ARTICLE

Predicting the past: a philosophical critique of predictive analytics

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Abstract

If we address this topic from a conceptual and critical point of view, we need to address three issues: **1)** why predictions are too often right, **2)** why, at the same time, they are so often mistaken, and **3)** what consequences arise from the fact that our instruments for prediction ignore at least four realities that must be true about future forecasts or at least be conscious of their limits: **a)** that individuals cannot be fully subsumed into categories, **b)** that their future behaviour tends to have unpredictable dimensions, **c)** that propensity is not the same as causality and d) that democratic societies must make the desire to anticipate the future compatible with respect for the open nature of the future.

Keywords

predictive analytics; artificial intelligence; algorithms; democracy; future; freedom

Prediciendo el pasado: una crítica filosófica del análisis predictivo

Resumen

Si abordamos este tema desde un punto de vista conceptual y crítico, tenemos que explicar tres tipos de asuntos: 1) por qué las predicciones son demasiado a menudo correctas, 2) por qué, al mismo tiempo, se equivocan tan a menudo y 3) qué consecuencias surgen del hecho de que nuestros instrumentos de predicción ignoran al menos cuatro realidades que deben ser correctas sobre las previsiones futuras, o al menos ser conscientes de sus límites: a) que las personas no pueden ser totalmente subsumidas en categorías, b) que su comportamiento futuro tiende a tener dimensiones impredecibles, c) que esa propensión no es lo mismo que la causalidad y d) que las sociedades democráticas deben hacer que el deseo de anticipar el futuro sea compatible con el respeto por la naturaleza abierta del mismo.

Palabras clave

análisis predictivo; inteligencia artificial; algoritmos; democracia; futuro; libertad

Introduction

One of the most important promises of data analysis is the ability to anticipate the future; there are rising expectations that we will be able to calculate everything, including uncertain futures. Predictive analytics imagines a world in which any situation, no matter how complex, can be controlled. In view of the crises and risks that threaten us, it makes sense to want politics to be less reactive and more proactive. The European Commission itself celebrates the "anticipatory intelligence" that would give political systems the ability to manage long-term challenges (EC 2015b, p. 19). Predictive politics would allow us to move toward what has been called "anticipatory regimes" (Adams, Murphy & Clarke, 2009) or "anticipatory politics" (Massumi, 2007), the type of politics related to the future, through big data analytics. This would allow us to reduce uncertainty on what is to come.

The new system of artificial intelligence is building an architecture in which information purportedly begins to flow from the future towards the present, rather than from the past to the present, as has been the case until now. When the experience of the past can barely be a source of information and guidance, analytics centre on what the data can tell us about the future. Using sensors, data and algorithms, machines are capable of intercepting information about what is going to take place and using that information to design anticipatory services, products and make decisions. They will be able to foresee our behaviours and desires through the anticipatory design of prediction machines (Agrawal, Gans & Goldfarb, 2018; Kapoor & Narayanan, 2022). What would a prophetic, rather than an archival, society be like? (Accoto, 2019, p. 131). Until now, we have been concerned about counterbalancing the information overload of the present, but in future years, we should work more to reduce the informational uncertainty of the future, such as the anticipated maintenance costs of assembly lines, preventive medicine, security in the face of cyberattacks, the evolution of markets or future crises. In this panorama, those who have the best projections into the future have the power, and the critical work should centre, as Marx could have said, on knowing who controls "the means of prediction" (Abebe & Kasy, 2021).

Heinz von Foerster warned some time ago that the capacity to carry out social predictions depends on the stability of human circumstances, and the predictions can be applied only to those activities that are sufficiently trivial that they are immune to change. "In order to protect society from the dangerous consequences of change, not only a whole branch of business has emerged, but also the government has established several offices that busy themselves in predicting the future by applying the rules of the past. These are the futurists. Their job is to confuse quality with quantity, and their products are 'future scenarios' in which the qualities remain the same, only the quantities change: more cars, wider highways, faster planes, bigger bombs, etc. While these 'future scenarios' are meaningless in a changing world, they have become a lucrative business for entrepreneurs who sell them to corporations that profit from designing for obsolescence" (2003, 206). It is obvious that we do not live in that type of stable world and that, if anticipating the future becomes a very useful task, it is because we cannot rely upon continuity in quantitative terms. The biggest question this raises is whether current predictive technologies are able to identify this discontinuity in some way or if they are trivializing social changes, assuming that the world is more stable than it actually is.

