

# Ingmar Visser

Curriculum Vitae

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## Work address

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## Positions

**current** (as of january 2008) Assistant professor in the Developmental Psychology group, Department of Psychology, University of Amsterdam.

**2006–2008** Post-doctoral researcher in the FAR (From Associations to Rules) project, European Commission grant 51652 (NEST).

**march–may 2005** Visiting research fellow at the Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle, North Carolina.

**2003–2005** Post-doctoral research fellow on behalf of the Dutch National Science Foundation (Veni grant from NWO).

**2002** Postdoctoral fellow/Lecturer with the Developmental Processes Research group at the Department of Psychology, University of Amsterdam.

**1997–2001** Research Assistant/PhD student (AIO), Developmental Processes Research Group at the Department of Psychology, University of Amsterdam.

## Grants

**2011** ‘Meerwaarde’ grant from NWO, title: ‘A user-friendly website to improve evidence-based clinical practice’ (475-11-018), PI: Hilde Huizenga.

**2005** Visiting researcher fellowship at SAMSI (Statistical and Applied Mathematical Sciences Institute, Research Triangle, North Carolina) in the Latent Variables in the Social Sciences program led by Ken Bollen.

**2004** EPOS and NWO grants for organizing the workshop "Model Selection: Theoretical Developments and Applications" in Amsterdam (with Denny Borsboom, Maarten Speekenbrink, Eric-Jan Wagenmakers, and Lourens Waldorp).

**2002** 3-year VENI-grant from the Dutch National Science Foundation (NWO). Project title: "Implicit learning and explicit knowledge: The associative acquisition of rule-following behavior."

## Teaching

### Course development

**2010** Development of a modeling course for honours degree students in psychology featuring hands-on training in R.

**2006** Development of the Introduction to Cognitive Science course, part of the Master of Cognitive Science curriculum in the Cognitive Science Center Amsterdam.

**2003** Cognitive Psychology, Artificial Intelligence undergraduate program, University of Amsterdam.

**2003** Introduction to cognitive psychology, Artificial Intelligence undergraduate program, University of Amsterdam.

The latter two courses were introduced into the Artificial Intelligence (AI) program in 2003 and a program was developed for these courses to match the interests of AI bachelor students and to ensure these courses suited in the AI curriculum.

### Courses

**2006**– Introduction to Cognitive Science, part of the Master of Cognitive Science curriculum in the Cognitive Science Center Amsterdam.

**2005** Bachelor theses projects, Artificial Intelligence undergraduate program, University of Amsterdam.

**2003**– Cognitive Psychology, Artificial Intelligence undergraduate program, University of Amsterdam.

**2003**– Introduction to Cognitive Psychology, Artificial Intelligence undergraduate program, University of Amsterdam.

**2002** Graduate course in Simulation and modelling of developmental processes, Developmental Psychology Graduate program, University of Amsterdam.

**1998–2001** Undergraduate course work in the Department of Psychology from the University of Amsterdam.

## Affiliations & professional activities

- Reviewing for:
  - Frontiers in Cognitive Science
  - Psychometrika
  - Psychonomic Bulletin & Review
  - Memory & Cognition
  - Psychophysiology
  - Multivariate Behavioral Research
  - PLOS One
  - Behavior Research Methods
  - PSICOLOGICA
  - Cognitive Science Society
  - International Conference on Development and Learning
- Member of the Cognitive Science Center Amsterdam
- Member of the Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS; Dutch/Belgian branch of the Psychometric Society)
- Member of the Psychometric Society

## Organizational work

### Workshops & symposia organisation

- 2011** Symposium at the Society for Research in Child Development (SRCD 2011, Montreal, Canada), title: Developing Categories.
- 2010** Symposium at the Annual meeting of the Dutch Society for Developmental Psychology (VNOP; May 2010, Wageningen), title: Latent Variable Models in Cognitive Development.
- 2009** Symposium at SRCD 2009 (Denver), title: Getting to Grips With Individual Learning and Development.
- 2007** Double symposium at the 2007 meeting of the Jean Piaget Society on Qualitative Change in Cognitive Development: Theory, Models and Applications (with Brenda Jansen).
- 2007** FAR workshop for the FAR6 (From Associations to Rules) project.
- 2006** Depmix, one day workshop taught at PennState University.
- 2005** Symposium at International Meeting of the Psychometric Society on Discontinuities in development.
- 2004** Model selection workshop, Amsterdam.

