Curriculum Vitae
Dylan Molenaar

1. Personal

Name:
Nationality: Dutch
Born:
Mail address: Psychological Methods
                      Department of Psychology
                      Faculty of Social and Behavioral Sciences

Visit address
Phone:
E-mail:

2. Work experience

2013 - present   Assistant professor (1.0 fte, tenured since 2016) at the Psychological
                      Methods group, Department of Psychology, University of Amsterdam.

2012   Post-doctoral fellow (1.0 fte) at the Psychological Methods
                      group, Department of Psychology, University of Amsterdam.

3. Education

2017   Course "the good supervisor" provided by the University of Amsterdam
                      (lecturer: Christianne Vink, the course covers the theory and practice of
                      PhD and post-doc supervision)

2012   BKO teaching certificate, University of Amsterdam

2012   PhD (Cum Laude), psychological methods group, Department of
                      Psychology, University of Amsterdam.
                      Thesis title: Testing distributional assumptions in psychometric
                                           measurement models with substantive applications in
                                           psychology
                      Promotor: Prof. Dr. H., L., J., van der Maas.
                      Daily supervisor: Dr. C. V. Dolan.

2007:   Research master Psychology (Cum Laude), University of Amsterdam
                         Title thesis: Accounting for non-normality in latent regression
                                             models using a cumulative normal selection function
                         Supervisor: Dr. N.D. Verhelst

4. Teaching experience

4.1 Organizational work

2017 - present   Daily board of the Psychological Methods group, University of
                        Amsterdam

2016 - present   Selection committee of the Behavioral Data Science Master's Program
                        at the University of Amsterdam.

2015 - 2023   Involved in the *Bachelor's Day of the University of Amsterdam*
                        (Information event for prospective psychology students, ca 450 people),
                        University of Amsterdam

2013 - 2023   Involved in the admission tests of the *Selection Psychology* (selection
                        procedure to admit new students to the bachelor of psychology; 2013-
                        2016: ca 400 applicants [Dutch only]; 2017 and later: ca 1500 applicants
                        [International]), University of Amsterdam

2019 - 2022   Study advisor of the Psychological Methods Bachelor's and Master's
                        Program.

2011 - 2022   Coordination of third year bachelor's program of the Psychological
                        Methods group, University of Amsterdam

2019   Member of the committee concerned with setting up a new bachelor's
                        thesis teaching program

2019   Member of the committee concerned with setting up a new master's
                        thesis teaching program

2015   Chair of the sub-committee on 'research methods education' within the
                        committee "Statistics and Methods in the Bachelor Psychology" (SMBP)
                        to advice on restructuring the educational track on statistics and
                        methods in the bachelor psychology, University of Amsterdam

2008   Member of the committee concerned with setting up a general program
                        in the third bachelor's year of the Psychological Methods
                        group, University of Amsterdam

4.2 Courses taught

2022-present   *Structural equation modeling [course taught in English],* graduate students psychology (ca. 40 students), University of Amsterdam

2019 - present   *Latent variable modeling [course taught in English],* third-year undergraduate psychology students (ca 80 students), University of Amsterdam

2020 – present   *Psychological testing [course taught in English]*, second-year undergraduate psychology students (ca. 400 students), University of Amsterdam

2018 - 2022   *Research methods and statistics [course taught in English]*, first-year undergraduate psychology students (ca. 550 students), University of Amsterdam

2014 - 2019   *Test theory and practice [course taught in English in 2019]*, first-year undergraduate psychology students (ca. 400 students), University of Amsterdam

2013 - 2017   *Research methods,* first-year undergraduate psychology students (ca. 400 students), University of Amsterdam

2013 - 2015   *Latent variable modeling,* third-year undergraduate psychology students (ca 20 students), University of Amsterdam.

2013   *Item Response Theory,* first and second year graduate students psychology (research master psychology, ca. 15 students), University of Amsterdam.

2012   *Research methods*, first-year undergraduate students from the beta-gamma bachelor's program (ca. 100 students), University of Amsterdam.

2011 - 2012   *Factor analysis*, third-year undergraduate psychology students (ca 15 students), University of Amsterdam.

2009 - 2012   *Item response theory,* third-year undergraduate psychology students (ca 15 students), University of Amsterdam.

2008 - 2012   *Research methods,* first-year undergraduate students from the biology biomedical sciences, and biological psychology bachelor's program (2008: 400 students; 2009: 500 students; 2010 700 students; 2011: 600 students; 2012: 600 students)

2007	*Research methods,* first-year undergraduate students from the biological psychology bachelor's program (ca 70 students)

5. Service to the field

2023 – present	Member of advisory board that advices Cito (the Dutch organization for educational testing) on the quality of tests (to be) used in the Dutch primary education system.
2019 - present	Member of the board of The Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS; an institute for the advanced dissertation training in psychometrics and sociometrics; with an emphasis on coordination of high-quality research in this area.)
2019 - present	Reviewer for the "Cotan", the Dutch Committee on Tests and Testing which reviews the quality of psychological tests that are available for use in the Netherlands and raises standards for the use of psychological tests.
2017 - 2022	Member of the Proceedings Committee of the Psychometric Society
2020 - 2021	Statistical/psychometric consultant for the "RIVM taskforce", a taskforce that advices the RIVM (the Dutch National Institute for Public Health and the Environment) in psychometric and statistical issues related to the Covid-19 pandemic.
2019 - 2020	Local host for the annual meeting of the International Society for Intelligence Research at the University of Amsterdam, The Netherlands
2019	Member of the program committee for the 2020 International Meeting of the Psychometric Society (IMPS)
2017	Member of the NWO (Netherlands Organization for Scientific Research) talent grant committee

6. Supervision

6.1 Daily supervision of PhD students

2022 – present	"Towards Psychometrically Interpretable Neural Networks: Bridging the Gap between Latent Variable Models from Psychometrics and Neural Networks from Deep Learning". PhD student: Karel Veldkamp.