In this article, we will approach the question of predictive analytics from a philosophical perspective, first of all by posing the paradox that predictions are at the same time too true and too wrong. We will then try to identify the cause of this and the absences in prediction. This will allow us to conclude that it is the open-ended nature of the future in democratic societies that prevents us from fixing the future once and for all, and the reason for keeping it open-ended.

1. Predictions are too often right

If everyone agrees that predicting the future is of great relevance for the collective decisions of our political systems, the procedure carried out through data analysis has its limits and paradoxes. The fundamental limit of predictive analytics stems from the fact that algorithms assume that the world is stable. But the use of predictions, changes "the world that predictions inhabit" (Mackenzie, 2015, p. 441). The solution, therefore, if we want to continue being right, would not be to accept instability, but to make the world more stable so that it proves us right. This is achieved, whether or not it is done on purpose, through the performative nature of many probabilistic predictions. This is the case whenever they are right because they have encouraged reality to end up making them right.

We do not know where knowledge of the world ends and where the transformation of it begins. "Because algorithms intervene in social realities, it becomes unclear to which extent they analyse or produce a certain reality" (Schneider, 2018, p. 137). Anticipatory knowledge is not trying to represent reality but to produce a desired future, whether

Universitat Oberta de Catalunya

it is in terms of security, in terms of risks or to create a particular consumer. Analytical predictions tend to create the future they are trying to predict. Politics carried out with these instruments turns effects that still have not taken place into causes, which could be called "future causes" (Massumi, 2007). This anticipated future is the incentive for adopting immediate preventive actions that change the course of reality, and this is why the anticipated event never takes place. The prediction is right when it prevents what it had foreseen from taking place. In this new world order, the truth has a retroactive nature.

The anticipation of possible future events, especially when they involve risks or possible catastrophes, has created a large number of reflexions and reforms in our modes of governance. Anticipatory logic attempts to identify the causes of the threat and sets in motion the procedures to prevent it from taking place. There are predictions that seek to be correct about what is going to happen; others that attempt to prevent something from taking place; and even some that have the perverse effect of making something undesirable occur. It is not unusual for this type of preventive intervention to create exactly the opposite of what was intended. Sometimes, even though the anticipatory action tries to prevent the expected event from taking place, it actualizes the possibility of that event. This can occur with phenomena such as wars that end up starting because of an escalating conflict that was meant to dissuade; some repression that stimulates the desire for an uprising; distrust that grows as quickly as the requirements to trust…. These are all unwanted effects provoked or intensified by the adoption of those preventive measures that had the role of preventing the very thing that ends up occurring in the end because, in this case, of the negative performativity of the predictions.

For that reason, the performativity of predictions can ensure that they are fulfilled or not, and in both cases, there is a limit that should be kept in mind. I am referring to the "paradox of prediction", which explains that predictions, even when referring to the future, have an impact on how we behave in the present (Nowotny, 2021, p. 5). We can predict something that will take place precisely because it is predicted or that will not take place because it was predicted. In both cases, "present futures will shape the future present" (Esposito, 2011). The better "the present futures", the more people will interfere to make them come to pass or to prevent them. Predictions are inexact, even if only because we do not know whether a predicted future

will encourage or discourage people from behaving in a particular fashion. A sombre prediction, for example, can stimulate change or discourage it completely. An algorithm can make what is predicted happen, not because it would happen without the prediction, but precisely because at times human behaviour follows the prediction. This is the famous "self-fulfilling prophecy" that Robert Merton formulated so many years ago (1948). Ignoring that would be contrary to what is called the cognitive power that we assume our sophisticated predictions contain. It makes no sense for us to be proud of knowing the future and ignoring the fact that predictions act upon the present in a way that is not easily predictable.