## Institutional

- 2010** Member of the committee to revise the Artificial Intelligence undergraduate program at the University of Amsterdam.
- 2009–** Member of the Ondernemingsraad.
- 2003–** Member of the Artificial Intelligence undergraduate program committee.
- 2002–2008** Organization of biweekly seminars for the Developmental Psychology group.
- 2002-2003** Member of the committee to revise the Artificial Intelligence undergraduate program at the University of Amsterdam.
- 1997–1999** Member (and partly chair) of the University of Amsterdam PhD students working group.

## Education

- 2007** Course in didactics, taught by the University of Amsterdam for lecturers/assistant professors.
- 1997–2001** PhD at the Department of Psychology at the University of Amsterdam.
- 1996** Drs (MA) in Philosophy of language and cognitive science, supervised by Renate Bartsch. Thesis title: *Mind Rules: a philosophical essay on psychological rules and the the rules of psychology*, published as Technical Report X-96-01, Institute for Logic, Language and Computation.

## Thesis supervision/consultation

- 2008–**, PhD student **Bianca van Bers** Co-promotor together with Maartje Raijmakers.
- October 2010: Lau Andersen** Research Master Cognitive Science Center Amsterdam, title: Cognitive strategy differences as an index of developmental differences. Supervision together with Maartje E. J. Raijmakers.
- September 2010: Andrea Watson** Research Master Cognitive Science Center Amsterdam, title: Effect of input contrast on attention-driven perceptual grouping processes in vision. Co-assessor of external thesis project at the Netherlands Institute for Neuroscience.
- 2009: Tom Marshall** Research Master Cognitive Science Center Amsterdam, title: Digging Deeper in Implicit Learning: An LBA Decomposition of the Serial Reaction Time Task.
- 2009: Rianne Hoek** Research Master Cognitive Science Center Amsterdam, title: On Reversal Frequency and Training-Control Sequence Combinations in SRT Tasks.

- 2009: Sanne Haring** Research Master Psychology.
- 2008: Thomas Pronk** Research Master Psychology, title: The effects of reversal frequency in probabilistic second order conditional sequences
- 2008: Sander Holweg** Master Psychology, title: Impliciet en expliciet leren bij kinderen van 6 en 11 jaar (in Dutch; Implicit and explicit learning in children aged 6-11)
- 2008: Marlon van de Wetering** Master Psycholog, title: Reber onder de loep (in Dutch; Scrutinizing Reber)
- 2008: Malou Stoffels** Master Psychology, title: Dyslexie en de Prestatie op Serial Reaction Time Taken (in Dutch; Dyslexia and performance on the serial reaction time task)

Next to above I was actively involved in the PhD project of Verena Schmittmann (IOPS), and currently in the project by Tessa van Schijndel (EPOS); most of the consultation concerns the application of latent class and latent Markov models to experimental data from learning and developmental processes.

## Publications

### Work in progress

- 1 Ingmar Visser & Maartje E.J. Raijmakers. The development of exemplar based and rule based representations of compound stimuli in school-aged children.
- 2 Tom Marshall & Ingmar Visser, Digging Deeper in Implicit Learning: An LBA Decomposition of the Serial Reaction Time Task.
- 3 Maartje E. J. Raijmakers & Ingmar Visser. Statistical models of intra- and inter-individual differences and errors in category learning.
- 4 Maartje E. J. Raijmakers, Catriona M. E. Ryan, Andy J. Wills, Stephen E. G. Lea, and Ingmar Visser. A comparative study of the influence of stimulus similarity on category learning in pigeons and human adults.

### Papers

- 2011** Ingmar Visser. Seven Things to Remember about Hidden Markov Models: A Tutorial on Markovian Models for Time Series. *Journal of Mathematical Psychology*, 55, 403–415.  
Available online: <http://dx.doi.org/10.1016/j.jmp.2011.08.002>
- 2011** Bianca M. C. W. van Bers, Tessa J. P. van Schijndel, Dorothy J. Mandell, Ingmar Visser, and Maartje E. J. Raijmakers. The Dynamics of Development on the Dimensional Change Card Sorting task. *Developmental Science*, 14, 960–971.  
Available online: <http://dx.doi.org/10.1111/j.1467-7687.2011.01045.x>

