

## Information and the Vicissitudes of Representation

Frederik Tygstrup

University of Copenhagen

e-mail: frederik@hum.ku.dk

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Information is an asset; if one is informed, one can make the right choices, act appropriately, reason with insight. From an individual and collective perspective, the acquisition of information is a way to gain authority. For the Enlightenment *encyclopédistes*, availability and circulation of information was a vital instrument in the quest for a better and less unjust society. In societies based on property and competition, however, information, like any other asset, is also a value that can be accumulated and contribute to the creation of additional value. Know-how is a competitive advantage, and information therefore also takes the guise of a commodity that has both an owner and a price. In other words, information is an asset (yet another asset) to which modern societies have an ambiguous relationship. On the one hand, it is an asset that holds universal value, and on the other, it is subject to a social distribution which has a market for commodities 'and other services' as its condition.

In her recent book, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, Shoshana Zuboff uses the concept of 'surveillance capitalism' to characterize the way information today has become a new source of value accumulation. Companies that have become world-dominant over the past twenty years by basing their activity on electronic platforms — the French call them GAFA: companies like Google, Amazon, Facebook, Apple — have made money, not only by selling their particular services to the users of their platforms, but also by utilizing the traces left by users on these platform to create a new market for processing and reselling knowledge about very large groups of users (or citizens, the two terms themselves have become interestingly difficult to clearly distinguish from each other) that can be put to work in a wide range of fields, commercially as well as politically.

Zuboff discusses the social and political implications of this new paradigm for harvesting and processing information, and her book comes at a time when the general public — as always a bit late — has become aware of the enormous resources available to this new economy, and the scale of its consequences, not only in terms of what we are being recommended to buy on the Internet, but also in terms of the significance of Cambridge Analytica for the US presidential election, or of EU's large-scale policy initiatives for the protection of personal data.

Now, this discussion also begs the question whether surveillance capitalism's new way of handling and exploiting information is not also about to change the way we should understand what 'information' really is. The discipline of information studies has mostly, in different guises, considered a unit of information in quite formal terms, as a reference that denotes something specific, or a predication of a state of things, 'a difference that makes a difference', as the semiologists have it. A designation that pronounces something useful about something. This minimal and efficient definition has, then, formed the basis for a comprehensive exploration of how information *circulates*, a research tradition that, despite an increasingly refined conceptual apparatus and many different contexts of use, is still indebted to Roman Jakobson's old communication model. This model starts out from an essential information unit, the 'message', and then contextualizes this message by attributing it to a sender and identifying a recipient, and, furthermore, by mapping the communication channel it passes through and the coding it has undergone.

Recent media historical research, on the other hand, has questioned this prevalent 'information positivism' that assumes the straightforward existence of information and then precipitates to the subsequent examination of how and to what effect it circulates. In contrast, media historians have insisted that what is perceived as and functions as information in a given historical context, depends on and cannot be separated from the actual societal mode of existence of salient information units. A publicist and a patent attorney will not only often appear to have conflicting interests, but probably also to define information differently, derived from the specific contexts that the provision and use of information entails for the two. In the following, I wish to examine the particular form that comes to characterise 'information' in the age of surveillance capitalism, and how it differs

from earlier forms, including the common-sensical form of a reference to (and possibly the predication of) something which is the case.

According to the *Oxford Dictionary of Sociology*, an 'information society' is characterized by three features: firstly, the ubiquity of new media in contemporary societies, secondly, the increasing media literacy and media usage, and thirdly, the alignment and integration of computer technologies into still more areas of social life. Or, in other words, and in reverse order: that information is processed by machines, that more people use and generate machine-compatible information, and that this use becomes ubiquitous. Or in still other words: the information society is a society where information predominantly circulates in the guise of *data*.

