

Modular Knowledge 2022

Preface

Loris Bozzato¹, Valentina Anita Carriero², Torsten Hahmann³ and
Antoine Zimmermann⁴

¹Fondazione Bruno Kessler, Via Sommarive 18, 38123 Trento, Italy

²Dipartimento di Informatica - Scienza e Ingegneria, University of Bologna, Mura Anteo Zamboni 7, Bologna, Italy

³Spatial Computing, School of Computing and Information Science, University of Maine, Orono, ME 04469, USA

⁴Mines Saint-Étienne, Univ Clermont Auvergne, INP Clermont Auvergne, CNRS, UMR 6158 LIMOS,
F - 42023 Saint-Étienne France

Abstract

This preface for the proceedings of the first international workshop on Modular Knowledge (MK2022) presents the content of the workshop and reports on the results of the interactive sessions that took place during the event.

The dramatic increase in the amount of open and linked data and the increasing semantification of such data make clear that knowledge is not monolithic, static or uniform. This requires a renewed push for dealing with heterogeneous and distributed knowledge as a constellation of modules. Each module stores a portion of knowledge about one particular subdomain, described in a specific schema, and valid under a set of circumstances. In such a scenario we need well-founded conceptual approaches and practical techniques for modular knowledge management, for example, to recognize relevant partitions of a monolithic knowledge source, but also to define a modularized vision of the domain qualifying the knowledge with a given situation or agent, integrating heterogeneous modules of knowledge, including knowledge represented in sub-symbolic models. The discussion of such modularity notions and techniques, their development and exploitation are the focus of the proposed Modular Knowledge workshop.

The Modular Knowledge workshop combines the efforts of previous experiences (like WoMO, ARCOE-Logic and WOMoCoE workshops) into an interdisciplinary venue for discussing and developing solutions for modularity of knowledge.

The workshop series aims at covering the use of various approaches (ranging from rich semantic representations, like Knowledge Graphs and formal ontology, to simpler schemas, like RDF and database schemas) for representing knowledge, its context, its evolution, and for making it accessible to automatic reasoning and knowledge management tasks. The Modular Knowledge workshop covers logic-based languages as well as subsymbolic and numerical representations.


MK 2022: Modular Knowledge 2022, May 29, 2022, Hersonissos, Greece.

✉ bozzato@fbk.eu (L. Bozzato); valentina.carriero3@unibo.it (V. A. Carriero); torsten.hahmann@maine.edu (T. Hahmann); antoine.zimmermann@emse.fr (A. Zimmermann)

🆔 0000-0003-1757-9859 (L. Bozzato); 0000-0003-1427-3723 (V. A. Carriero); 0000-0002-5331-5052 (T. Hahmann); 0000-0003-1502-6986 (A. Zimmermann)



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This first edition, which took place on 29th May 2022 and was co-located with ESWC 2022, combined presentations with time for extensive discussions between the participants. Out of 6 submitted papers, 4 papers were accepted for presentation, based on the evaluation of 4 reviewers per paper:

- *Module merging in PURO visual modeling*, presented by Marek Dudáš [1];
- *Multi context model counting*, presented by Luciano Serafini [2];
- *Ontological representation of Cultivated Plants: linking botanical and agricultural usages*, presented by Baptiste Darnala [3]; and
- *Providing tool support for unit testing in eXtreme Design*, presented by Fiorela Ciroku [4].

Three presentations were given online, and part of the audience was remotely connected. To help keeping track of the questions and reactions to the talks, we shared an online document, editable by everybody, which improved interactivity, while at the same time crystalize the ideas shared in the moment.

Additionally, Denny Vrandečić gave an invited keynote talk with the title “*Why knowledge must be modular for an Abstract Wikipedia*” where he presented the Abstract Wikipedia project that makes use of a language-independent notation to describe abstract pieces of knowledge in a modular and reusable way. Further, 12 lightning talks were presented by workshop participants on topics as diverse as project presentations, theoretical challenges, tools, and call for collaborations. Discussions were initiated via a “speed dating session” in which participants were paired up to network and identify common interests, which were subsequently assembled into the map that surveys the area of Modular Knowledge (to the extent represented by the participants) shown in Figure 1.

