

An ontology of the Web?

From *words* and *things* to *URIs* and *resources*: the Web as a mediator of philosophical questions.

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Considered from the point of view of its architecture, the Web is an extraordinary artifact. While initially both conceived and perceived to be nothing more than a rather plain traditional hypertext system, specific inasmuch as it was decentralized, such a small difference eventually proved significant beyond recognition. Indeed, instead of files or documents addressable online, the entities primarily known on the Web are resources, identified by URIs instead of URLs, also known as universal "Web proper names" whose expressions are accessible.

Such resources are more abstract or generic than either documents or files. They correspond to what is being published, presented and discussed on the Web: my homepage, the daily news, a friend of mine, Aristotle, the moon, a concept, a square triangle, etc. – obviously, not all of these resources share the same status. According to a received distinction, resources come in two kinds. Some are thence called "non-information resources" (NIR) and others "information resources" (IR). As the boundaries between that which is online and that which is not are gradually becoming more and more blurred, especially with the Web of objects, augmented reality and ubiquitous computing, the distinction calls for a finer treatment.

To make sense of resources we must first make sense of the Web as a whole. The sociology of science was instrumental in the recognition that some facts were produced as much as discovered. We now need a reverse understanding of world-artifacts like the Web because "more", in this context, certainly means "different". The received narration takes it that artifacts and other human creations seem at first to be accountable in terms of their function, akin to a pre-defined script, whereas it is in fact everyday users' practices that performatively constitute their ever changing essence. We'd argue in favour of a different understanding of the Web. While we should not commit the mistake Don Ihde rightfully called the design fallacy, and take the narrative produced by the creators of the Web for granted, we shouldn't assume on the other hand that lay people necessarily hold the key to a better understanding of the Web.

If there's a science of the Web and even an ontology or metaphysics of resources and proper names, as we'd argue, it means that a contingent stack of humans and non-humans produces an artificial reality whose "nature" must be carefully elucidated. This process associates creation and discovery as evidenced in the standardisation activity of the W3C. Standards are "quasi-object" in the Latourian sense. Material norms, as much descriptive as they are prescriptive as betoken the heuristical use of the notion of "good practices". Good practices are a guiding principle, not unlike Kant's regulative ideas, that must equally take into account the various ways an artifact is to be used (successfully or not) and its "nature". Of paramount importance to understand and devise technical technological devices, this notion associates the power of invention (the Web as a transparent man-made artifact) and discovery (the Web as an opaque non-human).

Contrary to common belief, the word "ontology" wasn't invented by Aristotle to describe the study of Being qua Being. In fact, it was crafted about twenty centuries later, long after the *Metaphysics* was written; needless to say, in a very different intellectual landscape. Late scholastic thinkers like Goclenius, Lohardus or, more significantly, Suarez, were instrumental in the deep reshaping of metaphysics that took place after Jean Duns Scot,

leading to a new understanding of that discipline, henceforth held to be tantamount to a theory of objects (incidentally, this is a definition that can very well apply to computer ontologies). Objects, whether existing or not, somehow became the subject matter of metaphysics itself. The word "ontology" has another – related - meaning. When French famous sociologist of science turned metaphysician (lately), Bruno Latour, describes the ontology of law in his ethnography of the Conseil d'Etat, he characterizes this ontology as one of inscription and imputation. Facts, to hold in a judicial reasoning, first need to be "qualified", they're no longer the "natural" facts of scientists. Similarly, it will be argued that the Web has its own ontology. What this complex assemblage of standards, people, protocols, formal languages, document formats, etc. does to philosophy and metaphysics in particular, is to technically instantiate an ontology of resources or, to put it in terms that resonate with Latour's description, qualify objects as resources – this clearly resonates with Bruno Bachimont's idea of a techno metaphysics.

One of the most important ontological features of resources is that they exclude individuals. For something to exist (hence, as a resource) on the Web it must possess a certain degree of genericity. We will argue that this genericity is to be made sense of according to the Open World Assumption (OWA) at the root of the architecture of the WWW. As we shall also see, it must be accounted for either in terms of rule-following, the central wittgensteinian trope, or in terms of the intrinsic dual-sided temporality of resources. Resources, a little bit like Aristotle's substance, are sundered between what changes (their expressions) and what doesn't (the resource itself). As the Web is spreading, things, or rather objects, are, in its wake, treated as resources, thus leading to a completely renewed understanding of time and objects, a paradoxical reassessment of the materiality of digital artifacts, new criteria of identity, the disappearance of pure individuals from this picture and the generalisation of a rule following mechanism entrenched within existing protocols (HTTP1.1 in particular).

Our central hypothesis is that the founding principles of the Web gave birth to this metaphysics because they borrowed ideas from a philosophical tradition that is concerned with things (the one French linguist François Rastier would call "referentialist"). It doesn't mean this tradition is the only one. But for a system like the web that "artifactualizes" the link between words and things by retrieving a realisation and/or representation of the resources being referred to (the Web being an intentional artifact in Daniel Dennett's sense), it certainly constituted an adequate framework.

The philosophical tradition(s) that permeates the Web, is(are), for the very first time, realized in a concrete technological system, which also means, at the same time, turned into something radically different. The mediation of technology here proves manifold and dynamic. By putting ontology(ies) in the world by making it concrete (this process being one of "grammatisation", as Bernard Stiegler puts it, or discretization, it can be traced back at least to the ancient Greeks, with the birth of greek logic, metaphysics, ontology, grammar and mathematics...), humans devise artifacts that give birth to new ontological categories that must be put back in the picture they originally drew of a world they modified and that, in turn, modified them.