2. Predictions are too often mistaken

It is true that analytical predictions are often accurate. Everyone cites the case of how the correlations between internet questions and purchases made possible to predict the swine flu of 2009 before an epidemic broke out and without having to wait for it to be announced by the health authorities. What is generally not mentioned are the cases in which similar predictions have been mistaken. This imbalance between the attention that correct predictions receive and the lack of attention towards mistakes could be explained by at least two causes: by amazement and by business. In other words, a successful correlation impacts us stronger than the disappointment of spurious correlations and that accurate predictions tend to enjoy a lot of resources and publicity while no one finances or pays much attention to those that are wrong.

In predictive analytics, we could say, it is news when something is right, not when there is limited success or failure. This may be why expectations are higher than they deserve to be. Expectations will only be adjusted if we examine the conceptual and methodological assumptions of predictions with great care.

We must keep in mind, from the beginning, that algorithms are programmed to see things only as patterns, in other words, as rules. Algorithms recognize things statistically after examining a large quantity of data, but they do not pay attention to individual cases. One example of a recent resounding failure that is explained by this was the Dutch system of anomaly detection for possible frauds in their social assistance program in

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2021. The systems automatically interpreted errors in filling out the forms as attempts at fraud. The system punished a simple lack of literacy when handling a digital portal with the severity that only an actual fraud scheme would deserve.

The problem is that the discriminations that arise in the configuration of patterns are not "bugs" but properties of the big data methodology, which means that the solution cannot be to eliminate the data that are susceptible to discrimination from the procedure, but to develop a hermeneutics that is conscious of these properties and their limitations. Consider the fact that a program like COMPAS (Correctional Offender Management Profiling for Alternative Sanctions), that calculates the risk of recidivism of convicts and is used to determine whether they should receive early release, is incapable of providing equitable treatment of white and black prisoners. "A risk score… could either be equally predictive or equally wrong for all races – but not both. The reason was the difference in the frequency with which blacks and whites were charged with new crimes. 'If you have two populations that have unequal base rates… then you can't satisfy both definitions of fairness at the same time'" (Angwin & Larson, 2016). The predictions tend to be accurate when they note that one group of the population tends to commit more crimes than the other, but there is no consideration of why that is the case, much less are political decisions made to resolve that situation. The problem is that predictive analytics confers prescriptive abilities to the *status quo*, that the analysed data is riddled with inequalities and these inequalities are reinforced through what are supposed to be normative predictions.

Political decisions are more than calculations; the problems will persist as long as we only use data to adopt decisions that entail social standards and value judgements. An example of this is the program that calculated that the first-class passengers on the Titanic had a higher probability of survival, which does not mean that those travellers deserved to survive more than the second- or third-class passengers. The model of calculation suggests that first-class travellers should therefore pay less for travel insurance than the rest of travellers, but this is socially absurd and would mean penalizing them for not being rich enough. There are things that machines cannot learn, things that require human interpretation and judgement (Broussard, 2018, p. 119).

3. The large absences in algorithmic prediction: the individual, history, responsibility and the future

Both the correct predictions – which are often only partially correct – and those that are incorrect – which are, to some extent, inevitable – are due to the very properties of predictive analytics, which are exacerbated by people's irreflexive or acritical use of them. Those properties can be organized into four groups: **a)** the domination of patterns over individuals, **b)** a fixation on continuities, **c)** the logic of pre-emption and **d)** the determinism that makes it unable to shed light on the open, contingent nature of human history, which is an essential quality of democracy. The conceptual deficiency would be its lack of attention towards that which is individual, its difficulty to register discontinuity over time, the lack of procedures for reckoning with the novelty of human actions and for identifying available choices. Big data analytics' four conceptual traps would correspond to the following categories: **proxy and pattern** when it comes to the individual, **sequencing** in questions of history, **confusing propensity for causality** regarding attributable action and, when thinking about open democratic societies, the **emphasis on probability**. And the concepts that break the trap would be: personality, unpredictability, responsibility and the future.