Accordingly, our first question must be: what is the relationship between data and information? Etymologically, 'data' is what is given, that is, what appears to us and which we therefore need to relate to. In the computer medium, what is given is given in digital code, i.e. in the notorious series of ones and zeros that can be read as machine code. The data code, the configuration of ones and zeros, is, in turn, composed to capture a particular referent: the code denotes a property of the referent, and it does so by identifying this property with a number, a metric measure, which is, again, the only thing that can be read by the machine. To possess data is to have access to a reference to something, to some object whose qualities and peculiarities are expressed in metric, numerical measures. But this correspondence between the referent and its metric representation is a fragile one. One thing is to have data, another to have good data. It depends on the quality of the metrics used to generate data, the representational clout of the data.

The procedure can be illustrated by Aristotle's famous definition of humans by way of juxtaposing two metric distinctions: four-legged animals versus two-legged animals; and animals with feathers versus animals without feathers. With these metrics, a human being can hence be defined, impeccably, as a non-feathered biped. When working with metric representations, we are not, in other words, necessarily dealing with very rich representations, albeit with quite accurate ones. We can only gauge qualities that correspond to the metrics applied; our metric systems are grids that can reference a

specified set of qualities of the object to be encoded. This means that what can be captured and represented as machine-readable data are standalone qualities, and often also *discrete*, non-related, qualities, which may or may not be especially prominent qualities of that specific object. What can be coded as data is thus not necessarily the particular, individual quality of the object, but rather — with Gilles Deleuze and Félix Guattari's useful concept — the *dividual* aspects under which the object can be linked to an appropriate set of metric determinations.

In this sense, data encoding provides a relatively limited view of the objects to which it relates; it can only encode what can be recorded in a metric system, two legs or four legs, feathers or not. Data are metric indications of qualities that may, or may not, be relevant to the representation of the objects that they index. The representations they afford are not necessarily *representative*, and the dividual characteristics of my person encoded into various repositories are probably a far cry from being able to express my individuality. In this sense, data is hardly information at all, or a possibly quite incomplete form of information. Such data only becomes Information — the kind of information that is produced by the information society, and which surveillance capitalism has turned into an instrument of capital accumulation — once it has been organized in such a way that it becomes representative.

Hence, if there is good reason to fear surveillance capitalism, it is not because, as the saying goes, 'it knows everything about me'; it is because it organizes my dividual data in such a way that it determines what is to be taken to be representative of my individual self. It is by virtue of this reversal that information under surveillance capitalism (or in the information society, or in the society of control, there are many names) takes on a fundamentally different form from the kind of information that was the subject of earlier efforts of dissemination and the traditional object of information studies.

When data becomes information of this new kind, it is with the help of machines that can aggregate and correlate the many and trivial dividual data that are being collected on an unheard scale and with rigorous systematics. For example: let's assume the existence of a handful of banal and inconspicuous dividual data points with reference to my person, perhaps my ethnicity, my place of residence, my media habits, my travel patterns. These

data points can then first be compared with similar data about other individuals, and then correlated among themselves, and all of a sudden, I may eventually have become a person of interest for the authorities. Or take a set of health data that together with family data, consumption data and employment data can make me interesting (or not) for an insurance company. Or my credit history, my income, my real estate assets that may interest potential creditors. Or, of course, what I buy online, what I underline in the books I read on my screen, what series I don't finish, which will be interesting to the producers of such items.

Again: the individual data is not worth much. But they become valuable when aggregated into large repositories of comparable and correlatable data and processed by shrewdly concocted algorithms. It is not the particular, dividual slices of my behaviour that retain interest, but those together with the many others with which they are imputed to be comparable. Only then do possible co-variations emerge, which — when observed in very large data sets — are an indication that there is also an actual connection between them, whether or not it can be explained.