2019 - 2023	"Computer adaptive practice of Maths ability using a new item response model for on the fly ability and difficulty estimation". PhD student: Sharon Klinkenberg.

6.2 Post-Doc supervision

2018 - 2019	Renske Kuijpers
2015 - 2017	Maria Bolsinova

6.3 PhD committee memberships

2022	Andrea Stoevenbelt (Tilburg University, The Netherlands)
2022	Edwin Cuellar Caicedo (University of Amsterdam, The Netherlands)
2021	Joost Kruis (University of Amsterdam, The Netherlands)
2020	Zhengguo Gu (Tilburg University, The Netherlands)
2019	Dmitry Abbakumov (University of Leuven, Belgium)
2015	Gunnar Bergersen (University of Oslo, Norway)

7. Scientific output

7.1 Grants

2021	Research and Development grant by the International Association for the Evaluation of Educational Achievement (IEA) for the project: "Validity and measurement properties in technology-enhanced test items: a balancing act" (with Saskia Wools, Remco Feskens, and Paul Drijvers) € 100,000
2015	IOPS Graduate School Program grant (funded by NWO). Ph. D. project: "Developing Process Measurement Models with Broad Applicability", by Joost Kruis
2015	Personal grant from the Dutch Organization for Scientific Research (NWO), VENI scheme. Project title: "Within-subjects Approaches to the Analysis of Responses and Response Times to Psychometric Tests" € 250,000
2007	*Personal grant from the Dutch Organization for Scientific Research (NWO), TopTalent scheme.* Project title: "Statistical modeling of (cognitive) ability differentiation" € 180,000
2006	*Grant for master students in psychometrics from the Dutch Educational Testing Service* € 6,000

7.2. Awards

| 2019 | *Early career award*, Psychometric Society |
| | 84th annual meeting of the Psychometrics Society, Santiago, Chili, July. |

| 2013 | *Best dissertation award*, Psychometric Society |
| | 78th annual meeting of the Psychometrics Society, Arnhem, The Netherlands, July. |

| 2007 | *John B. Caroll price for best research methodology* |
| | 7th Annual Conference of the International Society for Intelligence Research, December 2007 |

| 2007 | *IOPS, best paper award (with J.M. Wicherts)* |

7.3 International peer reviewed journal articles

Total: 59 items (first author: 30; last author: 15; second author: 13)

[59] **Molenaar, D.**, & Feskens, R. (in press). Relating Violations of Measurement Invariance to Group Differences in Response Times. *Psychological Methods*.

[58] Kolbe, L., **Molenaar, D.,** Jak, S., & Jorgensen, T. D. (in press). Assessing Measurement Invariance with Moderated Nonlinear Factor Analysis Using the R Package OpenMx. *Psychological Methods*.

[57] Kang, I., **Molenaar, D.,** & Ratcliff, R. (2023). A Modeling Framework to Examine Psychological Processes Underlying Ordinal Responses and Response Times of Psychometric Data. *Psychometrika, 88,* 940-974.

[56] Van der Reep, T.H.A., **Molenaar, D.,** Loeffler, W., Pinto, Y. (2023). Quantum Detector Tomography applied to the Human Visual System: A Feasibility Study. *Journal of the Optical Society of America A, 40,* 285-293.

[55] Junker, T.L., Bakker, A.B., Derks, D., & **Molenaar, D.** (2023). Agile Work Practices: Measurement and Mechanisms. *European Journal of Work and Organizational Psychology*, *32*, 1-22

[54] Francken, J., Beerendonk, L., **Molenaar, D.,** Fahrenfort, J., Kiverstein, J., Seth, A., & van Gaal, S. (2022). An academic survey on theoretical foundations, common assumptions and the current state of consciousness science. *Neuroscience of Consciousness, 1,* 1-13.

[53] Breit, M., Brunner, M., **Molenaar, D.**, & Preckel, F. (2022). Differentiation hypotheses of intelligence: A systematic review of the empirical evidence and an agenda for future

research. *Psychological Bulletin, 148*(7-8), 518–554.

[52] **Molenaar, D.,** Cúri, M., & Bazán, J.L. (2022). Zero and One Inflated Item
Response Theory Models for Bounded Continuous Data. *Journal of Educational and Behavioral Statistics*, *47*, 693-735.

[51] Becker, B., van Rijn, P., **Molenaar, D.,** & Debeer, D. (2022). Item Order and Speededness:
Implications for Test Fairness in Higher Educational High-Stakes Testing. *Assessment and Evaluation in Higher Education, 47,* 1030-1042.

