Semiotics and "The Internet of Signs"

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This paper introduces the concept of the "Internet of Signs." In particular, this paper brings together notions from semiotics and the "Internet of Things" to provide an alternative framework, resulting in the "Internet of Signs" that refers to signs generated across the Internet by the broad base of heterogeneous sensors, devices, databases, knowledge bases, social media and other sources (ultimately, "big data") available on the Internet. In so doing, this paper also integrates theoretical constructs from semiotics and the "Internet of Things" to facilitate analysis of events, behaviors, reputations, etc.

The "Internet of Things" generally refers to the notion that many different "things" (devices, databases, people, etc.) are connected to the Internet and thus can be connected to each other. "Things" are potentially autonomous, semi-autonomous, or not autonomous. "Things" can be sensors, RFID tags, databases, other devises, software or even information from social media, such as Twitter or Facebook. "Things" can gather information and knowledge from other "things." As they are networked they can become more autonomous, as they interact with other "things." Further, the composite of the network and "things" can be more than the individual "things" as "network effects" develop among the "things." For example, O'Leary (2006, 2008) investigates notions of the development of autonomic supply chains that combine many different data sources and capabilities.

Semiotics is the study of signs, with a history that includes Greek Philosophers, Ferdinand de Saussure, Charles Sanders Peirce, Joseph Schumpeter and others. Many different phenomena can generate signs. Eco (1978), in his "Theory of Semiotics" generated a range of topics in semiotics, including formalized languages, written languages, text theory, mass communication and other issues. Accordingly, signs permeate communication. Further, semiotics occurs within specific disciplines, including for example, medical semiotics (Eco 1978) and economics, such as Schumpeter's analysis of entrepreneurism and business cycles that apparently paralleled Peirce's semiotic research (Swedberg 2012). However, signs also may be generated from non-linguistic information. For example, visual communication also is included by Eco (1978).

Semiotics has been used to capture multiple types of signs. For example, semiotics can be used to investigate apparent "symptoms" of behavior and events. Culler (1981, p. 30) noted as part of semiotics that "Someone … might investigate symptoms as signs of prior causes and seek to reconstruct a history of … events." "Symptoms" provide "signs" of potential causes of behaviors and events. Further, changes in those "symptoms" also may be signs.

There has been an analysis of "things" in semiotics, however, the concern is not with the "things" but instead the signs, symbols and concepts that the "things" present and represent. For example, as noted by Langer (1942) "Symbols are not proxy for their objects but are vehicles for the conception of objects …. In talking about things we have conceptions of them, not the things themselves; and it is the conceptions, not the things, that symbols directly mean."

In addition, "things" ultimately generate the information on which signs about those "things" can be based. As an example, in economics, semiotics has used metrics based on issues such as price trends, sentiment and even slogans as a means to investigate phenomena such as behavior and events in the stock market (Dorsey 2003). Ultimately, either directly or indirectly, "things generate signs."

Further, in semiotics, in analysis of Saussure, Chandler (2009) notes "primacy is given to relationships rather than to things – the meaning of signs is seen as lying in their systematic relation to each other, rather than deriving from any inherent reference to material things." From the perspective of semiotics, "the relationships between things generate signs."

Signs are embedded throughout the Internet, generated from a wide range of "things." For example, signs are in different Internet media, e.g., blogs, wikis, comments, Twitter messages, Youtube, etc. As a result, research has been done on finding signs of "sentiment" in blogs or "reputation" from information on the web (e.g., O'Leary 2011). This research can be interpreted as resulting in the generation of signs from "things." Researchers have taken the implicit information and knowledge available in blogs, etc., and begun to determine the nature of "signs" in those media, in order to make signs and knowledge about them, more explicit.

As a result, from the perspective of semiotics, rather than concern for an "Internet of Things" there is concern or interest in what I would call the "Internet of Signs." In particular, how does the "Internet of Things" manifest themselves as "signs" or the "Internet of Signs" and what are the relationships between the "things" and signs of "things"? Ultimately, the relationships between "things," conceptions of things, symptoms of behaviors, and metrics of sentiment generated from sources such as social media, can provide a basis to better understand behaviors, events, reputations and other issues.

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