

# Invited talk

## Degrees of Rigorousness

Thomas Kühne

Victoria University of Wellington,  
P. O. Box 600, Wellington 6140, New Zealand  
Thomas.Kuehne@ecs.victoria.ac.nz

**Abstract.** With great flexibility comes great responsibility. It is trivial to allow an extreme degree of flexibility if there is no concern for the correctness or even usability of the artefacts involved. While empirical studies have shown that expert software designers use informal ad-hoc notations to great effect, unless the artefacts created in respective sessions receive a rigorous interpretation afterwards, their value will be limited to supporting exploration, communication, and consolidation of viewpoints. At the other extreme of the spectrum are tools which require user input not only in a specific form, but also in a specific order. While these tools come with a desirable “*correct by construction*” property, they are universally disliked by real world users.

In this talk, I argue that the challenge of providing flexible but useful modelling tools mirrors the older challenge of providing programming environments that eliminate syntax errors (cf. structured editing) while supporting flexible user input. I argue that rigorousness in development is an indispensable aspect not only for obtaining advanced value from artefacts, but also for managing complexity. I suggest that flexibility should always be paired with means to establish rigour and discuss a number of respective alternatives, one of which is multi-level modelling. I maintain that a crucial ingredient to supporting both flexibility and rigorousness is to recognise the distinct roles of medium, language, and semantic classification, thus supporting the decoupling of element creation from element classification. Finally, I postulate that there is a need for multiple degrees of rigorousness in order to support different development phases and a flexible interpretation of artefacts in general.

### Biography

Thomas Kühne is an Associate Professor at Victoria University of Wellington, New Zealand. Prior to that he was an Assistant Professor at Technische Universität Darmstadt, Germany, an Acting Professor at the University of Mannheim, Germany, and a Lecturer at Staffordshire University, UK. His research interests include multi-level modelling, metamodelling, and model-driven development. He received a Ph.D. and M.Sc. from Technische Universität Darmstadt, Germany in 1998 and 1992 respectively.