The map lists the academic institutions and companies mentioned in the discussions (primarily the affiliations of participants) in addition to a broad range of topics, application areas, and different perspectives (“viewpoints”) for modular knowledge. The topics are the most developed part of the map, showing that the workshop participants were interested in both the technical aspects of representing and managing modular knowledge (e.g., contextual reasoning, module extraction), but also in how a modular view of knowledge can be interpreted and used in different areas (e.g., learning, modular ontology design patterns). Application areas mentioned include tasks where a modular approach can be adopted (e.g., NLP query answering, structured query answering) as well as domains where knowledge modularization have been used or are currently under development (e.g., environmental data, chemistry, legal text). Additionally, the map lists some specific events, tools and projects that were mentioned by the workshop participants during the discussions.

As a result of the highly interactive sessions, participants reported in the end that the bidirectional exchange of ideas (as opposed to communication directed from a speaker to an audience) was very enjoyable and fruitful.

Organizing Committee

- Loris Bozzato, Fondazione Bruno Kessler, Italy
- Valentina Anita Carriero, University of Bologna, Italy
- Torsten Hahmann, University of Maine, USA
- Antoine Zimmermann, École des Mines de Saint-Étienne, France

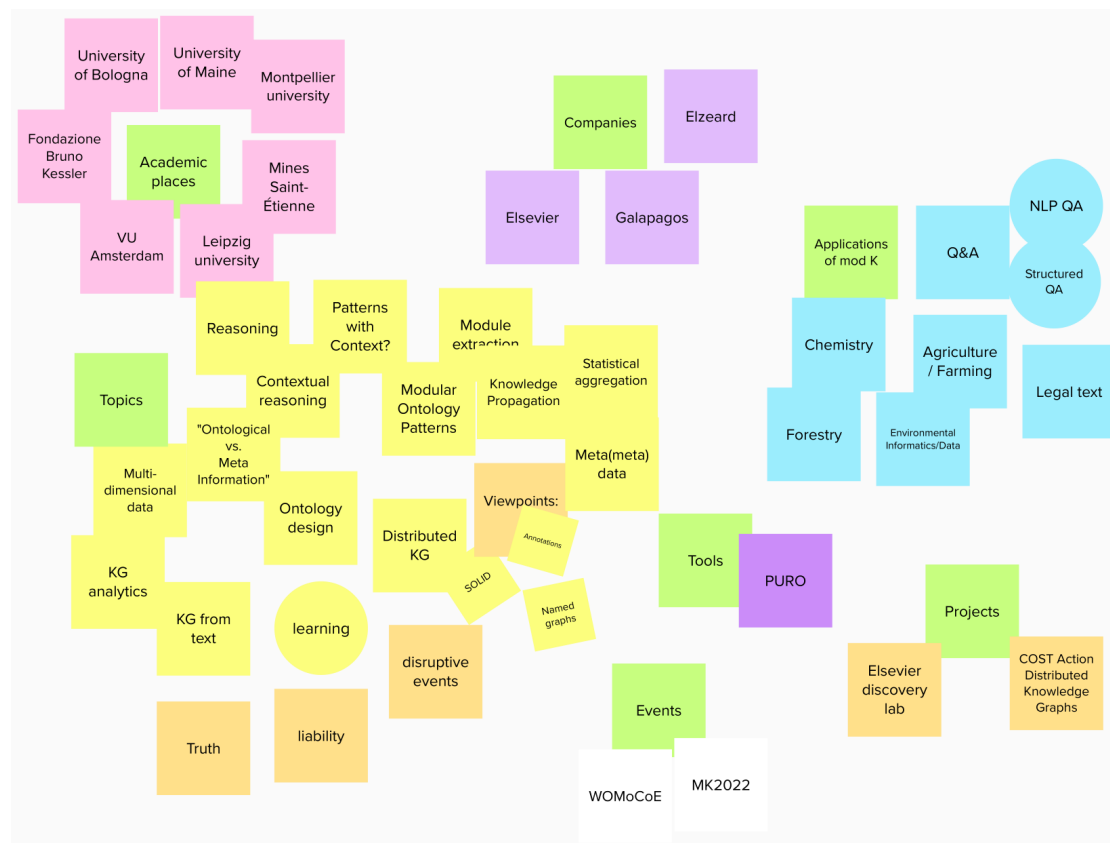


Figure 1: Collaborative virtual wall used in online discussion.

Program Committee

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