Table 1. The conceptual framework of predictive analytics

	Prevailing approach	Missing concept	Conceptual trap	Needed concept
Individual	Pattern recognition	Individual singularity	Proxy/ pattern	Personality
History	Identification of continuities	Discontinuity	Sequences	Unpredictability
Action	Preemption	Novelty	Propensity	Responsibility
Democracy	Determinism	Choices	Probability	Future

Source: own creation

Universitat Oberta de Catalunya

3.1. The unclassifiable individual

One of the most widespread beliefs in the current discussion about big data is that, with the help of massive data, the particular could be known and thus the need for any hermeneutic effort would be overcome. The classic idea that *de singularibus non est scientia* would be contradicted by computerized processes, which would finally provide us with a knowledge of the particular. However, this is precisely what has failed. With more data, only roles or typologies are identified, but particular subjects remain out of reach.

The U.S. Federal Trade Commission provides us with an illustrative example of this by showing that algorithms can reject rights based on actions from other individuals with whom they share certain characteristics. This was the case with a company offering letters of credit that decreased the credit limits for one of their clients because of analyses carried out on other clients who went to the same stores and had a poor payment history. Other companies did something similar when they saw that someone had gone to a marriage counselor, in other words, they deduced a possible divorce that would weaken the client's economic situation (Federal Trade Commission, 2016). These practices contribute to a type of deindividualization, treating people based on characteristics or profiles to which they are assimilated instead of through observation of their actual behaviour.

In addition to the contemporary crisis of representation in which political institutions and actors find themselves, we could add a crisis of the representativity of reality by statistics. Can we be reduced to our data and understood through a quantitative focus? Are we adequately represented by a technology that seeks regularity, that places us into patterns and examines us from the perspective of predictability? The feeling that everything is judged ahead of time, that the life of each one of us would be blocked by systems of categorization and discrimination would imply the breakdown of democracy. That leads to the "classificatory struggles" (Tyler, 2015) that the new methods of categorizing people and social reality have unleashed. One of the principal democratic battles today is the vigilance and rejection of the way in which individuals are categorized.

It is also important to remember that the flipside of this revindication of singularity is a very valuable democratic demand. The individualization that is contained in the principle of citizenship also implies the ability to question oneself and ignore the expectations that others place on us and that we place on ourselves. If we have the legitimacy to question the preferences and interests that we are presumed to have, it is because we are in a position to reflect on our preferences and interests. If a person is incapable of examining the compatibility of her preferences with other people's, which implies not being predetermined by them, she could not belong to a democratic society. The conservatism of our instruments of prediction corresponds to a conservative conception of our inclinations, preferences, vital trajectories and propensities, which underestimate our ability to modify the probability of the trajectories in which we are enclosed or we enclose ourselves.

3.2. Unpredictable discontinuity

The fact that the systems of machine learning seek patterns to turn into rules for the prediction of future events means that the only knowledge they produce has to do with the past. Everything they can foresee is already in some way anticipated in the past. For many questions, this way of proceeding is very useful and does not present more problems, for example, when we are dealing with natural catastrophes. However, let us think about what happens when we are confronting events from the social world, such as predictive policing, in which there is a special recursivity, self-fulfilling prophecies, unjust assumptions or predictions that influence what is going to take place.

An algorithmic system does not, strictly speaking, predict whether someone is going to commit a crime. The only data the system has is the data relative to past arrests and convictions. These databases contain all the racial prejudices and the connections that in fact exist between criminality and poverty. The prediction of dangerousness stems from data like, for example, whether the person or her group of friends and family have been arrested in the past, what grades he received, if her parents are separated, if he is unemployed, if she lives in a neighborhood where these types of crimes are committed, but also about the characteristics the person shares with similar people.... This is a true vicious circle with the systematic effect, for example, of punishing blacks more severely because more blacks were convicted in the past. This is racist bias stemming from the past that has nothing to do with the specific person but that has decisive effects on that person's life. In this way, individuals are affected by measures that are adopted because of predictions based on the past and on the collective.

The data are a compilation of past interactions from which the system has learned. The training data are always past data. But there is no reason why behaviour and past preferences must always continue. One must avoid deducing what is going to happen based on what did happen; the simple reality is that the fact that someone (or even ourselves) has done something doesn't mean this thing will repeat in the future. Predictive systems learn from data analytics that overemphasize the behaviour that has taken place and underemphasize intentional aspects, moments of discontinuity, change or transformation.