[50] Klein Haneveld, E., **Molenaar, D.,** de Vogel, V., Smid, W., & Kamphuis, J.H. (2022). Do we
Hold Males and Females to the Same Standard? A Measurement Invariance Study on the Psychopathy Checklist-Revised. *Journal of Personality Assessment, 104,* 368-379.

[49] Pronk, T., **Molenaar, D.,** Wiers, R.D., & Murre, J. (2022). Methods to Split Cognitive
Task Data for Estimating Split-Half Reliability: A Comprehensive Review and a Systematic Assessment. *Psychonomic Bulletin and Review*, *29*, 44-54

[48] **Molenaar, D.,** Rózsa, S., & Kõ, N. (2021). Modeling Asymmetry in the Time-Distance
Relation of Ordinal Personality Items. *Applied Psychological Measurement, 45, 178-194*

[47] **Molenaar, D.,** Uluman, M., Tavşancıl, E., & De Boeck, P. (2021). The Hierarchical
Rater Thresholds Model for Multiple Raters and Multiple Items. *Open Education Studies, 3,* 33-48.

[46] **Molenaar, D.** (2021). A flexible moderated factor analysis approach to test for
measurement invariance across a continuous variable. *Psychological Methods, 26*, 660–679.

[45] Kuijpers, R.E., Visser, I., & **Molenaar, D.** (2021). Testing the Within-State Distribution in
Mixture Models for Responses and Response Times. *Journal of Educational and Behavioral Statistics*, 46, 348-373

[44] Kolbe, L., Jorgensen, T. D., & **Molenaar, D.** (2021). The impact of unmodeled
heteroscedasticity on assessing measurement invariance in single-group models. *Structural Equation Modeling: A Multidisciplinary Journal*, *28*, 82-98.

[43] Jovanović, V., **Molenaar, D.,** Gavrilov Jerković, V., & Lazić, M. (2021). Positive
expectancies and subjective well-being: A prospective study among undergraduates in Serbia. *Journal of Happiness Studies, 22,* 1239-1258.

[42] Tamimy, Z., Rózsa, S., Kõ, N., & **Molenaar, D.** (2020). A Practical Cross-Sectional Framework
to Contextual Reactivity in Personality: Response Times as Indicators of Reactivity to Contextual Cues. *Psych*, 2*(4)*, 253-268.

[41] Jovanović, V., Lazić, M., Gavrilov-Jerković, V., & **Molenaar, D.** (2020). The Scale of
Positive and Negative Experience (SPANE): Evaluation of measurement invariance and

convergent and discriminant validity. *European Journal of Psychological Assessment*, 36(4), 694–704.

[40] Kovacs, K., **Molenaar, D.,** & Conway, A.R.A. (2019). The domain specificity of working memory is a matter of ability. *Journal of Memory and Language, 109*, 104048.

[39] **Molenaar, D.**, Rósza, S., & Bolsinova, M. (2019). A Heteroscedastic Hidden Markov Mixture Model for Responses and Categorized Response Times. *Behavior Research Methods*, *51*, 676-696.

[38] Bolsinova, M., & **Molenaar, D.** (2019). Nonlinear indicator-level moderation in latent variable models. *Multivariate Behavioral Research, 54,* 62-84.

[37] Bolsinova, M., & **Molenaar, D.** (2018). Modeling nonlinear conditional dependence between response time and accuracy. *Frontiers in Psychology: Quantitative Psychology and Measurement, 9, 1525.*

[36] **Molenaar, D.,** & De Boeck, P. (2018). Response Mixture Modeling: Accounting for Heterogeneity in Item Characteristics across Response Times. *Psychometrika, 83,* 279-297.

[35] **Molenaar, D.,** Bolsinova, M., & Vermunt, J.K. (2018). A Semi-Parametric Within-Subject Mixture Approach to the Analyses of Responses and Response Times. *British Journal of Mathematical and Statistical Psychology, 71*, 205-228.

[34] **Molenaar,D.,** Kő, N., Rózsa, S., & Mészáros, A. (2017). Differentiation of cognitive abilities in the WAIS-IV at the item level. *Intelligence, 65*, 48-59.

[33] **Molenaar, D.,** & Bolsinova, M. (2017). A heteroscedastic generalized linear model with a non-normal speed factor for responses and response times. *British Journal of Mathematical and Statistical Psychology*, *70*(2), 297-316.

[32] Bolsinova, M., Tijmstra, J., & **Molenaar, D.** (2017). Response moderation models for conditional dependence between response time and response accuracy. *British Journal of Mathematical and Statistical Psychology*, *70*(2), 257-279.

[31] Xenidou-Dervou, I., **Molenaar, D.,** Ansari, D., van der Schoot, M., & van Lieshout, E. C. (2017). Nonsymbolic and symbolic magnitude comparison skills as longitudinal predictors of mathematical achievement. *Learning and Instruction*, *50*, 1-13.

