Medical natural language understanding as a therapy for "arachnidism" and "arachnofobia"

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When a new technology pops up, one usually sees two kind of reactions. The early adopters jump onto it without being disturbed by any concern with respect to fundamental questions such as "does it really works and if not now, when?"; or "does it fulfil my goals ?", when taken from the end-user side, or "is it in line with other internal developments ?", or "do I really understand the underlying background ?", when taken from the side of candidate developers or researchers that envisage to contribute to the development of the new technology. They show a dangerous lack of caution. At the other end of the line, there are the critics, if not to say criticasters, that reject the new technology not on fundamental scientific or economic grounds, but simply because it disturbs the way they have been doing things previously, and that scares them off terribly. Projected onto the vision of the Semantic Web - yes, I still prefer to refer to it as a vision, rather than a technology – there are the guys that aren't afraid and get bitten by the spider, developing arachnidism as a consequence, and those that are so much afraid, that they ridiculise or reject any web-alike stuff they encounter. These are the arachnofobiacs. Attitudes such as these are encountered in people belonging to different communities, but for some mysterious reasons, are over represented in the world of healthcare IT, with an arachnofobic bias towards the users, and an arachnidic bias towards the developers. These biases even have a negative impact on each other: users do get disappointed by the unwarranted promises of developers that seriously underestimate the real (read, "current lack of") possibilities of the state of the art, or that shamelessly sell "electronic dictionaries" for "ontologies" and XML-parsers for powerful text-understanding systems. As a consequence, there are easier markets to sell semantic web enabling technologies in than the Healthcare market.

Despite this, we seem to have found at least one correct approach to be successful in this domain, and that well before the term "semantic web" was even invented. This should not be that much of a surprise because the problem that we originally wanted to solve – how to match up the need of the physician or nurse to document patient histories, diagnosis and procedures using natural language, with the need of administrators and resource managers to get cleanly structured data suitable for computer processing and analysis – is without very few modifications applicable to the semantic web. After all, the semantic web can only work properly when the billions of web pages, the big majority of them being in natural language, are properly tagged; a job that cannot be achieved without adequate natural language understanding technology.

In this talk, I will discuss the various technologies that we deployed so far to assist hospitals, medical practitioners, pharmaceutical companies and web portals in their core activities and how they will be applied to support the semantic web. These technologies include a large scale formal ontology management system, a huge medico-linguistic ontology, and a semantic document indexing system.