Preface

For several years now, the Web has exceeded its initial instantiation of being a document-centric space. Following its many evolutions, it has become a virtual place where people and software can cooperate within mixed communities. It supports a hybrid society where humans and Web robots interact in particular through shared metadata. These large-scale interactions create many problems, and in particular the ongoing need to reconcile the formal semantics of computer science (logics, ontologies, typing systems, etc.) on which the Web architecture is built, with the soft semantics of people (posts, tags, status, and so on) through which Web content is created.

As the Web becomes a ubiquitous infrastructure reflecting all the objects of our world, we witness ever-increasing frictions between formal semantics and social semantics. This trend is also amplified by the growing number of datasets published, interlinked, and reused on the Web. This expanding Web of data, together with the schemas, ontologies, and vocabularies used to structure and link it, forms a formal Semantic Web with which we have to design new interaction means to support the next generation of Web applications.

Another perspective on the above can be found by considering how the initial graph of linked pages of the Web has been joined by a growing number of other graphs including: sociograms capturing social network structures, workflows specifying decision paths to be followed, browsing logs capturing trails of navigation, automata of service compositions specifying distributed processing, linked open data from distant datasets, etc.

Moreover, these graphs are distributed over many different sources with very different characteristics. Some subgraphs are public (e.g. DBpedia), while others are private (e.g. semantic intraWebs). Some subgraphs are small and local (e.g., a user's profile on a device), and some are huge and hosted on clusters (e.g., Wikipedia). Some are largely stable (e.g., a thesaurus for Latin), some change several times per second (e.g., sensor data in a city), etc. And each type of graph of the Web is not an isolated island. Graphs interact with each other: the networks of communities influence the message flows, their subjects and types, the semantic links between terms interact with the links between sites and vice versa, the small changing graphs of sensors are joined to the large stable geographical graphs that position them, etc. Not only do we need the methods to represent and analyze each kind of graph, we also require the means to combine them and to perform multi-criteria analyzes on their combinations.

As soon as we want to analyze and combine these many facets of one Web, we face the general challenge of the Web. If it is true that the Web architecture is designed through standards, its participatory nature makes the Web emerge as an openly co-constructed global object. The "world-wide way" of deploying the Web everywhere and for everything implies that, as the Web is spreading into the world, the world is spreading into the Web. The resulting world "wild" Web that is being created and is evolving every day is contaminated by the complexity of our world. This complexity

implies that a huge challenge for Web development is its need for large-scale multi-disciplinary cooperation: the three 'W's of the World Wide Web call for the three 'M's of a Massively Multidisciplinary Methodology, and the Semantic Web is no exception to this. The diversity of linked data within the Semantic Web is an asset to address the diversity of resources identified on the Web. But for the Semantic Web to reach its full potential, it needs in return to embrace the multidisciplinary needs of the Web. ESWC 2015 embeds the above, being a truly interdisciplinary event.

The ESWC Conference is now established as a yearly major venue for discussing the latest scientific results and technology innovations related to the Semantic Web. This 12th edition took place from May 31st to June 4th 2015 in Portoroz, Slovenia. Besides having a main focus on advances in Semantic Web research and technologies, we, the Chairs of ESWC 2015, decided to broaden the scope to span other relevant research areas. The core tracks of the research conference were complemented with new tracks focusing on linking machine and human computation at Web scale (Cognition and Semantic Web, Human Computation and Crowdsourcing).

This choice also resulted in three exciting invited keynotes. Lise Getoor (University of California) explained how to combine statistics and semantics to turn data into knowledge, building on state-of-the-art optimization methods in a distributed implementation to solve large-scale knowledge graph extraction problems. Viktor Mayer-Schönberger (Oxford Internet Institute/Oxford University) discussed why Big Data really matters a lot and why we need to be cautious and well aware of its limitations. Massimo Poesio (University of Essex) showed what crowdsourcing tells us about cognition taking the special case of a game-with-a-purpose designed to collect data about anaphora.

The main scientific program of the conference comprised of 42 papers: 33 research papers and 9 in-use, selected out of 164 submissions, which corresponds to an acceptance rate of 23 % for the 145 research papers submitted, and of 47 % for the 19 in-use papers submitted. This program was completed by a demonstration and poster session, in which researchers had the chance to present their latest results and advances in the form of live demos. In addition, the PhD Symposium program included 12 contributions, selected out of 16 submissions.

To have an open, multidisciplinary, and cross-fertilizing event, we complemented the conference program with 21 workshops, 9 tutorials, as well as 5 challenges and the EU Project Networking session. This year, an open call for challenges allowed us to select and support 5 challenges.

As General and Program Committee chairs, we would like to thank the many people that were involved in making ESWC 2015 a success.

First of all, our thanks go to the 24 track chairs and 427 reviewers including 107 external reviewers for ensuring a rigorous blind review process that led to an excellent scientific program and an average number of 4.75 reviews per article. This was also completed by an inspiring selection of posters and demos chaired by Serena Villata and Christophe Guéret.

Special thanks go to the PhD Symposium Chairs, Claudia d'Amato and Philippe Cudré-Mauroux, who proposed and managed a very constructive organization ensuring a real mentoring to all the brilliant students who participated.

We had a great selection of workshops and tutorials thanks to the dynamism of our Workshop Chairs Catherine Faron and John Breslin and Tutorial Chairs Elena Simperl and Antoine Isaac.

Thanks to our EU Project Networking Session Chairs Frédérique Segond, Jun Zhao, Erik Mannens, and Sergio Consoli we had the opportunity to arrange meetings and exciting discussions between the contributors of the leading research projects.

Thanks to the work of Elena Cabrio and Milan Stankovic and all the Challenges Chairs, we successfully established a challenge track with an open call leading to a very useful comparison of the latest solutions for five challenge areas.

Thanks to STI International for supporting the conference organization, to Ioan Toma (from STI) for taking care of the budget. Of course we warmly thank our local organizers, in particular Marko Grobelnik, Špela Sitar, and Monika Kropej from the Jožef Stefan Institute Ljubljana. youvivo GmbH and in particular Martina Hartl deserves special thanks for the professional support of the conference organization.

We are very grateful to Mauro Dragoni, our Publicity Chair who kept our community informed at every stage and Serge Tymaniuk, who administered the Website.

Our Sponsor Chair Blaž Fortuna played an extremely important role in collecting sponsorships for the conference, the awards and the grants. And of course we also thank our sponsors listed in the next pages, for their vital support to this edition of ESWC.

We also want to stress the huge work achieved by the Semantic Technologies coordinators Anna Lisa Gentile, Andrea Giovanni Nuzzolese, Luca Costabello, Lionel Medini, and Fuqi Song who developed a new version of our "ESWC Conference Live" mobile app.

Special thanks also to our Proceedings Chair Antoine Zimmermann, who did a remarkable job in preparing this volume with the kind support of Springer.

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