Big data is inscribed in this old practice, but it represents a significant rupture, not only from the technical point of view but also from a social and political perspective. The ''informational state'' (Braman, 2009) would replace the bureaucratic welfare state, and that transformation is verified from the beginning in the very nature of data. In general, administrations have generated unidimensional data, mapping society with the goal of exercising authority more effectively, especially for taxing purposes. But now, rather than being organized by the authorities, the data are generally produced by society, through their interactions, mobility or consumption. The oracles of yore and other prophetic practices were centralized and served the dominant power, but big data arises out of varied and disperse sources of authority. There are a lot of people who have access to the information it provides, although there is a concerning tendency to concentrate the power associated with the gathering and interpretation of data. New technological possibilities promise to enhance previously used methods in several aspects. While data analysis used to be costly and slow, it is now inexpensive and fast. While we used to have to resign ourselves to making use of a few cases as an example, society's current information technology makes it possible to obtain data on entire populations. While in the past, any measurement was conditioned by human biases, agnostic algorithms now guarantee an impartial vision. Where we used to need a theory, the immense volume of data now means that data speaks for itself. These novelties seem to be joined by another new possibility of great political consequence: old procedures were a strategy in the hand of rulers and the experts, while the current mechanization of decision-making systems seems compatible with the public scrutiny of technical routines, which are in principle objective and impersonal (Porter, 1995, p. 146). By gathering massive quantities of data and examining correlations rather than causes, data analysis attempts to reduce the need for theory, models and expert knowledge. There would, therefore, be more democracy if decisions can be justified by appealing to an objectivity that anyone could confirm, allowing neither ideological chicanery nor indisputable authorities.

A reflection about the nature of data reveals that they are ''a temporal formation'' (Boellstorf, 2013). Regardless of size, data are always a construction that emerges over time. The existing data only provides information on the past and up until the present. We must not forget this peculiarity when engaged in any predictive analytics: analytics has a history that represents a limit to its effectiveness. With or without big data, the future will always have an unpredictable dimension, precisely the part of it that most characterizes it as future. There is a part of it that is not a simple continuation of the past and present. From a social dynamics point of view, the limits of extrapolations based on the past are due to the non-linear dynamic of complex systems and to something even more enigmatic: human liberty. Crises, innovations and disruptive phenomena in general require us to understand that many unpredictable situations originate in small variations on the original conditions and in a density of interactions that strike us as unfathomable. The problem is that many algorithms attempt to predict the future behaviour of people (who will buy, get sick or commit a terrorist act), which means using the characteristics or current behaviour of a person to predict what he or she has not become or done yet. Why should a person do what data, even his or her own data, says he or she will do? There are many phenomena of rebellion and change that interrupt predictable extrapolations and from which something that is unexpected and unexpectable from the available data emerges. Prediction is a generalized bias (Matzner, 2018, p. 40); no matter how many times it is correct, it always involves unjust generalization. In other words, there will be people who fulfil the criteria and are not the person we were looking for. How do we calculate the probability of a discontinuity of expectations we have reached based only on the existing data, in other words, data from the past? This is the question that should at least lead us to a greater awareness of the limits of any prediction.

3.3. Propensity is not causality

The new technologies of prediction are conceived based on the criteria of the dangerousness of individuals (in other words, on people's possible actions in the future) and not on the evidence of guilt (which demands proof of actions committed in the past). They model the environment so that risky

behaviour cannot take place; those who have a poor record of payment will be denied credit; dangerous individuals will be rejected from certain locations; the preventive elimination of a potential terrorist; career guidance for a child based on a premature profile… We are not identifying causalities, but possibilities. "Propensity" is a statistical category based on the probability that a person in a particular category will behave in a certain way; it is not based on the person's actual behaviour (Andrejevic, 2013).

In addition to predicting what is possible, predictive analytics elicits practical responses to make something impossible. In this way, predictive analytics moves from a probabilistic logic to one of "pre-emption". In other words, it anticipates a reaction without the appearance of a cause. The "pre-emption" has not identified anything. It moves in an environment of the "unknown unknown"; it does not know when or how, or even exactly what, and when it is implemented it produces its own cause. This logic, which wants to save us from any uncertainty, eliminates all differences. Rather than pondering risks, it acts as if the detected risk had already taken place and imposes the measures that follow as a consequence.

