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A Deleuzoguattarian Framework for Understanding Information Systems: the Case of Document Retrieval Systems

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Abstract

This paper aims to situate the study of information systems in a broader socio-political context. It is argued that information systems as any other social-technological system can serve as an agent of emancipation and change or as a site for reproduction of dominant power relations and subjugation. To illustrate this argument, concepts, such as, 'deterritorialization' and 'reterritorialization', borrowed from the philosophy of Deleuze & Guattari are adapted and applied to analyze the nature of interaction in document retrieval systems.

Introduction

"... and perhaps one day, this century will be known as a Deleuzian" - Michel Foucault (1977, p. 165). Philosopher Giles Deleuze and psychoanalyst and activist Felix Guattari, individually and collectively have produced some of the most fascinating works of this century in philosophy and critical theory. The vast body of work created by Deleuze & Guattari addresses a wide range of issues related to the structure and nature of representation and signs, the status of interpretation, the relation of language to social institutions, psychoanalytic theory, cinema theory and literary criticism (Bogue 1989, p. 7).

The intricate systems of concepts developed according to the logic of difference and multiplicities and the ceaseless process of becoming in the works of Deleuze & Guattari, unite the physico-chemical, organic and anthropomorphic strata of the cosmos, connecting men and nature, the organic and inorganic, the mechanical and the non-mechanical in a single sphere of interaction. In this new sphere, 'the Mechanosphere' (Deleuze & Guattari, 1987), a new form of life emerges from the amalgamation of the physical and the mental, the natural and the artificial (Bogue 1989, pp. 126-149).

It is this fascinating line of thought that traverses and connects the domains of the natural and artificial, the social and the mechanical, makes the philosophy of Deleuze & Guattari profoundly relevant for the examination of the impact of information systems on our subjectivity and the society as a whole.

In the following sections a number of concepts developed and used by Deleuze & Guattari, in particular, the concepts of 'deterritorialization' and 'reterritorialization' are introduced and applied to analyze the nature of interaction in document retrieval systems. It will be argued that information systems as any other social-technological system can serve as an agent of emancipation and change or as a site for reproduction of dominant power relations and subjugation. It is hoped that the analysis of document retrieval systems presented in this paper would serve to illustrate how the concepts borrowed from the philosophy of Deleuze & Guattari can be used to facilitate an understanding of broader social and political contexts of information systems.

Deterritorialization and Reterritorialization: Machinic Arrangements

Deleuzoguattarian conception of the cosmos as seen from a Nietzschean outlook is a ceaseless process of becoming of a multiplicity of interconnected forces (Bogue 1989, p. 150). It is an endless cycle of metamorphosis, of production of productions: "Hence everything is production: production of productions, of actions and of passions; productions of recording processes, of distributions and of co-ordinates that

serve as points of reference; productions of consumptions, of sensual pleasures, of anxieties, and of pain" (Deleuze & Guattari 1977, p. 4).

Production of productions or the 'connective synthesis' is an interconnected series of 'machines' that build chains arranged in the form of "... and then ... and then ... and then ..." (ibid, p. 36).

A machine is defined as a system of interruptions or breaks and flows in Anti-Oedipus: ... every machine functions as a break in the flow in relation to the machine to which it is connected, but at the same time is also a flow itself, or the production of flow, in relation to the machine connected to it" (ibid).

It is important to note that, these machines are not necessarily mechanical or cybernetic systems. They can be biological machines, such as the 'mouth'; socio-technological machines, such as the 'penal system'; or the entire socio-economic systems, such as 'capitalism'.

This system of breaks and flows or breaks-flows produces endless flux of matter which each machine in the series cuts into. The 'mouth-machine' for instance cuts off the flow of milk (food) and the flow of air and sound.

Each machine in a binary, connective series functions both as a break and a flow. The mouth-machine extracts milk from the breast-machine, which is then passed to the stomach-machine which extracts from it enzymes and other substances, which is passed to the intestine-machine, and so on.

Each machine in a connective synthesis therefore, extracts or 'deterritorializes' the flow preceding it and simultaneously converts ('reterritorializes') it into a new form or code (e.g. conversion of milk into chyme in the stomach).

