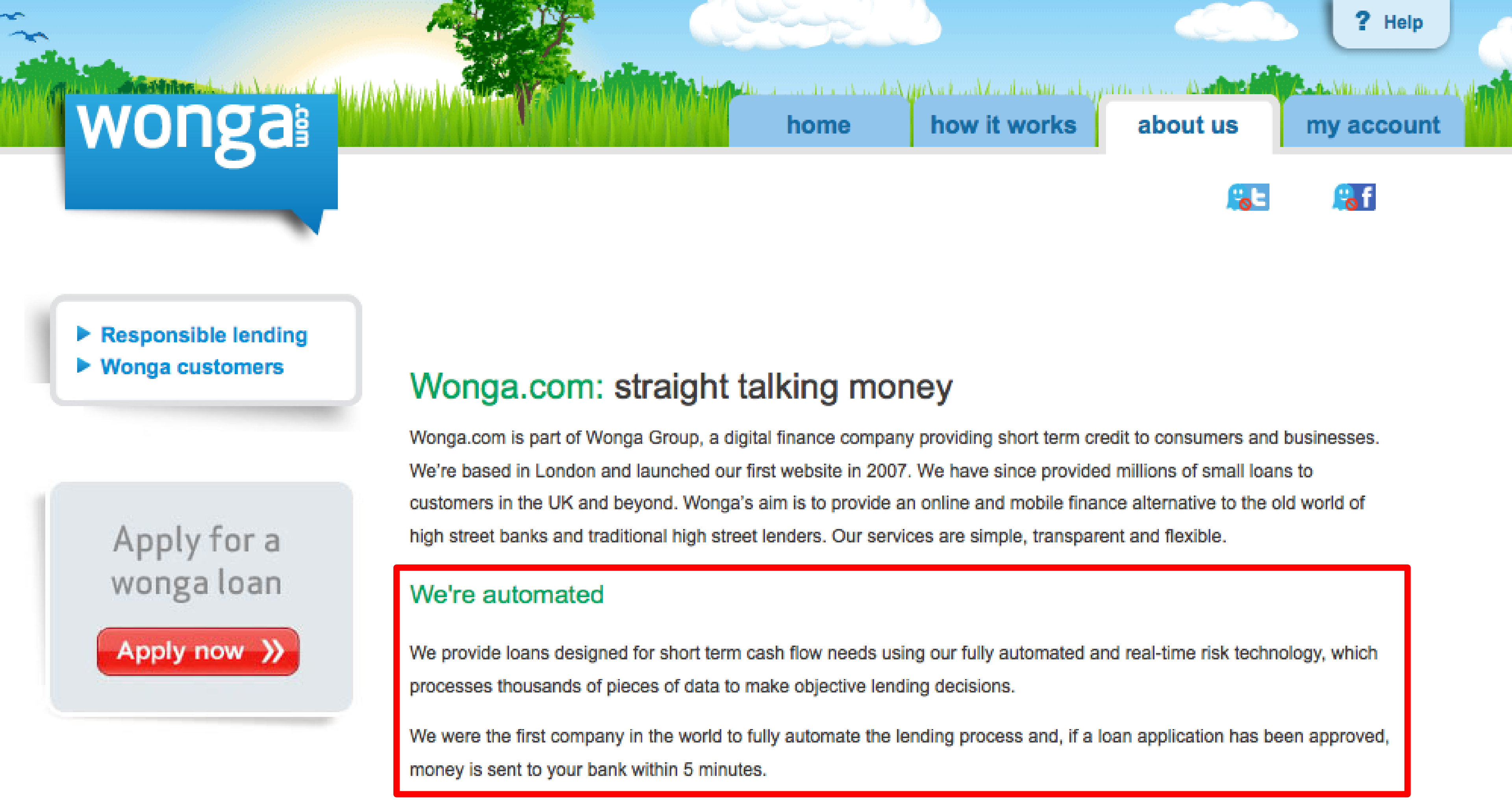
The data used in this study does not include profile fields or friends' data.

In stratified and differentiated societies, **seemingly "innocent" variables correlate strongly** with class, gender, race, etc.





We move from "*what should the formula be according to our ideas about relevance?*" to "***what has our testing engine identified as the optimal parameters given our operational goal of more user interaction***?".



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The "risk technology" is trained by associating "thousands of pieces of data" with a past cases of defaulting or not defaulting on loans. ***Every signal receives meaning as predictor for defaulting.***

Technical solutions are not straightforward

Algorithms sniff out patterns or differentiations in data and by optimizing for a target variable transforms them into ***(economic) opportunity***: lower loan default ratio, longer time on site, higher click-through rates, etc.

This is "knowing capitalism" (Thrift 2005) in its purest form.

Techniques have been proposed (Calders & Verwer 2010) that can detect and ***"correct" for discrimination***, e.g. in hiring decisions. But these techniques require "sensitive attributes" to be present in the dataset.

