

## Case-oriented knowledge acquisition for architectural design

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FABEL<sup>1</sup> is a joint venture partly funded by the German government from July '92 till June '96. The purpose of the project is to integrate case-based and model-based approaches to the development of knowledge-based systems. One of the major purposes of FABEL is to develop a case-oriented methodology for knowledge acquisition. Our Domain, both source of inspiration and testbed, is architectural design, including engineering of construction, services and technical equipment for buildings. We consider in particular the design of medium-sized buildings with complex installations like laboratories or schools.

We now look back to half a year of knowledge acquisition, that was performed by a team of cognitive scientists (University of Freiburg), systems analysts and knowledge engineers (GMD and BSR Consulting) in varying casts. Though content with our general approach, we hit upon some problems we have not found discussed in the literature so far.

Evaluating the first half year of case-oriented knowledge acquisition we found:

- Discussing cases with experts is a very natural and efficient way of acquiring a rich and reliable store of all kinds of knowledge including strategic knowledge.
- Compiling cases becomes systematic when embedded in simulation of large design tasks.

Motivated by our observations of architectural design, we state some hypotheses concerning use and representation of cases:

- Cases for architectural design are parts of a building plan, that may be cut from the whole plan under various aspects, like a restricted view on a very complicated situation.
- A piece of design, i.e. a case, does not explicitly show the problem it was meant to solve. The problem is read into the case when it is used, and there are several ways to read problems and solutions from a case. Therefore we look for a dynamic representation of problems and solutions in a case.
- Users of cases are looking for context and explanations; therefore, if ever possible, cases have to provide annotations and options to retrieve more of their original context if required.

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The statements in this paper are the authors' opinion and unless explicitly declared do not necessarily reflect a consensus of all project members.