In this special issue you find the best five papers out of a lot of 86 papers submitted to the Semantic Web track at WWW-2005 and presented at Chiba, Japan, in May 2005. What we found stuck out about the Semantic Web track 2005 was that it did not stick out. During submissions as well as during the shaping of the final programme it remained unclear many times, whether a paper would better go to the Semantic Web track or one of the other tracks. This indicated clearly that the Semantic Web is not a discipline separate of the rest of the Web — even though it has indeed its own foundations, some of which we see below. Rather, the Semantic Web now weaves tightly into the fabric of current day Web technologies. We take this as a very healthy sign of where the Semantic Web is heading today.

Let us now consider a paper about **Semantic Web Foundations** first. It provides an elegant formulation to state a context and refer to it by the concept of a *named graph*:

**Jeremy J. Carroll, Christian Bizer, Pat Hayes, and Patrick Stickler:**

“**Named Graphs**”

Though RDF was set out to support metadata annotation for multiple resources, until the formalization of a scheme as the one here, it has never been *easily* possible to attribute RDF data to a particular context or resource. Thus, this paper provides foundations to such diverse needs as evolution, representation of provenance information or access control — and provides an important contribution to a revision and extension of RDF.

Next comes a paper about **Semantic Web Development**. Everyone who has ever built a description logics knowledge base of only medium size has found out that a system response like “this knowledge base is inconsistent” is only slightly more helpful than a “page fault” during software development. Therefore, all ontology engineers will appreciate the following contribution.
Semantic Web Querying featured prominently in the conference and in the ongoing discussions about SPARQL and its likes. The contribution —

Haifeng Liu, Milenko Petrovic, Hans-Arno Jacobsen:
“Efficient and Scalable Filtering of Graph-based Metadata”

— tackles the problem from a non-standard angle by considering continuous queries and the need to handle such continuous queries in a most efficient fashion — a significant problem when considering all those daily RSS feeds!

Then, two papers deal with the second generation of Semantic Web Services:

Vikas Agarwal, Girish Chafle, Koustuv Dasgupta, Neeran Karnik, Arun Kumar, Sumit Mittal, and Biplav Srivastava:
“Synth: A System for End to End Composition of Web Services”

This contribution shows that a successful Semantic Web Service environment will have to include the complete life cycle support for Semantic Web Services and offer a layered approach for this purpose.

Finally, Sabou et al. consider a crucial bottleneck of Semantic Web Services. While automatic composition of Web Services is heavily discussed and now treated to increasing extents as in the previous contribution, what is often ignored, is the actual annotation of the Web Service with semantics. Sabou et al. consider the difficult issue of providing the appropriate domain ontology for the annotation by efficient means of ontology learning.

Marta Sabou, Chris Wroe, Carole Goble, and Heiner Stuckenschmidt:
“Learning Domain Ontologies for Semantic Web Service Descriptions”.

In doing so, they teach us that surprisingly simple ontology learning techniques, as available in many current ontology learning systems, may practically reach out rather far.

With such practical requirements and proposals feeding back into the development of the Semantic Web infrastructure, contributions to the Semantic Web track of WWW have matured quite a lot since its inception at WWW-2002. We invite the readers to learn and understand from these contributions to the Semantic Web track at WWW-2005 — and join WWW with their resulting ideas in 2006.