- 2011** Gilles Dutilh, Ingmar Visser, Eric-Jan Wagenmakers, & Han L. J. van der Maas. A Phase Transition Model for the Speed-Accuracy Trade-Off in Response Time Experiments. *Cognitive Science*, 35, p. 211–250.  
Available online: <http://dx.doi.org/10.1111/j.1551-6709.2010.01147.x>
- 2011** Hilde M. Huizenga, Ingmar Visser & Conor V. Dolan. Hypothesis testing in random effects meta-regression. *British Journal of Mathematical and Statistical Psychology*, 64, p. 1–19.  
Available online: <http://dx.doi.org/DOI:10.1348/000711010X522687>
- 2011** Ingmar Visser. Methodological Solipsism. In: Hogan, P. C. (Ed.), *The Cambridge Encyclopedia of Language Science*, p. 497. Cambridge University Press.
- 2010** Ingmar Visser. Book review of Zucchini & MacDonald: Hidden Markov Models for Time Series: An Introduction Using R. *Journal of Mathematical Psychology*, 54, p. 509–511.  
Available online: <http://dx.doi.org/10.1016/j.jmp.2010.07.001>
- 2010** Anna C.K. van Duijvenvoorde, Brenda R.J. Jansen, Ingmar Visser & Hilde M. Huizenga. Affective and cognitive decision making in adolescents. *Developmental Neuropsychology*, 35(5), p. 539–554.  
Available online: <http://dx.doi.org/10.1080/875656412010494749>
- 2010** Ingmar Visser & Maarten Speekenbrink. depmixS4: An R-package for hidden Markov models. *Journal of Statistical Software*, 36(7), p. 1–21.  
URL: <http://www.jstatsoft.org/v36/i07/> Current version of depmixS4 available on CRAN: <http://cran.r-project.org/>
- 2010** Ingmar Visser, Brenda R. J. Jansen, and Maarten Speekenbrink. A framework for discrete change. In K. M. Newell and P. C. M. Molenaar, editors, *Individual Pathways of Change: Statistical Models for Analyzing Learning and Development*. (chapter 7, p. 109–123) APA Science, Washington.
- 2010** Thomas Pronk & Ingmar Visser. The role of reversal frequency in learning noisy second order conditional sequences. *Consciousness & Cognition*, 19, p. 627–635.
- 2009** Ingmar Visser, Maartje E. J. Raijmakers, and Han L. J. Van der Maas. Hidden Markov models for individual time series. In J. Valsiner, P. C. M. Molenaar, M. C. D. P. Lyra, and N. Chaudhary, editors, *Dynamic Process Methodology in the Social and Developmental Sciences*, chapter 13, p. 269–289. Springer, New York.
- 2009** Ingmar Visser, Maartje E. J. Raijmakers, & Emmanuel M. Pothos. Individual strategies in artificial grammar learning. *American Journal of Psychology*, 122(3), p. 293–307.
- 2008** Denny Borsboom & Ingmar Visser. Semantic cognition or datamining? *Behavioral and Brain Sciences*, 31(6), p. 714–715.

- 2007** Ingmar Visser. Review of Rissanen: Information and Complexity in Statistical Modeling. *Kwantitatieve Methoden*, 2007. URL: <http://www.vvs-or.nl/kwanmeth/km2007/bookreviews/2007r16.pdf>
- 2007** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Characterizing Sequence Learning: Online Measures and Hidden Markov Models Show Associations and Dissociations. *Memory & Cognition*, 35(6), p. 1502–1517.
- 2007** Brenda R. J. Jansen, Maartje E. J. Raijmakers, and Ingmar Visser. Belief change on the balance scale task. *Synthese*, 155(2), p. 211–236.
- 2007** Ingmar Visser, Verena Schmittmann, & Maartje E.J. Raijmakers. Markov process models for discrimination learning. In, K. van Montfort, H. Oud & A. Satorra (Eds.), *Longitudinal models in the behavioral and related sciences*, European Association of Methodology, chapter 14, p. 337–366.
- 2006** Ingmar Visser & Ton Blaazer. Estimating correlations and reliabilities of implicit and explicit tests using a latent variable approach. In: Sun, R. (Ed.), *Proceedings of The 28th Annual Conference of the Cognitive Science Society*, p. 2317–2322, Mahwah (NJ): Lawrence Erlbaum Associates.
- 2006** Brenda R. J. Jansen, Maartje E. J. Raijmakers, and Ingmar Visser. (2006). Learning on the balance scale task. In Sun, R., editor, *Proceedings of The 28th Annual Conference of the Cognitive Science Society*, p. 2517, Mahwah (NJ). Lawrence Erlbaum Associates.
- 2006** Verena Schmittmann, Ingmar Visser & Maartje E. J. Raijmakers. Multiple learning modes in the development of performance on a rule-based category-learning task. *Neuropsychologia*, 44(11), 2079–2091.
- 2005** Han L.J. van der Maas, Maartje E.J. Raijmakers and Ingmar Visser. Inferring the structure of latent class models using a genetic algorithm. *Behavior Research Methods, Instruments, & Computers*, 37(2), May 2005, pp. 340–352.
- 2002** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Fitting hidden Markov models to psychological data. *Scientific Programming*, 10(3):185–199, 2002.
- 2001** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Hidden Markov model interpretations of neural networks. In Robert M. French and Jacques P. Sougné, editors, *Connectionist models of Learning, Development and Evolution. The 6th Neural Computation and Psychology Workshop (NCPW6)*, p. 197–206. Springer-Verlag, 2001.
- 2000** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Confidence intervals for hidden Markov model parameters. *British journal of mathematical and statistical psychology*, 53:317–327, 2000.
- 2000** Ingmar Visser. Hidden Markov model interpretations of neural networks. *Behavioral and Brain Sciences*, 23–4:494–495, 2000. Comment on *Connectionist modeling in psychology: A localist manifesto* by Mike Page.