[30] de Kort, J. M., Dolan, C. V., Lubke, G. H., & **Molenaar, D.** (2017). Studying the Strength of Prediction Using Indirect Mixture Modeling: Nonlinear Latent Regression with Heteroskedastic Residuals. *Structural Equation Modeling: A Multidisciplinary Journal*, *24*(2), 301-313.

[29] **Molenaar, D.,** Oberski, D., Vermunt, J., De Boeck, P. (2016). Hidden Markov IRT Models for Responses and Response Times. *Multivariate Behavioral Research*, *51*, 606-626.

[28] Booth, T., Murray, A.L., & **Molenaar, D.** (2016). Personality differentiation by cognitive ability: An application of the moderated factor model. *Personality and Individual Differences, 100,* 73-78.

[27] Murray, A.L., **Molenaar, D.,** Johnson, W., & Krueger, B. (2016). Dependence of gene-by-environment interactions (GxE) on scaling: Comparing the use of sum scores and IRT scores of the phenotype in tests of GxE. *Behavior Genetics, 4*, 552–572

[26] Murray, A. L., Booth, T., & **Molenaar, D.** (2016). When Middle Really Means "Top" or "Bottom": An Analysis of the 16PF5 Using Bock's Nominal Response Model. *Journal of personality assessment*, *98*(3), 319-331.

[25] **Molenaar D.** (2016). On the Distortion of Model fit in Comparing the Bifactor Model and the Higher-Order Factor Model. *Intelligence.* 57, 60–63.

[24] **Molenaar, D.,** Bolsinova, M., Rozsa, S., & De Boeck, P. (2016). Response Mixture Modeling of Intraindividual Differences in Responses and Response Times to the Hungarian WISC-IV Block Design Test. *Journal of Intelligence*,*4*(3), 10.

[23] **Molenaar, D.**, Middeldorp, C.M., Willemsen, G., Ligthart, L., Nivard, M.G., & Boomsma, D.I. (2016). Evidence for Gender-dependent Genotype by Environment Interaction in Adult Depression. *Behavior Genetics,* 46(1), 59-71.

[22] **Molenaar, D.** (2015). The value of response times in item response modeling. *Measurement: Interdisciplinary Research and Perspectives, 13*(3-4), 177-181.

[21] **Molenaar, D.,** Middeldorp, C., Beijsterveldt, T., & Boomsma, D. I. (2015). Analysis of Behavioral and Emotional Problems in Children Highlights the Role of Genotype× Environment Interaction. *Child development, 86*, 1999-2016.

[20] **Molenaar, D.** (2015). Heteroscedastic Latent Trait Models for Dichotomous Data. *Psychometrika, 80,* 625-644.

[19] **Molenaar, D.**, Tuerlinckx, F., & van der Maas, H.L.J. (2015). Fitting Diffusion Item Response Theory Models for Responses and Response Times Using the R Package diffIRT. *Journal of Statistical Software, 66(4)*, 1-34.

[18] **Molenaar, D.**, Tuerlinckx, F., & van der Maas, H.L.J. (2015). A Bivariate Generalized Linear Item Response Theory Modeling Framework to the Analysis of Responses and Response Times. *Multivariate Behavioral Research, 50*(1), 56-74.

[17] **Molenaar, D.**, Tuerlinckx, F., & van der Maas, H.L.J. (2015). A Generalized Linear Factor Model Approach to the Hierarchical Framework for Responses and Response Times. *British Journal of Mathematical and Statistical Psychology*, *68*(2), 197-219.

[16] Topper, M., **Molenaar, D.**, Emmelkamp, P.M.G., & Ehring, T. (2014). Are rumination and worry two sides of the same coin? A structural equation modelling approach. *Journal of Experimental Psychopathology*, 5, 363-381.

[15] **Molenaar, D.,** & Dolan, C. V. (2014). Testing systematic genotype by environment interactions using item level data. *Behavior genetics*, *44*, 212-231.

[14] **Molenaar, D.,** van der Sluis, S., Boomsma, D.I., Haworth, C.M.A, Hewitt, J.K., Plomin, R., Wright, M.J., & Dolan, C.V. (2013). Genotype by Environment Interactions in Cognitive Ability Tested in 14 Different Studies. *Behavior Genetics, 43,* 208-219.

[13] **Molenaar, D.,** & Borsboom, D. (2013). The Formalization of Fairness: Issues in Testing for Measurement Invariance Using Subtest Scores. *Educational research and evaluation, 2,* 223-244.

[12] **Molenaar, D.,** & Dolan, C.V., (2012). Substantively Motivated Extensions of the Traditional Latent Trait Model. *Netherlands Journal of Psychology, 67*, 48-57.

[11] **Molenaar, D.,** van der Sluis, S., Boomsma, D.I., & Dolan, C.V. (2012). Detecting Specific Genotype by Environment Interaction using Marginal Maximum Likelihood Estimation in the Classical Twin Design. *Behavior Genetics, 42,* 483-499.

[10] **Molenaar, D.,** Dolan, C.V., & de Boeck, P. (2012). The Heteroscedastic Graded Response Model with a Skewed Latent Trait: Testing Statistical and Substantive Hypotheses related to Skewed Item Category Functions. *Psychometrika 77,* 455-478

[9] Wicherts, J.M., Bakker, M., **Molenaar, D.** (2011). Willingness to Share Research Data Is Related to the Strength of the Evidence and the Quality of Reporting of Statistical esults. *PloS ONE, 6*, e26828.

