BOOK REVIEW[1]

The Information. A History, a Theory, a Flood.

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What is information?

This is probably the main question driving the reader throughout the book, which is presented as a comprehensive review of the concept of information, its history, meaning and role in modern society. In 437 pages, Gleick takes the reader through the discovery of the "historicity" of the concept of information, exposed through the main theorists implied in the process.

The book is full of interesting references to the history of information theory, but unfortunately lacks the theoretical rigor of an academic account of the topic. The reader can find really inspiring stories and draw out powerful insights about what information means, but also finds awkward reflections about its essence and about how the concept should be understood. On the positive side, we can mention the relevance of redundancy in language, a point that is wonderfully explained in the description of the drums' communication language, as well as in the process of breaking cryptographic codes. On the negative side, we should mention the Epilogue and its loose reflection around the meaning of *meaning,* that ultimately confuses information with knowledge, and thus presents networks and "the internet" as a social agent that "is changing the world".

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[1] The book review was part of the work for the PhD course *Theoretical traditions in Information Studies: Science and Technology Studies*, by Professor J.F. Blanchette. IS Department at UCLA.

The history of information's discovery

The book begins by introducing the historical background prior to the development of information theory. The first chapter about the drums communication system works as a "heating up" introduction that gives the impression that the book is going to offer a very comprehensive account of the concept and the history of information[2]. The next two chapters continue in the same way, talking about the origins of the written word (chapter 2) and the creation of dictionaries in modern languages (chapter 3).

These three chapters manage to give a good background to help explain the nature of information, presenting language as a social construction, which also implies that its final form is contingent (as opposed to necessary) and based on conventions. In them, the nature of language is explored in the review of the drums communication system, the first forms of writing and the way that signs captured meaning in marks or paintings in stones.

Chapter 4 and 5 also follow an historical perspective, but the focus changes from information as meaning embedded in language to mechanical processing of information. Then Gleick's argumentative thread begins to unravel, even thought the historical description is still highly interesting and suggestive. In chapter 4, the story of the visionary Baggage and his intellectual relationship with Lovelace in the project of the computational machine are quite interesting, particularly because they represent a neglected part of the "history of the information age," and also because the author uses the story of Lady Lovelace to make a point in favor of gender equality[3]. Chapter 5 tells the story of the

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[2]   It also remembers to the book African Fractals, and connect with what seems to be an American trend that we could name as "speaking in behalf of African knowledge" in order to incorporate a sensitive approach to ethnic diversity. However superficial this atitude could be, it can make a good impact, like the courtesy forms that, even if they are not expressions of sincere affection, serve to express consideration and respect. In this case, it serves to give relevant information to the reader and can provoke insights that are not obvious at first glance.

[3]   Even though the author does not say it directly, the way Lovelace's life is portrayed in the text clearly represent an argument in favor of women's right to work and express their interests and abilities in any social sphere.

telegraph and the development of a wide communication system aid by electricity, inspiring for the first time the idea of a word connected by a network of wires.

In chapter 6, the book introduces Shannon, the main character of Gleick's narrative on information. The rest of the book circles around his figure and his theoretical developments, like the application of Boolean mathematics to electrical computing. The next chapter is dedicated to the Information Theory by Shannon and Weaver, which brings the reader to cybernetics and to the extension of the concept of information through many different fields in the second half of the 20th century. In these chapters, there are also some anecdotes and historical narratives about the relationships between scholars. In this sense, the description of the Cybernetic conferences is particularly interesting, where some prominent scholars had discussions about the concept of information and its role in the scientific comprehension of the world. All of these details can be very entertaining, but they can disrupt? the focus from the main theoretical point that the book tries to address.

The theoretical thread that the book offers

The Gordian knot that Gleick is trying to present[4] in this book is the relation between meaning and code. One of the deepest insights offered in this book is the relevance of redundancy in the process of embedding meaning in communicational codes. The story of the drums introduces this idea, portraying drum language as a communication system based on repetition of codes that confirm the meaning of a message. The relevance of redundancy is also confirmed by the way cryptographic codes can be broken by identifying patterns and repetitions, which implies that languages are built through the recursive use of letters and signs to capture and express meaning.

However, there seems to be a separation of meaning from code, and the main point of the book is to reflect about what means[5] to strip the concept of information from that of meaning. Gleick's account of the original processes of embedding meaning – the things people want to say or write – in language is

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[4]   He is not even trying to solve the knot, untying or cutting it, he is just presenting it as a problem, and maybe giving some hints on it, but nothing more.

[5]   Note how difficult it is to even talk about these issues without using the verb to mean.

not enough to help him when the challenge to the relevance of meaning is introduced by Shannon's and Weaver's modern information theory.

The deconstruction of language into smaller pieces of information, like the phonetic alphabet or Shannon's "bits' (atoms of information) is what appears to enlarge the distance between code and meaning. Gleick presents this process of informational deconstruction as an inevitable trend leading, finally, to the discovery of the binary code[6], its application to communication and computation, to the particular interpretation of information proposed by Shannon and Weaver, and, in his own way, by Wiener.

Although we could take the idea of a cultural evolutionary process of deconstructing information to make it more useful and "computable", a particular formulation of the information theory can be only explained through the contingent decisions and propositions made by certain persons in certain moments. In his narrative, Gleick accepts the interpretation brought by these theorists without reconsidering the contingency of the framework that produced it, and without offering any new insights or points of view.

In fact, what Gleick interprets as a challenging Gordian knot might have an easy solution if we consider the stripping from meaning as only related to the "engineering problem", as Shannon himself presented the issue in his seminal work. That Weaver, Wiener or any other theorist tried to make a major claim and extrapolate this idea to a general interpretation of the world, does not necessarily *mean* anything. Aside from the intellectual and aesthetic impact of their theories, they do not seem to present any proof or major argument that could challenge the relevance to such a key concept as 'meaning'. As an engineering problem, the transmitter of messages does not need to understand or think about its meaning, but the ends of communication are more concerned with the meaning of a message than its means.

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[6]   For a further reflection on the possible interpretations of the binary code, it seems relevant to mention the I Ching, one of the oldest books of the Chinese tradition that uses a binary code to build a comprehensive philosophical account of the word.

Conclusion

We can create an information theory without taking into account the concept of meaning, but it will not capture the human or cultural dimension of information, just its forms and external manifestations. Meaning is the very essence of thought and communication, without it they would be pointless (meaningless). So, instead of refusing the challenge to meaning proposed by Weaver and Wiener or making the effort to find the flaws on their discourses, Gleick takes them seriously and he is only able to react haphazardly to them trying to defend the relevance of "meaning," by expressing his opinions in the Epilogue. In this way, the end of the book contrasts with the beginning, in which the reader can find good hints about the process of "embedding meaning in code" through repetition and shared experience, but in the way of telling the story of information, Gleick loses his grip on the essential concepts and gets dazzled by some modern theoretical approaches to information theory.

Bibliography:

Gleick, James. (2011) *The Information: A History, a Theory, a Flood*. New York: Pantheon Books.

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