

Abstract

INFORMATION PHILOSOPHY, DOCUMENT AND DNA: The “document man” and the biobanks

Gustavo Saldanha, Rodrigo Bozzetti*

¹Brazilian Institute of Information in Science and Technology – IBICT – Brazil Federal University of the State of Rio de Janeiro – UNIRIO – Brasil; saldanhaquim@gmail.com

²Post-Graduation Program in Information Science – IBICT UFRJ – Brazil; bozzetti.rb@gmail.com

Presented at the IS4SI 2017 Summit DIGITALISATION FOR A SUSTAINABLE SOCIETY, Gothenburg, Sweden, 12-16 June 2017.

Published: date: 9 June 2017

Abstract: Analyses the concept of document, using as theoretical support, discussions created by authors from the library and Information Science mainly from France and United States traditions. Discussions about information philosophy based on the works of Rafael Capurro and Bernd Frohmann are also used to analyze the concept of document. Demonstrate that human biological samples, stored in biobanks, can be considered as documents.

Keywords: Information Philosophy; Document; Biobank

1. Introduction: information, document and gene

Since the nineteenth century, concern with a worldwide knowledge organization records, mainly focused on bibliographic studies, clearly recognizes that order presupposes control, and control presupposes a digitilisation of facts, things and subjects. The search for a universal bibliographic control, which will have the Belgian Paul Otlet as its maximum expression, will always be confused with a world project of spirits rise in the political and epistemological level, as well as a panoptic project of concentration, vigilance and security of the State. The unfolding of nineteenth-century ideas at the level of an information philosophy reveals the most urgent discussions of contemporary dilemmas: the production, ordering, and surveillance of genetic records, recognized as "human documents," sources of information about not only the subject in its singularity, but the plurality of the notion of "humanity."

The information philosophy current, identified in part as “neodocumentalist”, affirms the "documentary" condition of informational argumentation. It is a relation based on the debate between "material" and "immaterial". This is one of the central positions of Frohmann (2011, 2009, 2004) and other influential theorists on the current. Among the influences of this thought, we find objectively the ideas of Foucault (2010, 2002, 1970) and Wittgenstein's (1992a, b, 1979), in a clear demarcation of the philosophy of ordinary language.

Dialogues with the philosophy of language place the "neodocumental" perspective in direct approximation with the Heideggerian approach. There is too hear a the relationship between being and language, present in Rafael Capurro's information philosophy. The Capurro approach

establishes a central force for language with the constituent element of human relations, especially when we observe the real from the information.

The unfolding of these neocultural and Capurro approaches leads us to one of the most flagrant empirical determinations of the debate on philosophy, ethics and society in the contemporary world, the condition of DNA and biobanks. Admittedly a moral dilemma for the twenty-first century, we have put into focus some central elements that underlie a gene ethics from the philosophy of information - and definitively establishes the man as document.

2. Document and language: preambles to DNA as document

In Lund's view (2009), the modern question of the document as a record of bureaucratic movements - of the modern state and its institutions - adds up two other aspects of its meaning: its condition of proof - that object that holds the truth of Declarations -, which led to the notion of authenticity gaining great relevance; Its "informational" condition, that is, of renaissance, or object that provides information - which, in a way, recovers the previous educational conception of the document.

The importance of the document to the modern world will be reflected in the relationship between society and science. In the nineteenth century, the word "documentation" gains great prestige among scientists and the various branches of management. From then on, the quality of the scientific work and the efficiency of the market depends on adequate and accurate documentation. It was not enough, in Lund's view (2009), merely the combination of logical arguments. It was necessary for the scientist to prove empirically - what it would mean to "demonstrate documentary" - the process and results of his research. This will be the setting for the birth of the first theory of the document, born with Paul Otlet - dealt with by Lund (2009) as a professional document theory.

Bernd Frohmann (2004, 2011) places himself in the field of Documentation and gives more or more importance to the study of the document - and, more than this, the materiality of the instruments of knowledge.

Documentation recognizes as urgent an imperative to study ancient, medieval, or early modern documentary practices as those that feature electronic documents. What we do with electronic documents, how such practices are configured, and what they do to us are eminently worthy of study. But the digital form of contemporary documents creates **no special philosophical imperatives**, since the concept of documentary practices **was there all along.** (Frohmann, 2004, p. 406)

Frohmann (2011, p. 59) criticizes the naive vision that approaches the document as mere driver of information. The researcher developed the concept of "documenting", which refers to the capacity and power of the document in its arrangements with other elements of networks, or assemblages, "to generate marks, signs, or traces". According to the researcher, his focus on the materiality of documents is inspired by documentary movements from the turn of the nineteenth to the twentieth, especially in the works of Paul Otlet and Suzanne Briet, who, in his view, insisted on the focus of material objects as documents, citing Famous example of the Briet antelope. (Frohmann, 2011, p. 57).

