


3.17 Linking Implicit with Explicit Semantics: An Initial Position Statement

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Linking implicit with explicit semantics has been one of the original challenges for the Semantic Web: How can we semantically annotate web pages such that both machines and humans are augmented in exploration, navigation and cognitive tasks such as understanding? Much progress has been made with regard to for example linking data sources (e.g. via Linked Data), annotating HTML pages (via e.g. Schema.org) or annotating scientific literature (Bioannotator). Yet these attempts can only be seen as a first step towards a more comprehensive and more systematically interwoven Semantic Web that seamlessly integrates implicit semantics with explicit semantic representations irrespective of type, format or medium. For example, algorithmically annotating images with adequate and valid semantic descriptors still represents a major challenge. Semantically annotating short texts or the novel language (emojicons, slang, hashtags, etc) that is emerging on social media such as Twitter or Facebook represents another challenge that is far from being solved by the current state of semantic and/or natural language understanding methods and techniques. Finally, assigning accurate semantic descriptors to academic or other domain-specific textual resources that require deep background knowledge for proper understanding represents another example of a challenge that has not yet been met.

At the same time crowdsourcing has emerged as an interesting alternative solution to problems that can not be solved with algorithmic approaches alone. Human judgements organized in micro workflows, and augmented with algorithmic approaches for optimization and quality control have the potential to expand our arsenal of algorithms with a flexible, on-demand oracle that could help address some of the fundamental challenges for the Semantic Web. Understanding and managing the potential of crowdsourcing for linking implicit with explicit semantics should represent a pressing challenge for Semantic Web research and the Semantic Web community at large. This needs to include tackling questions related to the design of proper incentive structures, the development of adequate approaches to quality assurance and to novel approaches to evaluation.

3.18 Opinions and Aims in Participatory Sensing

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One of the imminent societal challenges is climate change. Both the avoidance of further climatological changes as well as adaptation to them requires significant changes of our societies and economies and of our individual and collective life styles. The enforcement of novel policies may be triggered by a grassroots approach, with a key contribution from information and communication technology. Nowadays low-cost sensing technologies allow the citizens to directly assess the state of the environment; social networking tools allow effective data and opinion collection and real-time information spreading processes. Moreover theoretical and