- 2000** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Reaction times and predictions in sequence learning: A comparison. In Lila A. Gleitman and Aravind K. Joshi, editors, *Proceedings of the twenty-second annual conference of the Cognitive Science Society*, pages 971–976. Mahwah (NJ): Lawrence Erlbaum Associates, 2000.
- 1998** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Statistical properties of hidden Markov models. In *Proceedings of the International Workshop on Advanced Black-Box Techniques for Nonlinear Modeling*, pages 47–50. Leuven: Katholieke Universiteit Leuven, 1998.

### Computer programs

- 2010** Ingmar Visser & Maarten Speekenbrink. DepmixS4. Fits Markov mixtures of GLMs and some other distributions. Current version 1.0-0 of depmixS4 available on CRAN: <http://cran.r-project.org/>
- 2005** Ingmar Visser. Depmix, an R package for fitting mixtures of (latent) Markov models on multivariate mixed timeseries data. Package and manual with illustrative examples, current version 0.9.8 of depmix available on CRAN: <http://cran.r-project.org/>

### Theses

- 2002** Ingmar Visser. *Rules and Associations: Hidden Markov models and neural networks in the psychology of learning*. PhD-thesis under supervision from Peter Molenaar and Maartje Raijmakers, defended at the University of Amsterdam, at may 16th, 2002.
- 1996** Ingmar Visser. *Mind Rules: a philosophical essay on psychological rules and the the rules of psychology*, published as Technical Report X-96-01, Institute for Logic, Language and Computation, 1996. MA thesis supervised by Renate Bartsch from the Department of Philosophy, University of Amsterdam.

### Invited talks and presentations

- 2009** Ingmar Visser. A framework for modeling discrete change. Invited talk at the Jubileum meeting of the Vereniging voor Ordiatie en Classificatie (VOC) te Wageningen.
- 2008** Ingmar Visser. A framework for modeling discrete change. Invited talk at the Individual Pathways of Change conference, organized at PennState.
- 2006** Ingmar Visser. Effective sample size and the Bayes factor. Talk presented at the annual meeting of the Dutch Statistics Society (VVS).
- 2006** Ingmar Visser. Depmix. One day workshop taught at PennState on the use of depmix for fitting hidden Markov models.
- 2006** Ingmar Visser. Detecting rules in learning & development. Talk presented at the Ninth meeting of the *International Institute on Developmental Science* at Penn State University, State College, PA.

- 2005** Ingmar Visser and Surajit Ray. Effective sample size and the Bayes factor. Talk presented at the SAMSI transition workshop of the Latent Variables in the Social Sciences program.
- 2005** Ingmar Visser. Dependent Mixture Models. Talk presented at SAMSI, may 2005.
- 2003** Ingmar Visser. Implicit learning and explicit knowledge: Acquiring rule-governed behavior. Universite Libre de Bruxelles in the lab of Axel Cleeremans.
- 2003** Ingmar Visser. Impliciet leren en expliciete kennis. Free University (Amsterdam, in Dutch).
- 2002** Methodologisch solipsisme, 'grounding' en impliciet leren. University of Leiden (in Dutch).
- 2002** Ingmar Visser. Al doende leert men: regelgestuurd gedrag en impliciet leren. Talk at the 2002 meeting of the Experimental Psychology Graduate Research Institute (EPOS; in Dutch).

