ASPECT: Answer Set rePresentation as vEctor graphiCs in laTex (Invited Talk)

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Abstract

Logic programming is a declarative programming paradigm that finds extensive use in the field of Artificial Intelligence (AI). As a result, it has become a valuable tool used in university courses for teaching students AI techniques. Besides Prolog, the more recent Answer Set Programming (ASP) language turns out to be a powerful tool for developing advanced applications due to the expressiveness of the language and the availability of efficient solving systems.

Unfortunately, the output of ASP solvers can be difficult to interpret, since it is a set of atoms, often long and verbose. This is especially true in the case of students learning the language or in the case of experts developing applications for complex real-world problems. For these reasons, the ability to produce, when possible, a graphical representation of the solver output is essential to ensure easier interpretation of the results.

In this paper we present ASPECT[1] [1], a sub-language of ASP in which the user can directly define, in an intuitive and declarative way, a graphical representation of the answer set. The ASPECT atoms can be converted into the popular LaTeX markup language to produce vector graphics. The documents produced by ASPECT are easy to embed in documents such as scientific articles, course handouts, and presentations. Also, the development of user-friendly interfaces is critical for wider use of similar technologies in the industrial sector as well. Moreover, ASPECT is also extended to deal with temporal information, and provide graphical animations of answer sets representing temporal progression, such as in planning problems.

Finally, we advocate the use of ASPECT to create complex and animated presentations starting from a declarative specification. ASPECT is freely available at the web page: https://github.com/abertagnon/aspect

Keywords

Answer Set Programming, Answer Set Visualization

Declaration on Generative AI

The author declare that no generative artificial intelligence (AI) tools were used in the conception, writing, analysis, or preparation of this manuscript. All content presented in this work was produced and reviewed exclusively by the authors.

[1] Joint work with Alessandro Bertagnon.

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