So how have 'my' data turned into valuable information? After my 'I' has been cut up into metrically manageable dividual slices, this data has been stacked with a host of other people's data and then correlated vertically, among mine and others' comparable dividual slices, and horizontally, between different stacked slices. What suddenly makes me interesting to the police, or the health authorities, or the bank, or the manufacturers, thus really has very little to do with the individual 'me' that was the starting point. A peculiar reversal is at stake here: usually we assume that information is a reference to or a predication of a given object. But in the information society, this hierarchical relationship between object and information is turned upside down. On the one hand, we have the data that give only a very limited and 'dividualised' representation of the individual object, and on the other hand the aggregated and correlated data that produce an entirely new object, which in turn might in fact only have little to do with the original object, but which nonetheless, by virtue of the information produced, makes it into an object of (a particular) interest (legal, political, mercantile, etc.).

The information in question is thus less information 'about' the object, but rather a compound metrical material from which a new object is constructed. The harvested, tagged and distributed data is a matter that can be shaped, combined and mathematically processed with intelligent algorithms, and thus become information about — brand new objects! Or if we return to 'my' data: first they are harvested through individualisation, through a decoding of me as an individual, then they are processed through the big data grinder, and finally they are re-encoded to become a virtual representation of me as a potential offender, a potential patient, a potential debtor, a potential customer... The production of information projects and builds an arch that spans from the trivial data that is not yet a representation of me, to a potential 'person of interest' that I might become. From something that is not yet me to something that is no longer me.

'Information', as it is produced in the contemporary information society, is a very special form of representation. It does not just refer to its object; it is created through a process that first decodes the object and then re-encodes it in a new form. For a traditional critique of representation, there is nothing particularly new in this; we know that a representation is not a neutral designation of something non-present (making it present again by re-presenting it), but an agency in its own right that shapes the represented object in a particular way and thus also produces a particular way of relating to this object. Any representation is part of what Michel Foucault called 'the representational triangle', an intimate, reciprocal relationship between an object, a representational image and a mode of relating to it. A critique of the representational mode favoured by contemporary information societies should perhaps pay less attention to the question of data privacy — 'Big Brother is Watching You!' and instead raise awareness of the manner in which the way we produce information today constructs representations of us that will come to frame who we can be and what we can do. The information society addresses us in accordance with how it represents us: calling us into the image it has made of us. Emily Rosamond has put it very well: "Surveillance capitalism (...) might be understood as a series of apparatuses through which behaviour is actively intervened in, *by* being continually measured." (Rosamond n.p.).

This paradox can be explained by the fact that 'information' today is a mode of representation that includes a *temporal* dimension. The algorithmic processing is based on

past data. But past data can be used to construe an object that may be interesting in a given future situation: this has been amply demonstrated by the financial algorithms for future risk calculation that have been refined beyond imaginable sophistication for the last three decades. The real information about me is not the trivial data of the past, but the image of my future self, diligently confected and ready to meet me even before this future has occurred. Information has basically become a *speculative* phenomenon, a possible future prospect of interest to someone who wants to sell a product, or someone who might offer a diagnosis for a disease for which I have not yet developed symptoms. Indeed, the production of information does not just put the picture of me 'into' time, the time I myself believe I am living in. The new apparatus for production of information can construct time in many different ways — it can work with many different pasts, many different individual data points, and it can construct many different kinds of scenarios based on them. In this way, it can model several different topological universes, none of which might have much to do with my own experience of time. The arch from 'not yet' to 'no longer' can be flexed and bent in as many ways as there are available data and relevant algorithms.

Here, we are at the core of the phenomenon of information in the developed information society: it does not denote an object or property of an object, but a temporality: the speculative relationship between the object's present future and its future present. And hereby it invites me — and all the other objects it produces information about — to take part in its play with time, or as Rosamond had it: it measures me and intervenes in my time in one and the same gesture.

This takes us back to the media historical point of departure: information is not just information that can be mediated and processed in different ways. Information was different for the Enlightenment *encyclopédistes*, the industrialists of the eighteenth century, and the spies of the nineteenth century: each instantiation of information is produced in a particular media system with particular contextual connections. A piece of information can be a profane insight, an industrial secret, or a strategic lie. It can still be all this, but in the present paradigm that has emerged with the information society, information is created and produced in a new form: as a speculative investment in possible futures.