This predictive policing seems to confirm Foucault's thesis that the criminal is identified before acting and not because of the connection of a cause with an effect (Brayne, 2020). Can someone be sanctioned by a computer norm regardless of a legal norm? Criminality would be defined not by a concrete act but by specific patterns of biographies and social circumstances. Suspects would not be those who are going to commit a crime but those who are of a certain type. This would legitimize gathering data on the lives of those who are seen as suspicious.

Probabilistic prediction presents an enormous challenge to the humanistic notion of subjectivity and reduces individuals to data subjects based on the statistical analysis of their behaviour and actions. Data analysis is a useful instrument to discover interrelations and correlations, but it will not eliminate the unpredictable part of human behaviour or the evolution of the world. Of course, big data provides technologies and applications to improve planning. Still, it is important not to lose sight of the fact that this information is not predictive. It simply helps confront uncertainty, and "it suggests possibilities by presenting probabilities. These possibilities are thus not factual, they do not present causal relations *per se*, and it should be kept in mind that the frame constructed based on this information can also have an impact in itself" (Strauss, 2015, p. 833).

A critique of predictive reason should revise the conceptual framework in which the dominant idea of prediction moves. The goal is not to question statistics or the use of prevention methods but to not assume that what is possible is anything more than just a possibility, that it is necessarily going to be realized. This difference between the possible and the real, between propensity and causality is the only thing that can assure the principle of presumed innocence in an age of algorithms. We must ensure a space of indeterminism and chance, which means reflecting on the elements of uncertainty and freedom that exist in every action.

3.4. The open future of democratic societies

When put at the service of predictive analytics, algorithms not only recognize patterns or classify data but also make predictions about future developments. And they do so in a way that contradicts the nature of politics. They apparently do something very similar, anticipating the future, but they carry it out through very different procedures. There are two reasons to think that this type of prediction does not correspond to the type of contingency that characterizes politics: the decisive weight that is given to the past and the inevitability with which the future is conceived.

Let us begin by examining the type of past on which predictive analytics are based. The techniques of artificial intelligence compensate for our lack of knowledge of the future by working with probability; they do not provide us with knowledge of the future, but they foresee the probability of a certain future happening. The probability has to do with the idea we make of the future and how we configure it, questions that constitute precisely our perspective of the political. However, since data registers past behaviours, historical trends and current information, algorithmic predictions can only resort to the past to describe the future. Despite the logic of predictions, the politics of algorithms do not improve our vision of the future, and even less so of an open future, but rather confirm what already exists. In this sense, predictive analytics is in conflict with the democratic will to the extent that it threatens the contingency of the political. With the logic of their predictions, algorithms provide a paradigm that is different from the one that underpins the political system of liberal democracies: the factuality of past behaviour and the statistical regularity of individual decisions become criteria to configure the expectations of future behaviour, not of autonomy or free self-determination.

The second reason why predictive analytics has an apolitical nature is due to its conception of the future. The use of algorithms colours our way of perceiving the world and – in the case of the future, conceived from the perspective of the predictable – we stop seeing it as something that is completely open and that has a strong unpredictable dimension. We increasingly understand the future as a response to the question of how we believe things are going to evolve and less about the future we want. Predictive analytics does not prescribe a particular idea of the future nor does it prevent us from having our own representation of it, but since it describes a world that is calculated through predictions based on the past, and understands human actions as behaviours that can be captured in databanks, and since it encourages us to underestimate the new, unusual or surprising dimensions of everything, predictive analytics marginalizes the possibilities of configuring the social world by using our own political liberty. The problem is that we are, in a subtle fashion, thus returning to a prophetic world (Esposito, 2021). Predictive algorithms are not a continuation of administrative statistics but of fortune-telling. The perpetuation of ancient prophetic practices reveals the assumption that the future can be known ahead of time.

