



Universiteit
Leiden
The Netherlands

Team automata : a formal approach to the modeling of collaboration between system components

Beek, M.H. ter

Citation

Beek, M. H. ter. (2003, December 10). *Team automata : a formal approach to the modeling of collaboration between system components*. Retrieved from <https://hdl.handle.net/1887/29570>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/29570>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/29570> holds various files of this Leiden University dissertation.

Author: Beek, Maurice H. ter

Title: Team automata : a formal approach to the modeling of collaboration between system components

Issue Date: 2003-12-10

Curriculum Vitae

Maurice ter Beek werd op 7 oktober 1972 geboren te 's-Gravenhage en behaalde in 1990 zijn V.W.O.-diploma aan het Pallas College te Zoetermeer. Daarna begon hij met de studie informatica aan de Universiteit Leiden, alwaar hij als student-assistent ook vele werkcolleges heeft verzorgd. In 1995/1996 studeerde hij aan de Eötvös Loránd universiteit te Budapest met een beurs van het Hongaarse ministerie van onderwijs en cultuur. Gedurende die periode deed hij ook het onderzoek voor zijn afstudeerscriptie in het Computer and Automation Research Institute van de Hongaarse Akademie van Wetenschappen. Dit geschiedde onder de lokale begeleiding van Dr. E. Csuhaj-Varjú, vanuit Leiden gevolgd door Prof.dr. G. Rozenberg en Dr. H.C.M. Kleijn. Dit resulteerde in een afstudeerscriptie op het gebied van de theoretische informatica getiteld *Teams in grammar systems*. In 1996 studeerde hij — terug in Leiden — af in de informatica.

Vervolgens begon hij eind 1996 binnen de onderzoekschool IPA aan zijn promotie-onderzoek in de groep van Prof.dr. G. Rozenberg aan het LIACS te Leiden. Vanaf dat moment was de dagelijkse begeleiding stevast in handen van Dr. H.C.M. Kleijn. Gedurende bijna vijf jaar heeft hij, eerst als beurspromovendus, later als AIO, en tenslotte als docent, in Leiden hieraan gewerkt. In 1999 gebeurde dit grotendeels in Pisa, waar hij verbleef met een Erasmusbeurs van de EU. Begin 2001 verhuisde hij naar Pisa, maar in 2002 keerde hij voor een jaar terug naar Budapest om wederom aan het bovenstaande instituut — maar nu als ERCIM fellow — onderzoek te verrichten.

Vanaf januari 2003 is Maurice — terug in Pisa — als ERCIM fellow werkzaam in het Istituto di Scienza e Tecnologia dell'Informazione van het Consiglio Nazionale delle Ricerche te Pisa. Gedurende deze periode heeft hij zijn promotie-onderzoek afgerond, wat heeft geresulteerd in dit proefschrift.

