

Review of the Doctoral Thesis by Jakub Malý

Title of the thesis: XML Document Adaption and Integrity Constraints in XML

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Reviewer: Ing. Radim Bača, Ph.D.

The work "XML Document Adaption and Integrity Constraints in XML" introduces a framework for an evolution of a system built on top of XML related formats. The framework has a 5-level architecture, where the two top-most layers are conceptual and the other three layers are instantiations of the conceptual model using XML formats. The thesis introduces a formal definition of components in each layer and describes how changes in one layer are propagated to the others. Mainly, the propagation among conceptual models and the propagation to XML instances of the conceptual model are depicted.

Major negative comments:

- I would appreciate having more related work in sections describing the main contributions of the thesis (Sections 2-6). Pure description of the framework without clear mentioning of the novelty of each part is not a good style of writing. Fortunately, there is a 'Related work' section at the end of the thesis, however, having the references included also in Sections 2-6 would make the contribution of the thesis clearer.
- Section 4.1.1 contains a contemplation about the Algorithm 1 speed (the end of page 33). It would be interesting to show performance characteristics of different adaptation operation on XML documents of different size. Performance is one of the attributes which makes the resulting framework usable, therefore, I would expect at least some experimental reasoning.

Major positive comments:

- The thesis includes a formal definition of a conceptual representation which allows to prove correctness of each adaptation operation described in the thesis. I consider this very important for this work since the correctness is one of the most important features in such system.
- Having journal and conference papers with some external citations in the time of the thesis submission is a good sign of the thesis quality. It is a clear indication that this work is interesting for a research community.
- It is good that the presented ideas are not "only on paper", but there is a tool called eXolutio which materializes ideas in the thesis. The result can be very helpful for people creating their information systems in XML formats.

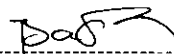
Minor comments:

- Some tables are not explicitly numbered and labelled (pages 51 and 71).
- p. 9, last paragraph – System evolution is never defined.
- p. 27, first paragraph – “The goal of an adaptation ...”, I would add ‘document’ before ‘adaptation’.
- p. 51 – “..., but with the amount of changes mad between ...”, should be “ ... made between ...”
- p. 108 – There is a personal note at the end of Section 8.

Conclusion:

The author presents an interesting work in the field of a conceptual modelling and an evolution of a system using XML formats. I recommend the thesis to be defended.

In Ostrava, August 8, 2013



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