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## **ABSTRACT**

Building off our previous work to re-conceptualize Web technologies through social theory, the following contribution presents a close reading of Foucault's discussion of "truth" as it relates to the Semantic Web. Specifically, we offer a position which looks at the discourse of science as applied onto the Semantic Web - and in a larger sense the entire Web - challenging the notion of scientific truth. We begin with Foucault's theorization of truth, then move into *why* we believe it can be applied to the Semantic Web. This piece concludes with a discussion of how such technologies complicate social theory and scientific inquiry.

## **Author Keywords**

Foucault; social theory; semantic web

## **ACM Classification Keywords**

H.1.1. Systems and Information Theory (E.4)

## **General Terms**

Theory; Human Factors

## **INTRODUCTION**

In an attempt to understand the nature of a social web, interested researchers stand at the intersection of a complex, yet opportunistic juncture. Research of this constitution requires a fluency in both social science and computer science. It is at this crossing that the strength of Web Science, unlike other disciplines, is its priority to interdisciplinary research and to creating collaborative spaces like the variety of Web Observatories. This approach is in some ways a natural reflection of the Web's open infrastructure. However, the challenge lies in keeping pace with its continuing evolution. Already, we find the Web moving towards a more graph-like structure presenting broader, more complete and more complex relationships among pieces of data.

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Efforts by the Semantic Web and Linked Open Data communities advance this multiplicity and interconnectedness by promoting the aggregation, standardization, and integration of online data. Proponents suggest such efforts ease the burden of sharing once incongruent data sets leading to an increase of multi-disciplinary research. Conversely, opponents offer more epistemological objections questioning its overall effect on scientific inquiry.

The following contribution explores such critiques by shifting the discourse of the Semantic Web away from our technical understanding to one that brings discourse into the Semantic Web as a science. Our goal is to re-imagine the notion of scientific "truths" within the context of the Semantic Web. Especially since much of how we conceptualize the Semantic Web, or linked data, is as amorphous, apolitical data; and yet, simultaneously this data is assigned a status of truthfulness. We contend that while such technologies offer a more complete knowledge graph, it is not absolute, perfect, or consistent. Instead, this "completeness" gives way to disagreements, different truths, facts and ideologies. Such a discussion is crucial to have because with the adoption of the Semantic Web, it is apparent that the discourse of "truth" is being applied to the it from outside the field of Web Science. We push further arguing that such dimensions, like truth and power, need to be acknowledged before any kind of assertion of "what it is" and "what it is not" can be made.

## **FOUCAULT'S TRUTH**

It is our opinion that a Foucauldian perspective of truth illuminates best the influence of society on the formation of truth. The discussion of "truth" - and the discourse of truth, as applicable to a process such as the Semantic Web - is to be understood as a system of ordered procedures for the production, regulation, distribution, circulation, and operation of statements. 'Truth' is linked in a circular relation with systems of power that produce and sustain it, and to effects of power which it induces and which extend it" [3]. More simply put, what humans tend to hold for truth is a product of social contexts considered to be true. This inter-

Foucault asks that we further explicate human communicative practices, such as a researcher submitting to an academic journal, and criticize how in this interaction, one party surrenders the implicit formation of a social reality and the generation of knowledge. The researcher - through his or her simple act of submission - *plays* into the typically accepted and constructed discourse of what constitutes a “researcher.” This understanding is critical as we move the discourse of science into our own exploration of the Semantic Web. For this discourse, with its established truths and methods for validation, is challenged by semantic practices wherein context shapes both how the tool is developed and used as well as the interpretation of its results (in this case, the data). Here, we find agreement in critiques of its potential to reshape knowledge formation and to a greater extent, scientific research. Yet, we offer that a reinterpretation of this should consider the strengths it contributes to the scientific community.

### TRUTH(S) OF THE SEMANTIC WEB

One may begin by asking, *why focus on the Semantic Web?* It is in our belief that the Semantic Web operates as a subset of the Web. Genealogically, the Semantic Web and the Web are interconnected sharing principles of openness and the absence of absolute truth. Yet, unlike the Web, the Semantic Web allows for further annotation and the consideration of context by the machine.

In situating the Semantic Web as a discourse, it is essential to understand it as a scientific text “positioned within an anonymous and coherent conceptual system of established truths and methods of verification” [2]. That is, it is essential to illuminate how the Semantic Web receives its relegation of truthfulness. First, we consider its deliberative design influence from the artificial intelligence and knowledge representation community. An example of this is the use of first-order logic in order to enable inferencing over ontologies. Specifically, the best practices for building models of the world and how agents, like computers, interpret this information.

Furthermore, when applied to a conceptualization of the Semantic Web, we highlight the technology’s allowance of different viewpoints, ideas, or “truths” at the data level, making explicit where exactly these disagreements take place. This is a key differentiation from the Web in general, wherein authentication of resources often comes into question. The technology’s use of provenance (histories) of data

theorize: *what discursive effects, if any, does the researcher create in manifesting these truths?*

### MULTIPLE TRUTHS

One of the guiding principles of the Semantic Web is the ability for anyone to be able to say anything about any topic. This principle helped make the World Wide Web the “successful” and transformative technology it has become today. Yet, due to this principle, applications that use the Semantic Web can never assume that they have access to all the information about a given topic, or that this information will be consistent. The Semantic Web – because of its infrastructure - must allow people to make even nonsensical or inconsistent assertions which may still work. These two assumptions or design principles (the Open World assumption and the Three As Principle) help to create a digital platform where many truths (created by, interpreted, and maintained by many people) can co-exist together.

### CONCLUSION

To conclude, in situating the semantic web within a discourse of truth, it is advantageous (for the time being) to situate the Open World and the Three As Principle as overarching truths; and, to not assign these assumptions the status as “absolute” truths.

It is in our opinion that these overarching truths construct an ecology of truth—from which any truth, constructed onto the semantic web, comes about. And any and all “truths” constructed onto the Semantic Web arise from this overarching circumference, which makes allowances for “contexts of varying scope” [1]. And as the Semantic Web allows users (and engineers) to develop truths and knowledge it is important to understand that “the *strength* of knowledge lies not in its degree of truth, but in its age, its embeddedness, its character as a condition of life” [4]. The Semantic Web’s “life” (if we can even assign it this quality) has always depended on this embeddedness: its ability to syntactically construct connections and bridges between points of data. It is in our opinion that the role of truth in Semantic Web theorization will continue to highlight points of convergence, and departure, from truths constructed by the discourse of Web Science that enter into other more public and less “scientific” discourse.

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