[8] van der Maas, H.L.J., **Molenaar, D.**, Maris, G., Kievit, R.A., & Borsboom, D. (2011). Cognitive Psychology Meets Psychometric Theory: On the Relation Between Process Models for Decision Making and Latent Variable Models for Individual Differences. *Psychological Review, 118,* 339-356.

[7] **Molenaar, D.**, Dolan, C.V., & van der Maas, H.L.J. (2011). Modeling ability differentiation in the second-order factor model. *Structural Equation Modeling*, 18, 578-594.

[6] **Molenaar, D.**, Dolan, C.V., Wicherts, J.M., & van der Maas, H.L.J. (2010). Modeling Differentiation of Cognitive Abilities within the Higher-Order Factor Model using Moderated Factor Analysis. *Intelligence, 38*, 611-624.

[5] Visch, V., Tan, E.S.H., & **Molenaar, D.** (2010). The emotional and cognitive effect of immersion in film viewing. *Cognition & Emotion, 24*, 1439-1445.

[4] Matzke, D., Dolan, C.V., & **Molenaar, D.** (2010). The issue of power in the identification of "g" with lower-order factors. *Intelligence, 38*, 336-344.

[3] **Molenaar, D.**, Dolan, C.V., & Verhelst, N.D. (2010). Testing and modeling non-normality within the one factor model. *British Journal of Mathematical and Statistical Psychology,*

63, 293-317.

[2] **Molenaar, D.**, Dolan, C.V., & Wicherts, J.M. (2009). The power to detect sex differences in IQ test scores using multi-group covariance and mean structure analysis. *Intelligence, 37*, 396-404.

[1] Wicherts, J.M., Borsboom, D., Kats, J., & **Molenaar, D.** (2006). The poor availability of psychological research data for reanalysis. *American Psychologist, 61*, 726-728.
--- Awarded Best Paper Award IOPS 2007---

7.4 Other publications

[17] **Molenaar, D.,** & Van Rijn, P. (forthcoming). Modeling Item Responses with Response Times as Collateral Information in Large-Scale Educational Assessments. In: L. Khorramdel, M. von Davier, & K. Yamamoto (Eds.), *Innovative Computer Based International Large-Scale Assessments.* Springer*.*

[16] **Molenaar, D.** (2023). A factor analysis approach to item-level change score reliability. In: A. van der Ark, W. Emons, & R. Meijer (Eds.), *Essays on Contemporary Psychometrics. Methodology of Educational Measurement and Assessment.* Springer.

[15] Wiberg, M., **Molenaar, D.,** González, J., Kim, K.S., & Hwang, H. (Eds.). (2023). Quantitative Psychology: The 87nd Annual Meeting of the Psychometric Society, Bologna, Italy, 2022. Springer.

[14] **Molenaar, D.,** & Schnipke, D. (2022). Using Item Response Time in Scoring. In: J. Weiner & S. Sireci (Eds.), *Guidelines for technical based assessment.* International Testing Commission and Association of Test Publishers

[13] Wiberg, M., **Molenaar, D.,** González, J., Kim, J.-S., & Hwang, H. (Eds.). (2022) Quantitative Psychology: The 86nd Annual Meeting of the Psychometric Society Virtual, 2021. Springer.

[12] Wiberg, M., **Molenaar, D.,** González, J., Bockenholt, U., & Kim, J.-S. (Eds.). (2021). Quantitative Psychology: The 85nd Annual Meeting of the Psychometric Society Virtual, 2020. Springer.

[11] **Molenaar, D.**, (2020). Review of Handbook of Item Response Theory, Volume II: Statistical Tools. *Journal of Educational and Behavioral Statistics, 45,* 507-511.

[10] Wiberg, M**., Molenaar, D.**, González, J., Bockenholt, U., & Kim, J-.S. (Eds.). (2020). Quantitative Psychology: The 84nd Annual Meeting of the Psychometric Society, Santiago de Chile, Chile, 2019. Springer.

[9] Wiberg, M., Culpepper, S., Janssen, R., González, J., & **Molenaar, D.** (Eds.). (2019).

Quantitative Psychology: The 83rd Annual Meeting of the Psychometric Society, New York, NY, 2018. Springer.

[8] Wiberg, M., Culpepper, S., Janssen, R., González, J., & **Molenaar, D.** (Eds.). (2018). Quantitative Psychology: The 82nd Annual Meeting of the Psychometric Society, Zurich, Switzerland, 2017. Springer.

[7] **Molenaar, D.,** & Visser, I. (2017). Cognitive and psychometric modelling of responses and response times [special issue]. *British Journal of Mathematical and Statistical Psychology*, *70*(2).

[6] **Molenaar, D.,** (2015). Intelligence tests. *The Blackwell Encyclopedia of Race, Ethnicity and Nationalism.* DOI: 10.1002/9781118663202.wberen544

[5] **Molenaar, D.,** & Dolan, C.V. (2018). Non-Normality in Latent Trait Modeling. In P. Irwing, T. Booth, D.J. Hughes (Eds). *Wiley Blackwell Handbook of Psychometric Testing*. UK: John Wiley & Sons Ltd.