The rigidity of the past and future when conceived in this way gives rise to an excessively predictable view of history, in other words, an idea of it as apolitical and non-democratic. The assumption inscribed in the algorithms that the extrapolation of past behaviour provides a good prediction of future behaviour is useful in realms like consumption, credit or the possible development of pathologies. The core of the assumption is that it is very possible that we will behave in the future as we did in the past and that we do so in a way that is very similar to our social environment or, stated in another way, that it is very unlikely that we will deviate greatly from the expectations of that environment. Algorithms privilege regularities over deviations and surprises. In this way, a new type of social order is configured. This normalization tends to make the factual coincide with the normative. Everything that deviates from the predictive norm is marginalized. Of course, this is perfectly valid for many aspects of life, but its generalization is a simplistic reductionism. One could object in this regard that algorithms do nothing other than gather properties that are already in the social reality, but we must remember that there is a moment of supplementary normalization in the algorithms themselves. Algorithms are interested in producing a particular result: the pixels should result in new faces; the expressions on

social networks must identify a future consumer or voter; the patterns of use should be able to deduce suggestions for managing one's refrigerator... Data analysis always has a particular purpose that it should predict as well as possible. This means that algorithms do not reflect neutral patterns or simple relations between data, but they afford assessments that conform to a predicted objective. Implicitly, algorithms manage reality in a particular way; they work the databanks to obtain predictions about future actions. In this way, they deprive human actions of the element of self-determination because they only pay attention to our past behaviour. In the best-case scenario, they respect our right to future self-determination such as we had in the past. Algorithms are not interested in knowing elements of initiative, of new beginnings, as Hannah Arendt (2017, p. 86) would say. They do not invite us to make use of our liberty, and in this way, they narrow the realm of the political; they depoliticize the social.

Conclusions

The human condition includes both the effort to anticipate the future and our resistance to be trapped by that anticipation, our ability to defy the impossible and thwart what is expected. Big data analytics should take human creativity and rebellion into consideration, which would make predictions less deterministic, but undoubtedly more accurate. "The most interesting thing about human nature is its indeterminacy and the vast possibilities this implies: our non-essentialist essence is that we are correlatable humans before being correlated data subjects. Whatever our profile predicts about our future, a radical unpredictability remains that constitutes the core of our identity" (Hildebrandt, 2006, p. 54). What makes us human is not the "what is" but the "what is not", the empty space, the fissures, the detours, that which is not yet thought (Mayer-Schoenberger & Cukier, 2013, p. 196). There are only decisions regarding a future that is unknown to us, a future that cannot be completely anticipated (Derrida, 1994). These are the underlying reasons why big data can only reckon with a small amount of the complexity and the unpredictable nature of human behaviour. The old philosophical question about human liberty returns here in a new way. And with it, there is also the inevitability of politics. "If politics expresses the fallibility of our world, the impossibility of resolution of all matters economic, social, ethical, then it exists because not everything is reducible and resolvable" (Amoore & Piotukh, 2015, p. 29).

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A world of turbulence and volatility, an increasingly complex society, a political system of which citizens are more demanding requires more and better predictions. We cannot allow recurring failures nor an exactitude born out of improperly simplifying those realms in which predictions are realized (which is another type of failure). To resolve these issues, it is less important to increase computational power than to improve the conceptual framework with which we move, implicitly or explicitly, through the four planes analysed here: subject, history, action and democracy. The paradox of this conceptual renovation could be synthesised in the conclusion that predictions will be more exact when we are more conscious of their limits, their contextual dependence and their need for interpretation.

In this article, we have proposed a framework for understanding the approaches of predictive analytics, the missing concepts, the conceptual trap and the new conceptualisation that would be necessary to respect the category of the individual, our historical character, the logic of human action and the values of a democratic society.

The politics of big data has given rise to many fascinating promises, but we should not underestimate the moments of uncertainty regarding epistemological limits and limits to the space of liberty. Even the most sophisticated algorithms that realize predictions by aggregating enormous amounts of data cannot fully protect us from surprises. To the extent that there is no fully-blown theory of human judgement that can successfully predict human behaviour both individually and collectively in all cases, the hope of an apolitical use of data will never be anything more than a technocratic dream. As long as human systems are complex, contradictory and paradoxical, data will lead to knowledge that will continue to be refutable and human. All too human.

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