## 8.2 Where Next?

The Semantic Web is still growing and changing. Existing technologies are being refined and new ones are being developed. Broadly speaking, there seem to be several major research directions that are actively being studied:

- Reasoning in context. This is the ability to make inferences depending not only on the knowledge given but also on the situation the application is in or where the knowledge came from (its provenance). For example, you may trust a given data source about apartments if you are just at the beginning of your apartment hunt, but not when it comes down to making a final decision.

- Large-scale reasoning. As the amount of data on the Semantic Web has grown, the ability to reason with it has become more difficult. Projects like the Large Knowledge Collidor (http://www.larkc.eu) have shown the ability to do simple rule-style reasoning with billions of triples. However, as the complexity of the semantics grows and the amount of data and knowledge continues to explode, there will be a need for better and faster reasoners.

- Distributed querying. Standard practice today for using distributed sources of knowledge on the Semantic Web is to centralize the knowledge by capturing it from its various sources. This is done for purposes of efficiency. However, it still an open question as to how to use, and in particular query, these distributed sources of information without the need for centralization.

- Streaming knowledge. Semantic Web technologies primarily deal with static or slowly changing information. This situation is rapidly changing as information is being produced by sensors, microblogging, and other sources at an ever-increasing pace. There are open questions about how to extract, reason, and make use of semantics from such streaming data sources.