[4] Borsboom, D. & **Molenaar, D.** (2015). Psychometrics. In J.D. Wright (Ed.), *International encyclopedia of the social & behavioral sciences.* - 2nd ed (pp. 418-422). Amsterdam: Elsevier.

[3] Tuerlinckx, F., **Molenaar, D.,** & van der Maas, H.L.J. (2016). *Diffusion-based item response modeling*. In W.J van der Linden and R.K. Hambleton (Eds.). *Handbook of Modern Item Response Theory, Vol 1*. Chapman and Hall/CRC Press.

[2] **Molenaar, D.** (2012). *Testing distributional assumptions in psychometric measurement models with substantive applications in psychology.* Unpublished doctoral thesis, University of Amsterdam, The Netherlands.
--- *Awarded Best Dissertation Award 2013---*

[1] **Molenaar, D.** (2007). Accounting for non-normality in latent regression models using a cumulative normal selection function. *Measurement and Research Department Reports, 3*. Arnhem: Cito.

7.5 Review activities

2024 – present	Associate editor of *Behavior Research Methods*
2021 – present	Associate editor of *Psychometrika*
2021 – present	Member of the editorial board of *Journal of Educational and Behavioral Statistics*
2020 – present	Member of the editorial board of the section *Psychological and Educational Measurement* of the open-access journal *Psych*.
2013 – present	Member of the editorial board of the journal *Intelligence*
2017 – 2022	Co-editor of the proceedings of the annual meetings of the *Psychometric Society*.
2016	Special issue editor for *British Journal of Mathematical and Statistical*

Psychology

2016 - 2019   Member of the editorial board of the journal *Frontiers in Quantitative Psychology and Measurement.*

2008 - present   Ad-hoc reviewing for various journals, among which:
                     Science, Psychological review, Psychometrika, Psychological Methods, Structural Equation Modeling, British Journal of Mathematical and Statistical Psychology, Computational Statistics and Data Analysis, Multivariate Behavioral Research, Journal of Educational Measurement, Journal of Educational and Behavioral Statistics, Applied psychological measurement, and *Journal of the Royal Statistical Society Series A.*

7.6 Workshops

Molenaar, D. (2017). 2-Day *Workshop: Psychometric Modeling of Responses and Response Time Data*, Deutschen Institut für Internationale Pädagogische Forschung (DIPF), July.

Molenaar, D. (2017). 3-Day *Workshop: A basic introduction to Mplus (with Susanne Jak),* University of Amsterdam*, May.*

7.7 Symposia organized

[6] Molenaar, D., (2018). Organization of the symposium The Value of Item Response Times in Psychometric Test Practice for the 11th International Test Commission Conference, Montreal, Canada, July.

[5] Molenaar, D. (2016). Organization of the symposium Methodological advances in the psychometric analysis of responses and response times for *the VII European Congress of Methodology*, Palma de Mallorca, Spain, July.

[4] Molenaar, D. (2015). Organization of the symposium Modeling responses and response times to psychological tests for *the 80th annual meeting of the Psychometrics Society*, Beijing, China, July.

[3] Molenaar, D. (2013). Organization of the symposium Psychometric modeling of responses and response times for *the 78th annual meeting of the Psychometrics Society*, Arnhem, The Netherlands, July.

[2] Molenaar, D. (2011). Organization of the symposium Heterogeneity in Latent Variable Models for *the 76th annual meeting of the Psychometrics Society*, Hong Kong, China, July.

[1] Molenaar, D. (2010). Organization of the symposium Population Heterogeneity in SEM and IRT for *the 75th annual meeting of the Psychometrics Society*, Athens, USA, July.

7.8 Invited Presentations

[20] Molenaar, D., (2022, July). Testing for Group Differences in Cognitive Strategies to Explain

Violations of Measurement Invariance. Meeting of the International Society for Intelligence Research (ISIR), Vienna, Austria.

[19] Molenaar, D., (2022, February 24). (Variational) Autoencoder Item Response Theory [online presentation]. Freie Universität Berlin, Berlin, Germany

[18] Molenaar, D., (2021, September 27). Autoencoder IRT [online presentation]. Biannual meeting of The Brazilian Association of Educational Evaluation (ABAVE) [online presentation], São Paulo, Brazil.

[17] Molenaar, D., (2020, July 8). Dynamic Modeling of Discrete and Continuous Differences in Response Processes Underlying Psychometric Tests [online presentation]. Colloquium on Response Times, Freie Universität Berlin, Berlin, Germany

[16] Molenaar D., (2020, February 14). Studying Variability of Measurement Model Parameters across Continuous Background Variables. VIII workshop on probability and statistical methods. São Carlos, Brazil.

[15] Molenaar, D. (2019, November 28). Are Cognitive Abilities Differentiated across the Intellect? An Item Level Approach to test for Spearman's Law of Diminishing Returns. University of Vienna, Austria, The Netherlands

[14] Molenaar, D. (2019, September 23). A Semi-Parametric Moderated Factor Analysis Approach to Test for Measurement Invariance across a Continuous Variable. Ohio State University, Ohio, USA.