Correction techniques are also not easily transposable to other domains (e.g. information filtering), where sensitive attributes are hard to define.

A diversity of configurations

The same ***techniques can appear in very different domains***, having different purposes and performativity; we cannot easily separate algorithms from their technical and institutional embedding.

Law and ethics are normally ***domain specific***; strategies for algorithmic accountability will have to be as well.

What we want algorithms and their makers to "account for" will depend on the field, even if the algorithmic techniques are the same.

Technical solutions are at best partial and accountability is not enough.

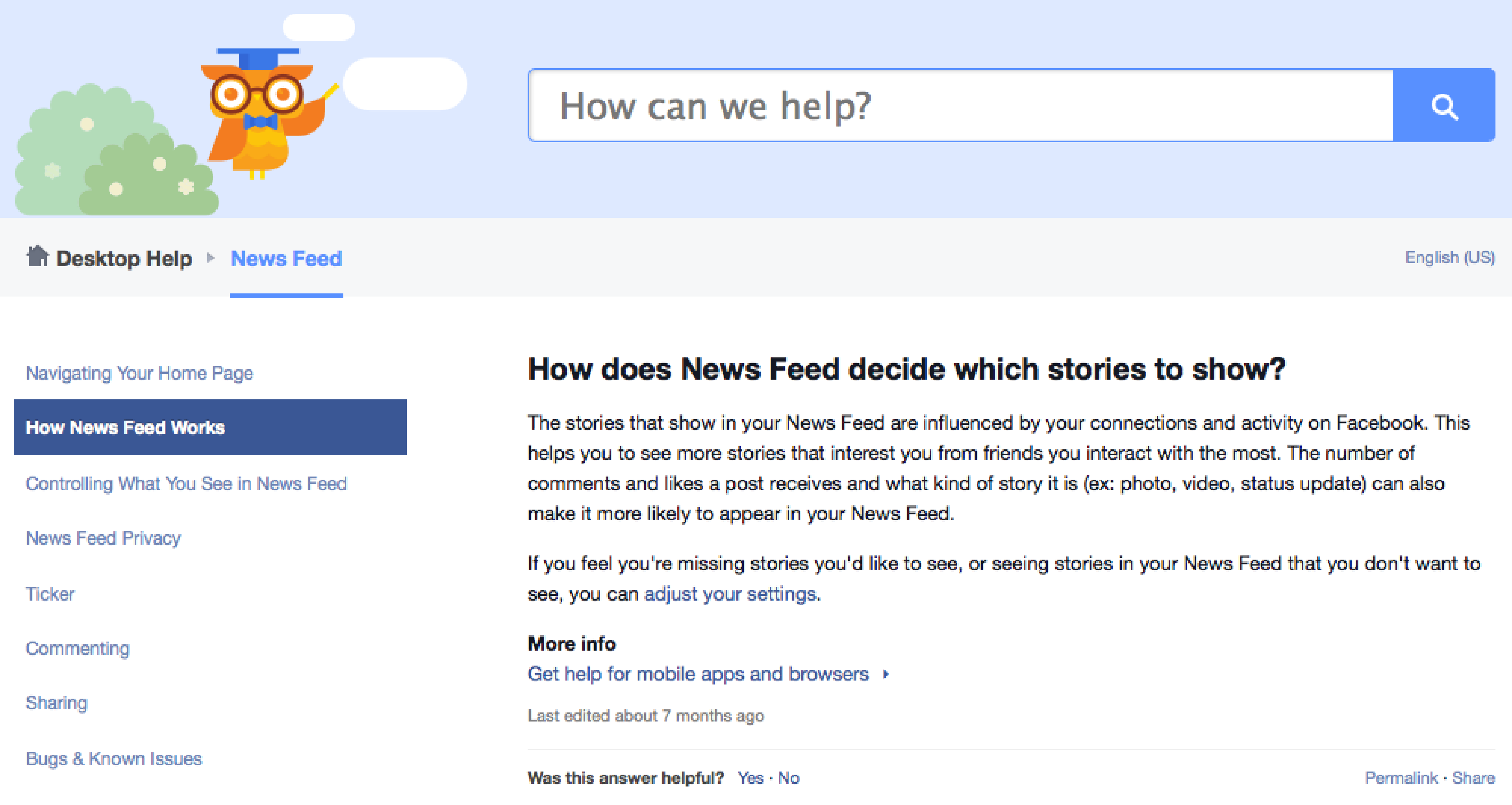
Directions for thinking about regulation

When thinking about regulation, we need to look into various directions for inspiration.

Possibilities include:

- Extending consumer protection to require accounts for algorithmic decisions;
- Expanding reporting requirements for publicly traded companies;
- Requiring auditing of algorithms in sensitive fields;
- Exploring parallels with protected decision-making like voting or jury deliberation;
- Expanding definitions of truth-in-advertising laws;
- Prohibiting the collection, circulation, and/or mining of certain data;
- Limiting concentration and foster diversity in "media-like" domains;

We need computer and information scientists to contribute ***beyond technical solutions***, e.g. by developing reporting formats.