Titles in the IPA Dissertation Series

- J.O. Blanco.** *The State Operator in Process Algebra.* Faculty of Mathematics and Computing Science, TUE. 1996-01
- A.M. Geerling.** *Transformational Development of Data-Parallel Algorithms.* Faculty of Mathematics and Computer Science, KUN. 1996-02
- P.M. Achten.** *Interactive Functional Programs: Models, Methods, and Implementation.* Faculty of Mathematics and Computer Science, KUN. 1996-03
- M.G.A. Verhoeven.** *Parallel Local Search.* Faculty of Mathematics and Computing Science, TUE. 1996-04
- M.H.G.K. Kessler.** *The Implementation of Functional Languages on Parallel Machines with Distrib. Memory.* Faculty of Mathematics and Computer Science, KUN. 1996-05
- D. Alstein.** *Distributed Algorithms for Hard Real-Time Systems.* Faculty of Mathematics and Computing Science, TUE. 1996-06
- J.H. Hoepman.** *Communication, Synchronization, and Fault-Tolerance.* Faculty of Mathematics and Computer Science, UvA. 1996-07
- H. Doornbos.** *Reductivity Arguments and Program Construction.* Faculty of Mathematics and Computing Science, TUE. 1996-08
- D. Turi.** *Functorial Operational Semantics and its Denotational Dual.* Faculty of Mathematics and Computer Science, VUA. 1996-09
- A.M.G. Peeters.** *Single-Rail Handshake Circuits.* Faculty of Mathematics and Computing Science, TUE. 1996-10
- N.W.A. Arends.** *A Systems Engineering Specification Formalism.* Faculty of Mechanical Engineering, TUE. 1996-11
- P. Severi de Santiago.** *Normalisation in Lambda Calculus and its Relation to Type Inference.* Faculty of Mathematics and Computing Science, TUE. 1996-12
- D.R. Dams.** *Abstract Interpretation and Partition Refinement for Model Checking.* Faculty of Mathematics and Computing Science, TUE. 1996-13
- M.M. Bonsangue.** *Topological Dualities in Semantics.* Faculty of Mathematics and Computer Science, VUA. 1996-14
- B.L.E. de Fluiter.** *Algorithms for Graphs of Small Treewidth.* Faculty of Mathematics and Computer Science, UU. 1997-01
- W.T.M. Kars.** *Process-algebraic Transformations in Context.* Faculty of Computer Science, UT. 1997-02
- P.F. Hoogendijk.** *A Generic Theory of Data Types.* Faculty of Mathematics and Computing Science, TUE. 1997-03
- T.D.L. Laan.** *The Evolution of Type Theory in Logic and Mathematics.* Faculty of Mathematics and Computing Science, TUE. 1997-04
- C.J. Bloo.** *Preservation of Termination for Explicit Substitution.* Faculty of Mathematics and Computing Science, TUE. 1997-05
- J.J. Vereijken.** *Discrete-Time Process Algebra.* Faculty of Mathematics and Computing Science, TUE. 1997-06
- F.A.M. van den Beuken.** *A Functional Approach to Syntax and Typing.* Faculty of Mathematics and Informatics, KUN. 1997-07
- A.W. Heerink.** *Ins and Outs in Refusal Testing.* Faculty of Computer Science, UT. 1998-01
- G. Naumoski and W. Alberts.** *A Discrete-Event Simulator for Systems Engineering.* Faculty of Mechanical Engineering, TUE. 1998-02
- J. Verriet.** *Scheduling with Communication for Multiprocessor Computa-*

- tion. Faculty of Mathematics and Computer Science, UU. 1998-03
- J.S.H. van Gageldonk.** *An Asynchronous Low-Power 80C51 Microcontroller.* Faculty of Mathematics and Computing Science, TUE. 1998-04
- A.A. Basten.** *In Terms of Nets: System Design with Petri Nets and Process Algebra.* Faculty of Mathematics and Computing Science, TUE. 1998-05
- E. Voermans.** *Inductive Datatypes with Laws and Subtyping – A Relational Model.* Faculty of Mathematics and Computing Science, TUE. 1999-01
- H. ter Doest.** *Towards Probabilistic Unification-based Parsing.* Faculty of Computer Science, UT. 1999-02
- J.P.L. Segers.** *Algorithms for the Simulation of Surface Processes.* Faculty of Mathematics and Computing Science, TUE. 1999-03
- C.H.M. van Kemenade.** *Recombinative Evolutionary Search.* Faculty of Mathematics and Natural Sciences, UL. 1999-04
- E.I. Barakova.** *Learning Reliability: a Study on Indecisiveness in Sample Selection.* Faculty of Mathematics and Natural Sciences, RUG. 1999-05
- M.P. Bodlaender.** *Schedulere Optimization in Real-Time Distributed Databases.* Faculty of Mathematics and Computing Science, TUE. 1999-06
- M.A. Reniers.** *Message Sequence Chart: Syntax and Semantics.* Faculty of Mathematics and Computing Science, TUE. 1999-07
- J.P. Warners.** *Nonlinear approaches to satisfiability problems.* Faculty of Mathematics and Computing Science, TUE. 1999-08
- J.M.T. Romijn.** *Analysing Industrial Protocols with Formal Methods.* Faculty of Computer Science, UT. 1999-09
- P.R. D'Argenio.** *Algebras and Automata for Timed and Stochastic Systems.* Faculty of Computer Science, UT. 1999-10
- G. Fábíán.** *A Language and Simulator for Hybrid Systems.* Faculty of Mechanical Engineering, TUE. 1999-11
- J. Zwanenburg.** *Object-Oriented Concepts and Proof Rules.* Faculty of Mathematics and Computing Science, TUE. 1999-12
- R.S. Venema.** *Aspects of an Integrated Neural Prediction System.* Faculty of Mathematics and Natural Sciences, RUG. 1999-13
- J. Saraiva.** *A Purely Functional Implementation of Attribute Grammars.* Faculty of Mathematics and Computer Science, UU. 1999-14
- R. Schiefer.** *Viper, A Visualisation Tool for Parallel Program Construction.* Faculty of Mathematics and Computing Science, TUE. 1999-15
- K.M.M. de Leeuw.** *Cryptology and Statecraft in the Dutch Republic.* Faculty of Mathematics and Computer Science, UvA. 2000-01
- T.E.J. Vos.** *UNITY in Diversity. A stratified approach to the verification of distributed algorithms.* Faculty of Mathematics and Computer Science, UU. 2000-02
- W. Mallon.** *Theories and Tools for the Design of Delay-Insensitive Communicating Processes.* Faculty of Mathematics and Natural Sciences, RUG. 2000-03
- W.O.D. Griffioen.** *Studies in Computer Aided Verification of Protocols.* Faculty of Science, KUN. 2000-04
- P.H.F.M. Verhoeven.** *The Design of the MathSpad Editor.* Faculty of Mathematics and Computing Science, TUE. 2000-05
- J. Fey.** *Design of a Fruit Juice Blending and Packaging Plant.* Faculty of Mechanical Engineering, TUE. 2000-06

