Recognition of biases in decision patterns

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Decisions are not always taken in a totally impartial way. We end up influencing results with biased choices, sometimes due to some kind of intention to favor desired options, sometimes due to inaccurate, or even irrational, judgments, by which we tend to results without conscious perception.

This way of influencing decisions is called cognitive bias, which is nothing more than patterns of distortion of judgments that occur in specific situations. Studies in the fields of social psychology, cognitive science and behavioral economics have generated in the last six decades a large list of types of cognitive biases that are adopted in human judgment for decision making.

However, biased decision was never something new in society. The notion of cognitive bias was first introduced in 1972 when cognitive science pioneers Amos Tversky and Daniel Kahneman realized people's inability to intuitively rationalize with very high orders of magnitude. In their studies, they managed to replicate several situations where human judgments for decision making differ from rational choices.

In contexts of judging people, such as lawsuits, professionals in the field seek to assess the influence of extrajudicial factors embedded in the decision-making process. Likewise, in everyday situations in organizations, such as the selection of who will be left with a vacancy, human resources professionals have developed methods to reduce exclusion due to different prejudices or favoring personal affinity.

In general, what has been tried to do is to find ways to make more 'free' choices in decision making. And nowadays with the diversity of digital tools and the consequent growth in the adoption of such tools in routine activities, such as automatic learning, what has been proposed is to delegate choice processes to algorithmic forms that are said to be exempt in decision making. With that, enthusiasts claim that the bias problem can be solved, because algorithms make impersonal and calculated decisions.

Despite this, we continue to try to reduce bias with different approaches. For example, psychological experiments seek to systematically understand the patterns with which we tend to fail in decision making and thereby generate predictable rules to avoid such failures. The statisticians seek to identify possible biases in samples to assess whether the results obtained are overestimated or underestimated.

> Algorithms are machines capable of reproducing the choices we make

Algorithms are nothing more than procedures that perform previously specified mathematical operations to transform input data into desired outputs. In the field of automatic learning, the desired outputs of the algorithms are decisions guided by the data itself and the type of training of the algorithm. However, it is through human efforts during the process of developing the algorithm that the types of input data are established, ranging from those who collect the data to those who build the model. In other words, it is not a totally impersonal process, there is an influence of people in the creation.

Researchers in the field of machine learning claim that when input data is chosen based on unethical concepts, at a certain level unsuitable for equality, plurality and diversity, the algorithm tends to generate results of discriminatory behavior. That is, although the

algorithms are built based on mathematical formulas and computational methods, they can generate decisions as biased as those already traditionally made.

In addition, algorithms can be built in different ways, with different degrees of specification, and this decision as to how they are developed depends on the bias of those involved in the construction process. And several studies have demonstrated situations where people have been discriminated against by the algorithms, such as in hiring processes, insurance offers, granting bank credits, among others. Researchers have stated that algorithms can not only be reproducers but also amplifiers of human biases.

Cultural criticism expert Neil Postman makes the following comment in one of his studies on biases and tools "What is embedded in every tool is an ideological bias, a predisposition to build the world as one thing instead of another, to value one thing over another, to expand a sense, skill or attitude higher than another."

In a context where algorithms are developed in order to make impartial decisions, but end up showing bias in decision making, we can come to think that there is not a situation in which decisions are made without bias.

However, in the same way that we have been trying to reduce biases with different approaches, such as psychological experiments through a systematic search for failure patterns, or also by mathematical methods such as conducting statistical tests to evaluate overestimated or underestimated results, the algorithms may emerge as an interesting option to reinforce this quest for mitigating biases.

The use of analytical methods for exploratory study on decision-making processes can collaborate with qualitative methods to elucidate the discovery of biased decision situations. Recognition of the way that a pattern of decisions is usually taken can highlight the options that we prioritize over others. The notion about bias not considered from this recognition about the process of the choices we make, if it is in the interest of those who evaluate such decision-making processes, can be a useful way of seeking decisions that are more impartial and fair.

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