### Talks and presentations

- 2008** Ingmar Visser. Modeling learning processes. Talk presented at the Department of Psychology, University of Amsterdam.
- 2008** Ingmar Visser. Individual Strategies in Artificial Grammar Learning. Talk presented at ASIC 2008, Madonna di Campiglio, Italy.
- 2007** Ingmar Visser. The development of exemplar based and rule based representations in children. Talk presented for the developmental group of the Department of Psychology, University of Amsterdam.
- 2007** Ingmar Visser. Individual strategies in AGL. Talk presented at the closing symposium of the FAR project.
- 2007** Ingmar Visser. Detecting rules in learning and development. Talk presented at the symposium on Qualitative Change in Cognitive Development: Theory, Models and Applications at the 2007 meeting of the Jean Piaget Society.
- 2007** Ingmar Visser. Dependent mixture models. Talk presented at the seminar of the PennState statistics department.
- 2007** Ingmar Visser. Measuring individual change with latent Markov models. Talk presented at the 2007 meeting of the Society for Research in Child Development (SRCD).
- 2006** Ingmar Visser. Dependent Mixture Models. Talk presented at the 2006 meeting of the Society for Mathematical Psychology.
- 2007** Ingmar Visser. Switching between rules and exemplars in categorization. Talk presented at the FAR workshop 2007 in Amsterdam.

- 2006** Ingmar Visser. Detecting rules in learning & development. Talk at the FAR workshop 2006 in Exeter.
- 2005** Ingmar Visser. Dependent Mixture Models: Applications. Paper presented at the 2005 International Meeting of the Psychometric Society.
- 2005** Ingmar Visser. On the reliability of direct and indirect measures of implicit learning. EPOS/KPP/KLI symposium: Implicit Cognition and Attention in Experimental Psychopathology and Health research: Indirect Measures or Dual Processes?.
- 2005** Ingmar Visser Jenny Tagaro & Hilde M. Huizinga. Meta-analysis of sequence learning with secondary tasks. Paper presented at the 2005 ESCOP (European Society for Cognitive Psychology) conference.
- 2005** Ingmar Visser. Dependent Mixture Models. Talk presented at the University of Virginia, march 2005.
- 2004** Ingmar Visser. Latent Markov models for arbitrary length mixed time series: An application to the speed-accuracy trade-off. Paper presented at the 2004 NOSMO meeting.
- 2004** Ingmar Visser. Dependent Mixture Models. Paper presented at the European Mathematical Psychology Group meeting.
- 2004** Ingmar Visser. Multivariate latent Markov models for arbitrary length time series: An implementation and application to the speed-accuracy trade-off. Paper presented at the 2004 International Meeting of the Psychometric Society.
- 2003** Ingmar Visser. Can generation performance be implicit? Online measures of implicit knowledge. Paper presented at the 2003 meeting of European Society for Cognitive Psychology (ESCOP).
- 2003** Ingmar Visser. Finding rules in implicit learning with hidden Markov models. Paper presented at the 13th International Meeting of the Psychometric Society (IMPS).
- 2001** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Equivalent architectures. *Paper presented at the 2001 meeting of the European Society for Philosophy and Psychology in Fribourg, Switzerland, august 8-11, 2001.*
- 2000** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Hidden Markov models and simple recurrent networks. Paper presented at the 2000 Annual Meeting of the Psychometric Society. (Abstract in: Kadriye Ercikan, editor, *Proceedings of the 2000 annual meeting of the Psychometric Society*, page 23. Psychometric Society, Vancouver, 2000.)
- 1999** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. A comparison between predictions and reaction times in implicit sequence learning. Paper presented at the 11th conference of the European society for cognitive psychology (ESCOP) (Abstract in: A. Vandierendonck, M. Brysbaert, and K. Van der Goten, editors *Proceedings of the eleventh*

*conference of the European society for cognitive psychology*, page 232. Academica Press, Ghent, 1999.

- 1999** Ingmar Visser, Maartje E. J. Raijmakers, and Peter C. M. Molenaar. Confidence intervals for hidden Markov model parameters. Paper presented at the 2003 European Meeting of the Psychometric Society. (Abstract in: J. Rost, editor, *MPR-online: Methods of Psychological Research*, volume IV. Special Issue: Abstracts of the European Meeting of the Psychometric Society, page 75. Pabst Science Publ., Leugering, 1999.)