From the so-called angeletics, Rafael Capurro (1988) seeks a science of messages and messengers, both within the framework of the message-building phenomenon and in the context of action / sharing of the message (Smith, 2000). His interest, according to Smith (2000), would be to find a unified means of understanding information and understanding the role of information at the heart of human life and global society. It is the attempt of a unified definition to clarify the rationale of the concept of information.

In other words, Capurro (1988, 2008) proposes an information theory that is sustained in the theory of the message. It relates to the view that seizes the information society as a "message society" that evolves technologically and culturally. Information is taken as a message that makes a difference, either as a form or as a kind of offering of meaning. For the Capurrian vision, this theory refers both to the Greco-Latin notion of information, and to the communication perspective.

3. The DNA as a document

The term biobank came about in the late twentieth century. The earliest identified employment of the term is from 1985 (GODEC, 186), however, it was only in the second half of the 1990s that biobanks started to be developed in the way they are currently done.

This movement began in Iceland in 1996, when the US company deCode, created a biobank in the country, with high commercial interests. These intentions led to various protests by the Icelandic population and strict legislation was created (Árasonas, 2007, p. 2). Experiences of the introduction of the Icelandic biobank have served as a basis for lawyers, businessmen, researchers and governments around the world.

The emergence of biobanks became constant after the implementation of the Icelandic biobank, however, the growth of these spaces intensified after the release of the complete results of the human genome project in 2003. This project intensified the genetic research and made possible the existence of Large-scale DNA sample repositories.

One of the earliest definitions of biobanks was formulated in 2000 in Iceland and considers biobanks as "a collection of biological samples that are permanently preserved" (ICELANDIC BIOBANKS ACT, 2000 apud RIAL-SEBBAG, CAMBON-THOMSEN, 2010). However, biobanks do not store any kind of biological samples, these institutions are known to store exclusively human biological samples, as the Norwegian health institute points out: "A biobank is a collection of human biological material" (NORWEGIAN INSTITUTE OF HEALTH, 2012).

The term human biobanks usually refers to collections of samples of human body substances (e.g. tissue, blood, DNA) which are linked to personal data and socio-demographic information about the donors of the material. They have a dual nature as collections of samples and data (ETHIKRAT, 2004).

By this definition it is possible to identify, which are the types of biological samples stored, in addition, it is evidenced that biobanks are not mere repositories of human material, but rather spaces for the study and production of scientific information, besides of course, a repository of information of the individuals from which the samples were taken.

Due to the fact that they are large information repositories that foster research, biobanks are already considered as indispensable sites for the production of knowledge. For the Deutsches Biobanken-Register "Biobanks are a key prerequisite for modern medical research. By linking samples and clinical data they make it possible to clarify the causes and the course of diseases." (DEUTSCHES BIOBANKEN-REGISTER, 2017).

Biobanks are basically distinguished by the number of samples stored and the criteria for sample acquisition. One of the largest biobanks in the world is the UK Biobank which has collected DNA samples from about 500,000 British citizens, such biobank, as well as the Estonian biobank and the Qatar Biobank are known as population-based (Kelley et al, 2007), for storing samples of citizens of a specific country in large quantities. But there are biobanks with very specific acquisition criteria such as the Chernobyl Tissue Bank, which stores samples of people who were exposed to radiation during childhood (CHERNOBIL TISSUE BANK, 2017).

In this way, it is possible to perceive that the samples are the central element in, since they are the informational and DNA physical evidences, constituting the main source of biobanks research resources.

Briet is in the canonical tradition of Information Science the first to present the notion of "living documents". For her, far beyond form, the document may be something that was not created by man and does not consist of a medium where information was entered. Obeying the criteria established by Otlet, the document is something that transmits information and works as evidence, and is also something that can generate other documents.

Jean Meyriat, as pointed out by Ortega and Lara (2010), is one of the disciples of Otlet and Briet's work on the document concept. In this way, Meyriat developed a kind of complement to the works of Otlet and Briet in dealing with the purposes of understanding document as object. Meyriat points out that there are two types of document, one that is clearly a document (*document par intention*), since it is a product developed by man to perform this function, and an object that has come to be considered document (*document par attribution*), even if it was not created for it, and, due to any need or circumstance, has become informative. In this sense, Meyriat approaches the condition pointed out by Otlet so that something can be considered a document: the object in question has a function of evidence.

The author states that any object can be considered a document, even if it was not created for it, since it configures a source of information and support for a message. However, Meyriat points out that a document is really only document when used as such, that is, the author does not treat the documents in a binary way (Meyriat, 1981).

This assertion is based on the fact that the will of the creator of the document is not sufficient to sustain it as such. If a document by intention is used for an purpose that is not related to the transmission of information, this object will not be a document, because it will always be necessary to obtain information from the object in question. Thus, even when it comes to a document by intention, that is, anything created to have the function of document, the will of the creator of the document is not sufficient to guarantee that it will be used as a document (Meyriat, 2001, p. 144-145).

Thus, we can understand that Meyriat does not restrict the product of human activity by man-made items, but maintains that any item that undergoes human intervention and is used as a source of information, having the character of evidence, can be considered a document by attribution.