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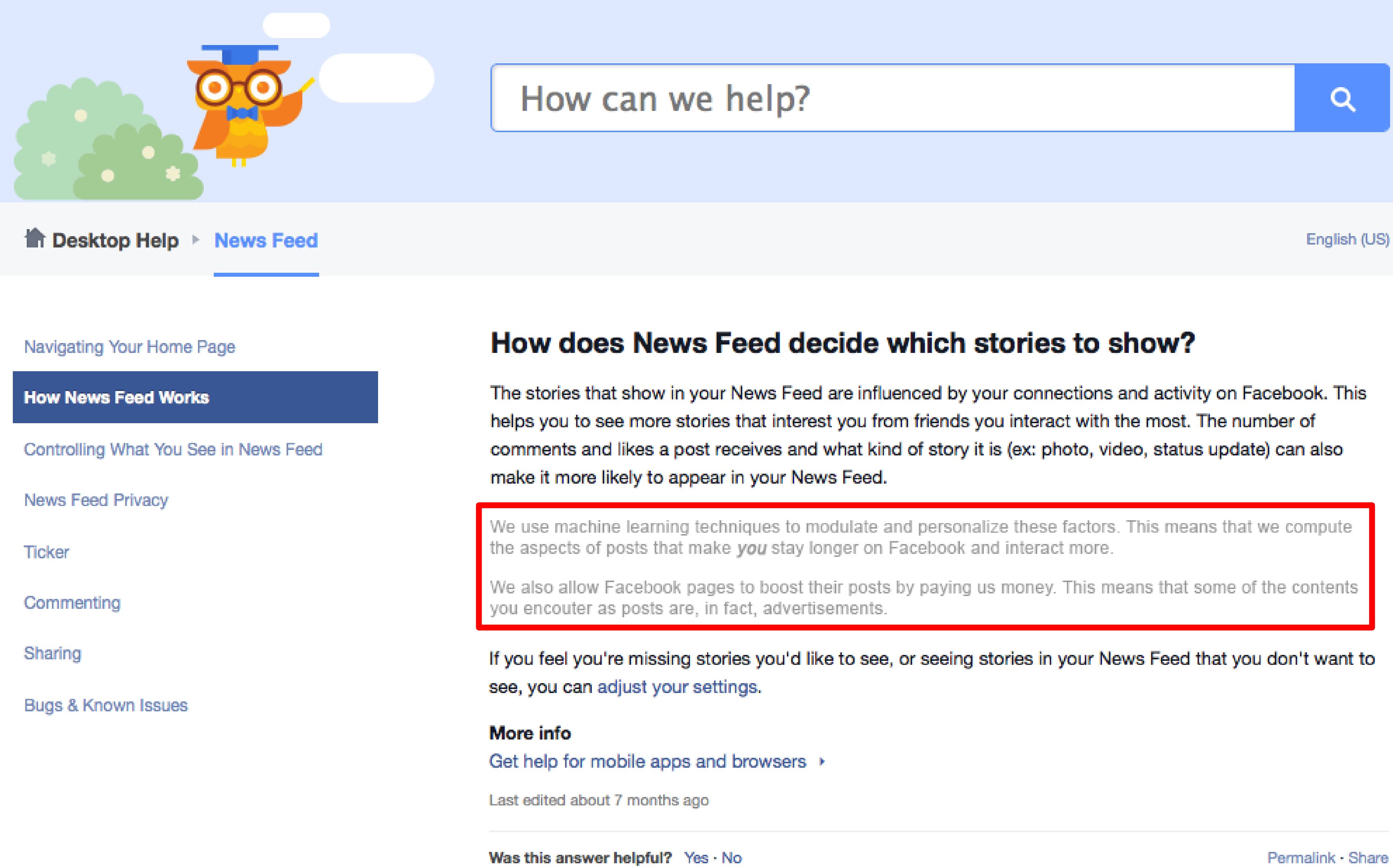
Companies sometimes do talk about their algorithms, but in purely voluntary and mostly rudimentary form.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We use machine learning techniques to modulate and personalize these factors. This means that we compute the aspects of posts that make ***you*** stay longer on Facebook and interact more.

We also allow Facebook pages to boost their posts by paying us money. This means that some of the contents you encouter as posts are, in fact, advertisements.

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Which data are used? What are the operational goals the algorithm optimizes for? What are the commercial interests intervening in the process?

Which variables are the most salient for me? How can I affect them?

Conclusions

Learning algorithms show us the ***deeply structured character of our historically grown societies*** and turns it into economic opportunity.

But the move from "is" to "ought" always implies the ***mobilization of norms and values***.

To tame "accounting realism", we need to engage algorithms as ***deep, embedded, and performative forms of judgment,*** give it as much attention as other forms, and ponder the limits of commercial influence.

We may also want to consider building more egalitarian societies.

Thank You!

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