[13] Molenaar, D. (2019, July 19). Beyond simple main effects: Challenges to the substantive interpretation of higher-order statistical effects. Annual Conference of the Psychometric Society (IMPS), Santiago de Chile, Chile.

[12] Molenaar, D., (2019, June 28). A Mixture Modeling Approach to Local Structural Equation Modeling. Workshop Extensions and Applications of Local Structural Equation Modeling (LSEM), Oldenburg, Germany

[11] Molenaar, D., (2018, November 15). Within-Subject Approaches to the Analysis of Responses and Response Times. ACT Next, Iowa City, Iowa, USA.

[10] Molenaar, D., (2018, October 12). Psychometrics and Response Times: What, Why, How, and Where? Frontiers in Educational Measurement, Oslo, Norway.

[9] Molenaar, D., (2018, July 19). Within-Subject Approaches to the Analysis of Responses and Response Times, Educational Testing Service (ETS), Princeton, NY, USA.

[8] Molenaar, D., (2017, October 20). Psychometric Modeling of Responses and Response times. Department of Education and Child Studies, University of Amsterdam, The Netherlands.

[7] Molenaar, D., (2016, January, 26). Analysis of Behavioral and Emotional Problems in Children Highlights the Role of Genotype x Environment Interaction. VU University Amsterdam, The Netherlands.

[6] Molenaar, D., (2014, November, 18). Response Mixture Modeling of Responses and Response Times. Tilburg University, The Netherlands.

[5] Molenaar, D., (2014, November, 17). Modeling within-subjects differences in responses and response times. University of Amsterdam, The Netherlands.

[4] Molenaar, D., (2014, February, 13). The Heteroscedastic Latent Trait Model: Motivation, Development, and Applications. University of Notre Dame, Indiana, USA.

[3] Molenaar, D., (2014, January, 27). The Heteroscedastic Latent Trait Model: Motivation, Development, and Applications. Ohio State University, Columbus, Ohio, USA.

[2] Molenaar, D. (2013, July, 25). Testing distributional assumptions in psychometric measurement model with substantive applications in psychology. Annual Conference of the Psychometric Society (IMPS), Arnhem, The Netherlands.

[1] Molenaar, D. (2012, December 18). Bring more Psychology into Psychometrics: Psychometric

process models for the measurement of psychological attributes. Invited presentation. Meeting of the Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS), Twente, The Netherlands.

7.9 Conference Presentations

[35] Molenaar, D., (2023, December 13). Autoencoders for Amortized Joint Maximum Likelihood Estimation of Item Factor Models. 37th IRT workshop, Enschede, The Netherlands.

[34] Molenaar, D., (2022, November 14). Using item response times to explain group differences in item parameters. 36th IRT workshop, Enschede, The Netherlands.

[33] Molenaar, D., (2022, July 12). Using item response times to explain group differences in item parameters. 87th International Meeting of the Psychometric Society, Bologna, Italy.

[32] Molenaar, D., (2021, July 23). A semi-parametric moderated factor analysis approach to test for measurement invariance across a continuous variable. Biannual Meeting of the European Association of Methodology (EAM), Valencia, Spain.

[31] Molenaar D., (2021, June, 9). Discussion: On the validity of response time inferences [online presentation]. Annual meeting of the National Council on Measurement in Education (NCME), online conference, USA.

[30] Molenaar, D. & Bolsinova, M. (2019, July, 16). Nonlinear response-level moderation models for product and process data. 84th International Meeting of the Psychometric Society, Santiago de Chile, Chile.

[29] Molenaar, D., (2018, July 11). Response Mixture Modeling: Accounting for Heterogeneity in Item Characteristics across Response Times. 83th International Meeting of the Psychometric Society, New York City, USA

[28] Molenaar, D., (2018, July 3). Investigating Within-Subject Differences in Responses and Response Times. 11th International Test Commission Conference, Montreal, Canada.

[27] Molenaar, D., (2018, April 14). Hidden Markov Mixture Modeling of Responses and Categorized Response Times. Annual Meeting of the National Council on Measurement in Education (NCME), New York, USA

[26] Molenaar, D., (2018, March 15). On the Problem of Spurious Non-Linear Effects in Aggregated Scores: Investigating Differentiation of Cognitive Abilities using Item Level Data. Meeting of working group on SEM, Amsterdam, the Netherlands.

[25] Molenaar, D., Bolsinova, M., & Vermunt, J. (2017, July, 27). Hidden Markov Mixture Modeling of Responses and Categorized Response Times. 82nd International Meeting of the Psychometric Society, Zurich, Switzerland.

[24] Molenaar,D., Kő, N., Rózsa, S., & Mészáros, A. (2017, July 14) Investigating Differentiation of Cognitive Abilities using Item Level Data. 17th meeting of the International Society for Intelligence Research, Montreal, Canada

[23] Molenaar, D. (2017, Match, 16). A Hidden Markov Latent Trait – Latent State Structural Equation Model for Bivariate Observations. Meeting of the Working Group on SEM, Ghent, Belgium.

[22] Molenaar, D., Oberski, D., Vermunt, J., & De Boeck, P. (2016, July, 27). A Latent Markov IRT Modeling Approach to the Analysis of Responses and Response Times. The VII European Congress of Methodology, Palma de Mallorca, Spain.