In addition to the document itself, Meyriat shows that a document by assignment needs to legitimize an institution to become a document. The author also states that documents are generated and legitimized by a techno-social system, that is, documents are the fruits of an era and the structures in which its creators (Meyriat, 2001, pp. 151-152).

If, as pointed out by Marteleto and Couzinet: "It is necessary to rethink the document as a permanent polymorphous object" (Marteleto, Couzinet, 2013, p.7), it is possible to consider that such biological samples as documents insofar as they will serve as support for documentary evidence for the generation of other documents composed of written records and whose primary function is to be a document, that is, human biological samples have the necessary functions to be characterized as documents, since they present evidence .

4. "Document man": ethics "for" a library of records of human bioinvestiges

The current condition of biobanks touches, objectively, the views of the neodocumental perspectives and of Rafael Capurro. In other words, the information philosophy, in the Frohmann and Capurro view, linked to a philosophy of the document and to an intercultural ethics of information.

Frohmann (2000) shows us that a contemporary ethics linked to informational dilemmas depends on the consolidation of a critique of cyber ethics, that is, the relation between cybernetics and morality. In dialogue with Rafael Capurro, Frohmann (2000) identifies a post-cybernetic dialectic between bodies and bytes. The author states that the question of materiality constitutes a centrality for the construction of a true ethical plan of criticism of informational dilemmas.

The algorithms as parts in the cybernetic plane of the human body are parts of this same body. We are in a material plane where the subject is the case, and not the machine.

Whatever is special about information ethics derives from the specificity of the information services provided to specific publics. It is therefore analogous to legal ethics, medical ethics, dental ethics, or the ethics of plumbers. Like these other fields, much of what is unique to it consists in applying ethical principles to the specific services it provides. These applications should, I suggest, be driven by an ethics of acknowledged dependence, and a materialist information theory. Once we abandon the animal world for the spectral terrain of angels, where pure information flows from spirit to spirit, we may gain the satisfaction of inhabiting an ethical zone belonging just to us, but we lose the virtues we need to grapple with serious ethical issues. (Frohmann, 2000, p. 434-435)

The subject's perspective emerges as a "material" expression of culture. Ethics is, therefore, a movement of relations between bodies in a cultural context, including the web. It is an ethics that conceives the subject-document, the man-document, but always in the condition of the "other", of the otherness.

The ethics of alterity, opposed to a transcendental ethics, “ethics of the Lord’s eyes”, from the Lord’s point of view, or, still, the “ethics of the angels” (incapable of conceiving and knowing the presence and the power of the presence of a certain Wall), now becomes an “intercultural ethics of information”, capable not only of recognizing that the Wall is there, but of looking for ways of “knocking it down” - if not physically, in its symbolic structure altogether, presenting new possibilities for multiple worlds that exist in each culture. In this context *poiesis* presents itself: the maker of discourses, the poet, “expelled” from the city in a platonic transcendental ethics, and brought back into the scene by Rhetoric and by Aristotelian Poetics, has a voice. Homer, the city’s poet, “pops up” then in the German library thinking the world through words. (Saldanha, 2016, p. 261)

In the sense of the intercultural ethics of Rafael Capurro's and Frohmann's information philosophy structured in the philosophy of the document, the dimensions of alterity and culture stand above a centrality of the "human" as the mark of a universal ethics. Against the universalism of a common ethic, respecting the different materialities, that is, the expressions of life of the subjects in each community, ethics in the genetic plane is, under these philosophies, centered on the condition of the subject-documented in its contextuality.

5. Final remarks

The "libraries of people" are therefore houses recognized as spaces of central ethical tension, where the condition of human alterity must prevail, not of centrality. The biobanks and the condition of the documentary man place us before the limits of barbarism and of a possible humanism. The plurality proposed by Capurro and Frohmann allows us, in our view, to construct the necessary dialogue on the permanent removal of the risks of a barbarism related to the "non-human" uses of "human beings", that is, to prevent Wiener's cybernetics, Applied to the development of biobanks, is no longer a possibility of expansion of life and becomes a weapon for its extinction.

The language of DNA understood as the ability to know the most distinct sub-elements that define the subject in its biological expression can not overlap the cultural subject, that is, the document-man is a historical subject. However, as a document, such subject is susceptible of uses and reuses, according to each socio-historical intentionality.

Biobanks are currently such a borderline condition: the intense production of studies and records on human beings tends to create multiple repositories of human data. These repositories can constitute safeguard reserves of specific cultural problems or turn into core weapons for political struggles and military uses, allowing biomassacres. The histories and philosophical lessons of interculturality and documentality can serve as fundamental ethical models to resolve the risks of such barbarism represented by the second case.

Acknowledgment

This research was developed under the financial support of the National Council for Scientific and Technological Development (CNPq), Brazil, and the Carlos Chagas Foundation for Research Support of the State of Rio de Janeiro (FAPERJ), Rio de Janeiro, Brazil.