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Rules and associations : hidden Markov models and neural networks in the psychology of learning

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Recurring under different names in different times, the question whether human behaviour is governed by associationist principles or by cognitive rules has been the driving force behind one of the fundamental debates in psychology. It formed the divide between Locke and Kant, between Skinner and Chomsky, and, most recently, between neural network models and classical cognitive architectures. By integrating insights from philosophy, psychology, and mathematical modelling, Visser provides a highly original account of the essential tensions in this classical debate. Contrasting neural network models and hidden **Markov** models for grammar learning, he clearly shows when, how and why these models diverge. This thesis offers new methodological approaches, experimental designs, statistical results, as well as innovative software that may be important in disentangling rules from associations.

Ingmar Visser was born in 1969, Zoetermeer, the Netherlands. He finished his master's in the philosophy of mind and language (1996) while doing additional studies in mathematics and psychology.

A selection of reviewers comments:

'The authors have developed a skill in this matter and I appreciate that very much. However, the work is not very original.'

'I found the exposition clear and compelling.'

'In fact, detailed comparisons between corresponding direct and indirect measures, such as recognition, prediction, or generation on the one hand, and reaction time on the other hand, have become something of a hot topic these days, which makes the present manuscript particularly relevant to the current literature.

This is interesting, but very preliminary research that fails to be compelling in addressing the issues it aims to explore.'

'Your project sounds extremely interesting, I hope you'll let me know how it turns out.'

'In a nutshell, I don't see how this paper contributes much to what is already known about sequence learning, the SRT task and implicit learning.'

'Thank you so very much for sending the reprints. I really appreciate it.'

'I express my warmest feelings for this very nice thesis.'

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