[21] Molenaar, D., Oberski, D., Vermunt, J., & De Boeck, P. (2015, October, 6). A Latent Markov IRT Modeling Approach to the Analysis of Responses and Response Times. The 6th RCEC workshop on IRT, Enschede, The Netherlands.

[20] Molenaar, D., Oberski, D., Vermunt, J., & De Boeck, P. (2015, July, 14). Response mixture modeling of responses and response times. *The 80th annual meeting of the Psychometrics Society*, Beijing, China, July.

[19] Molenaar, D., & Rhemtulla, M. (2015, March, 13). A procedure to test for gene-by-latent environment interactions with multiple indicators. *International Convention of Psychological Science, Amsterdam, The Netherlands.*

[18] Molenaar, D., (2014, November, 21). Response Mixture Modeling of Responses and Response Times. *The 5th RCEC workshop on IRT,* Enschede, The Netherlands.

[17] Molenaar, D., Tuerlinckx, F., & van der Maas, H.L.J. (2014, July, 5). A generalized linear item response modeling approach to the analysis of responses and response times. The 9th conference of the International testing Commission (ITC), San Sabastian, Spain.

[16] Molenaar, D., Tuerlinckx, F., & van der Maas, H.L.J. (2013, July, 25). Generalized linear item response modeling of responses and response times. Annual Conference of the Psychometric Society (IMPS), Arnhem, The Netherlands.

[15] Molenaar, D. (2013, July, 25). Testing distributional assumptions in psychometric measurement model with substantive applications in psychology. Annual Conference of the Psychometric Society (IMPS), Arnhem, The Netherlands.

[14] Molenaar, D., Tuerlinckx, F., & van der Maas, H.L.J. (2012, October 4). A Generalized linear factor model approach to the hierarchical framework for responses and response times. 3th RCEC Workshop on IRT, Enschede, The Netherlands.

[13] Molenaar, D. & Dolan, C.V. (2012, July 5). Modeling differentiation in the linear factor model. The 8th Conference of the International Test Commission, Amsterdam, The Netherlands.

[12] Molenaar, D., van der Sluis, S., Boomsma, D.I., & Dolan, C.V. (2012, June, 24). Genotype by Environment Interactions when the Environment is Unmeasured: Comparing Two Approaches. 42nd Annual Meeting of the Behavior Genetics Association, Edinburgh, Scotland.

[11] Molenaar, D., Dolan, C.V., & de Boeck, P. (2012, March, 22). The heteroscedastic ordinal factor model. Meeting of the Working Group on SEM, Amsterdam, The Netherlands.

[10] Molenaar, D., van der Sluis, S., Boomsma, D.I., & Dolan, C.V. (2011, December 7). Genotype by Environment Interactions in Cognitive Ability Tested in 14 Different Studies. 11th Annual Conference of the International Society for Intelligence Research (ISIR), Limassol, Cyprus.

[9] Molenaar, D., Dolan, C.V., & de Boeck, P. (2011, July, 22). Testing statistical and substantive hypotheses on the distribution of the observed data within the generalized linear item response model. Annual Conference of the Psychometric Society (IMPS), Hong Kong.

[8] Molenaar, D., Dolan, C.V., & de Boeck, P. (2011, June, 29). Testing statistical and substantive hypotheses on the distribution of the observed data within the generalized linear item response model. Meeting of the Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS), Leuven, Belgium.

[7] Molenaar, D., Dolan, C.V., & de Boeck, P. (2010, October, 12). Testing specific hypotheses on the distribution underlying the item scores in the Graded Response Model. 1th RCEC Workshop on IRT, Enschede, The Netherlands.

[6] Molenaar, D., Dolan, C.V., & de Boeck, P. (2010, July, 8). Modeling overdispersion in the graded response model. Annual Conference of the Psychometric Society (IMPS), Athens, GA.

[5] Molenaar, D. & Dolan, C.V. (2010, February, 26). Statistical modeling of (cognitive) ability differentiation. Annual SEM Meeting, Utrecht, The Netherlands.

[4] Molenaar, D. & Dolan, C.V. (2009, December, 18). Modeling Differentiation of Cognitive Abilities within the Higher-Order Factor Model using Moderated Factor Analysis. 9th Annual Conference of the International Society for Intelligence Research (ISIR), Madrid, Spain.

[3] Molenaar, D. & Dolan, C.V. (2009, December, 10). Statistical modeling of (cognitive) ability differentiation. Meeting of the Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS), Arnhem, The Netherlands.

[2] Molenaar, D. & Dolan, C.V. (2008, July, 4). Factor Analytic Modeling of Ability Differentiation. Annual Conference of the Psychometric Society (IMPS), Durham, NH.

[1] Molenaar, D. & Dolan, C.V. (2007, December, 14). The Power to Detect Sex Differences in Intelligence Test Scores using MG-CMSA. 7th Annual Conference of the International Society for Intelligence Research (ISIR), Amsterdam, The Netherlands.

--- Awarded John B. Caroll Award for research methodology ---

Amsterdam, 20-02-2024

Dylan Molenaar