If one abides by the slightly primitive historical schematic above, one could perhaps tentatively differentiate between some different forms that information has assumed in different contexts: for the *encyclopédistes* it was the *dissertation*; for the industrialists it was the *formula*, for the spies of the era of World Wars it was the *code*. In the era of surveillance capitalism, the basic form of information is the *derivative*.

The derivative has been one of the most important instruments in the financialization of the economy — and of society at large — over the past decades. Basically, it is a contractual formula that has been known for centuries, where, for example, it was possible to agree on the price of a product to be delivered in the future, so that one can calculate with a fixed price, independent of market fluctuations, which is good for the farmer who has sold the crop in advance if the harvest is good and the price low, and bad if the harvest is scarce and the prices high. In other words, the derivative is a security derived from the value of an underlying asset. In modern finance, however, the derivative has been disassociated from the actual delivery of the underlying commodity and has turned into a contract that can formalize a bet on anything, allowing investors to either hedge against, or speculate on, all kinds of market fluctuations. The volume of derivatives in contemporary finance by now outweighs the volume of actual securities, and they form a dense and widely ramified network that smooths and calibrates the value-to-price ratio in every conceivable market. At the same time, derivatives are themselves a kind of securities that can be bought and sold on the financial markets — and thus really a kind of money, which is not printed by a national bank, but created every time two parties enter into a speculative contract. In this sense, derivatives are, as Warren Buffet is often quoted for saying, financial weapons of mass destruction.

The boom in the use of derivatives, however, was not only due to the deregulations that took place through the last quarter of the twentieth century, which was often justified by the alleged ability of derivatives to price currencies against each other, needed after the US abolished the gold standard in 1973, but also to the development of new techniques for pricing derivatives themselves. Based on experiences with statistically based credit assessment and composition of investment portfolios, modern economics, in tandem with the newly formed field informatics, has developed models for the pricing of risk — no longer concrete risks, but risk as such, based on known average price history, on

randomization of possible outcomes, and on statistical normal distribution theory. Myron Scholes and Robert Merton were awarded the Nobel Prize in Economics in 1997 for the formula for this relationship, which was easy to program into the machines that calculated possible buying and selling prices for the traders.

Derivatives translate the contingency of the future into a risk that can be priced in the present. Risk, Gerald Nestler remarks in an interview, is “a sort of a quasi-forensics of future events, an enunciation of things as virtuals in the market form” (Nestler 132). Risk is an assumption about future contingencies, based on the knowledge of the past, but projected onto the future, and then subsequently retro-projected back onto the present by virtue of pricing. This is the peculiar quality of derivatives: they construct potential futures that can be traded, and thus acted on, in the present. The form of the derivative creates a bridge from the present through the past to the future, and back to the present again. Or, you could say: it does not face the future as an open horizon, but as a future that the present already has its stakes in, and which is thus already expected — if not outright pre-empted — in a particular way. This does not mean that the derivative has actually hedged against the contingents of the future, but it does mean that it presupposes a particular version of future in the present, thus necessarily narrowing down the horizon of what the future might bring.

The success of the derivative, its key role in the financialization of modern economy, has made it a dominant symbolic form of our age. In the guise of a contractually based assemblage of knowledge and assumptions, the derivative defines a particular temporal order and the nature of the events involved in this order. In this sense, the derivative has become a paradigm for the kind of pre-emptive prevision that comes with the information regime of surveillance capitalism: a regime in which we constantly arrive a little too late in the future, overtaken by information about ourselves that we still don't even know about.

More than thirty years ago, when this logic was still in its infancy, Gilles Deleuze formulated this definition of information, which in retrospect may seem almost prophetic:

What is information? It is not very complicated, everyone knows what it is. Information is a set of imperatives, slogans, directions — order-words. When you are informed, you are

told what you are supposed to believe. (...) And outside these orders and their transmission, there is no information, no communication. This is the same thing as saying that information is exactly the system of control. (Deleuze 322).

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