- M. Franssen.** *Cocktail: A Tool for Deriving Correct Programs.* Faculty of Mathematics and Computing Science, TUE. 2000-07
- P.A. Olivier.** *A Framework for Debugging Heterogeneous Applications.* Faculty of Natural Sciences, Mathematics and Computer Science, UvA. 2000-08
- E. Saaman.** *Another Formal Specification Language.* Faculty of Mathematics and Natural Sciences, RUG. 2000-10
- M. Jelasity.** *The Shape of Evolutionary Search: Discovering and Representing Search Space Structure.* Faculty of Mathematics and Natural Sciences, UL. 2001-01
- R. Ahn.** *Agents, Objects and Events a computational approach to knowledge, observation and communication.* Faculty of Mathematics and Computing Science, TU/e. 2001-02
- M. Huisman.** *Reasoning about Java programs in higher order logic using PVS and Isabelle.* Faculty of Science, KUN. 2001-03
- I.M.M.J. Reymen.** *Improving Design Processes through Structured Reflection.* Faculty of Mathematics and Computing Science, TU/e. 2001-04
- S.C.C. Blom.** *Term Graph Rewriting: syntax and semantics.* Faculty of Sciences, Division of Mathematics and Computer Science, VUA. 2001-05
- R. van Liere.** *Studies in Interactive Visualization.* Faculty of Natural Sciences, Mathematics and Computer Science, UvA. 2001-06
- A.G. Engels.** *Languages for Analysis and Testing of Event Sequences.* Faculty of Mathematics and Computing Science, TU/e. 2001-07
- J. Hage.** *Structural Aspects of Switching Classes.* Faculty of Mathematics and Natural Sciences, UL. 2001-08
- M.H. Lamers.** *Neural Networks for Analysis of Data in Environmental Epidemiology: A Case-study into Acute Effects of Air Pollution Episodes.* Faculty of Mathematics and Natural Sciences, UL. 2001-09
- T.C. Ruys.** *Towards Effective Model Checking.* Faculty of Computer Science, UT. 2001-10
- D. Chkhaev.** *Mechanical verification of concurrency control and recovery protocols.* Faculty of Mathematics and Computing Science, TU/e. 2001-11
- M.D. Oostdijk.** *Generation and presentation of formal mathematical documents.* Faculty of Mathematics and Computing Science, TU/e. 2001-12
- A.T. Hofkamp.** *Reactive machine control: A simulation approach using χ .* Faculty of Mechanical Engineering, TU/e. 2001-13
- D. Bošnački.** *Enhancing state space reduction techniques for model checking.* Faculty of Mathematics and Computing Science, TU/e. 2001-14
- M.C. van Wezel.** *Neural Networks for Intelligent Data Analysis: theoretical and experimental aspects.* Faculty of Mathematics and Natural Sciences, UL. 2002-01
- V. Bos and J.J.T. Kleijn.** *Formal Specification and Analysis of Industrial Systems.* Faculty of Mathematics and Computer Science and Faculty of Mechanical Engineering, TU/e. 2002-02
- T. Kuipers.** *Techniques for Understanding Legacy Software Systems.* Faculty of Natural Sciences, Mathematics and Computer Science, UvA. 2002-03
- S.P. Luttik.** *Choice Quantification in Process Algebra.* Faculty of Natural Sciences, Mathematics, and Computer Science, UvA. 2002-04
- R.J. Willemsen.** *School Timetable Construction: Algorithms and Complexity.* Faculty of Mathematics and Computer Science, TU/e. 2002-05