Capitalism or the capitalist-machine, for instance, is connected to the epoch or regime that historically precedes it, the (despotic) state-machine. To put simply, the capitalist-machine extracts an abstract flow of labor (deterritorialized workers) and an abstract flow of capital (deterritorialized money) from the old regime by establishing a generalized law of exchange that allows aleatory substitution of everything for everything. Instead of the fixed and limiting relations between men and things of the old regime, an abstract equivalence between goods, and between goods and men, is installed in capitalism (Bogue 1989, pp. 100-101).

While labor and capital are deterritorialized by the generalized law of exchange, they are simultaneously reterritorialized by the capitalist-machine which puts them in the service of its own ends, i.e., profit (ibid).

The capitalist system is the limit of all social systems according to Deleuze & Guattari, which works by deterritorializing old codes and inventing ever more abstract relations. For this reason, it has both the absolute force of positive deterritorialization which feeds scientific and artistic creativity and repressive reterritorialization that converts everything back to the commodity form functioning under the tyranny of the exchange law of value.

Deterritorialization/Reterritorialization of Texts: Document Retrieval Systems

Information machines, like biological or social machines, constitute parts of larger networks that include other machines and function both as breaks and flows in relation to the machines associated with them. Document or information retrieval systems constitute part of machinic arrangements that include social and technical machines. A document retrieval system may, for instance, operate as a part of a research (i.e. knowledge production) and/or an education (i.e. knowledge reproduction) system.

Texts in document retrieval systems (except in some smaller databases) are almost universally represented as indexes made up of single terms, or in some cases, phrases. Similarly, user's query in a document

retrieval system is expressed as a list of atomic units of keywords. In boolean systems keywords are combined with logical operators AND, OR and NOT. In statistical/probabilistic systems user's query is often expressed as a list of keywords associated with some score or weight (Salton & McGill, 1982).

Document retrieval systems, hence, deterritorialize both documents and user queries by dividing them into atomic units of keywords removed out of their original context. The retrieval operation is performed by matching the decontextualized keywords in the query with the similarly decontextualized keywords taken from the documents.

The task of document retrieval is widely accepted to be a sort of *context control*, i.e. to match the query terms and index terms according to their original context or intended use. Obviously, such a context control (reterritorialization) can only be achieved if the context of the user's information need and the context of use or meaning(s) of each of the documents in the database could be fixed or anticipated. The bulk of the current document retrieval research consequently endeavour to develop systems that attempt to anticipate use of documents to information needs (queries) assumed to be static or determined.

It has been recently argued that (Karamuftuoglu, 1996; 1997), although such systems could be used to facilitate *effective* transmission of information from databases to the users who have fixed or determinable needs, they are ill suited for the situations where the user's information need(s) could not be foretold (anticipated) with certainty. While the former situation is typical of the didactics case (learning, education), the latter is specific to the process of knowledge production (e.g. research) where new knowledge is created by 'inventing' unforeseen connections between documents that hitherto thought to be independent of one another (ibid).

Hence, it is possible to identify two mutually exclusive uses of the document retrieval technology. It can be used for reproduction of accepted ideas, beliefs, and power/knowledge structures (the task of education), by building machines that reterritorialize texts. This process involves such context control means as, subdivision, exclusion, and hierarchization. The document retrieval technology can equally be used for creation of new knowledge, new thought possibilities and creative lines of thinking that escape totalization, by building machines that deterritorialize (decontextualize) texts. This enables multiplication of the connections between documents by juxtaposition and lateral association.

Conclusion

Document retrieval systems deterritorialize texts and queries by extracting atomized units of meaning (keywords) from them. This is the creative potential of document retrieval systems. Absolute deterritorialization of texts and queries has the potential of enabling creation of unforeseen connections by multiplying the interpretive potentials of documents which often leads to production of new knowledge.

However, most current systems are designed such that, the deterritorialization process is immediately followed by a second act of reterritorialization which attempts to fix the meanings and contexts of use of texts and queries by putting them back in the service of anticipated needs.

Document retrieval systems like any other technology can be used for inventing creative thoughts that escape established structures. They can equally be put in the service of reproducing existing power inequalities. Document retrieval systems like other types of information systems, thus, constitute a site for power struggles.

The significance of Deleuze & Guattari's thought for analysis of information systems is that, it makes possible to trace the power relations that operate across the heterogeneous spheres of the social and the mechanical by connecting both domains.

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