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The Role of Functional Prototyping within the KADS methodology.

A thesis presented in partial fulfilment of the requirements for the degree
of Master of Science in Computer Science at Massey University.

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Abstract

Knowledge-based systems have until recent times lacked a clear and complete methodology for their construction. KADS was the result of the early 1980's project (ESPRIT-I P1098) which had the aim of developing a comprehensive, commercially viable methodology for knowledge-based system construction. KADS has subsequently proved to be one of the more popular approaches, focusing on the modelling approach to knowledge based system development.

One area of the KADS methodology that has not been examined to any great depth is that of model validation. Model validation is the process of ensuring that a derived model is an accurate representation of the domain from which it has been derived from. The two approaches which have been suggested for this purpose within the KADS framework are that of protocol analysis and functional prototyping.

This project seeks to apply the second of these choices, that of functional prototyping, to the model of expertise created by da Silva (1994) for model validation purposes. The problem domain is that of farm management, under an joint program of research between the Computer Science, Information Systems and Agricultural Management departments of Massey University. The project took the model of expertise and created a knowledge representation model in compliance with the selected object-oriented paradigm. After this the creation of a functional prototype in a Microsoft Windows based PC environment took place, using Kappa-PC as the application development tool.

The validation took place through a demonstration session to a number of domain experts. Conclusions drawn from the experience gained through the creation and use of the prototype are presented, outlining the reasons why functional prototyping was deemed to be an appropriate method for model validation.

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