- M.I.A. Stoelinga.** *Alea Jacta Est: Verification of Probabilistic, Real-time and Parametric Systems.* Faculty of Science, Mathematics and Computer Science, KUN. 2002-06
- N. van Vugt.** *Models of Molecular Computing.* Faculty of Mathematics and Natural Sciences, UL. 2002-07
- A. Fehnker.** *Citius, Vilius, Melius: Guiding and Cost-Optimality in Model Checking of Timed and Hybrid Systems.* Faculty of Science, Mathematics and Computer Science, KUN. 2002-08
- R. van Stee.** *On-line Scheduling and Bin Packing.* Faculty of Mathematics and Natural Sciences, UL. 2002-09
- D. Tauritz.** *Adaptive Information Filtering: Concepts and Algorithms.* Faculty of Mathematics and Natural Sciences, UL. 2002-10
- M.B. van der Zwaag.** *Models and Logics for Process Algebra.* Faculty of Natural Sciences, Mathematics, and Computer Science, UvA. 2002-11
- J.I. den Hartog.** *Probabilistic Extensions of Semantical Models.* Faculty of Sciences, Division of Mathematics and Computer Science, VUA. 2002-12
- L. Moonen.** *Exploring Software Systems.* Faculty of Natural Sciences, Mathematics, and Computer Science, UvA. 2002-13
- J.I. van Hemert.** *Applying Evolutionary Computation to Constraint Satisfaction and Data Mining.* Faculty of Mathematics and Natural Sciences, UL. 2002-14
- S. Andova.** *Probabilistic Process Algebra.* Faculty of Mathematics and Computer Science, TU/e. 2002-15
- Y.S. Usenko.** *Linearization in μ CRL.* Faculty of Mathematics and Computer Science, TU/e. 2002-16
- J.J.D. Aerts.** *Random Redundant Storage for Video on Demand.* Faculty of Mathematics and Computer Science, TU/e. 2003-01
- M. de Jonge.** *To Reuse or To Be Reused: Techniques for component composition and construction.* Faculty of Natural Sciences, Mathematics, and Computer Science, UvA. 2003-02
- J.M.W. Visser.** *Generic Traversal over Typed Source Code Representations.* Faculty of Natural Sciences, Mathematics, and Computer Science, UvA. 2003-03
- S.M. Bohte.** *Spiking Neural Networks.* Faculty of Mathematics and Natural Sciences, UL. 2003-04
- T.A.C. Willemse.** *Semantics and Verification in Process Algebras with Data and Timing.* Faculty of Mathematics and Computer Science, TU/e. 2003-05
- S.V. Nedea.** *Analysis and Simulations of Catalytic Reactions.* Faculty of Mathematics and Computer Science, TU/e. 2003-06
- M.E.M. Lijding.** *Real-time Scheduling of Tertiary Storage.* Faculty of Electrical Engineering, Mathematics & Computer Science, UT. 2003-07
- H.P. Benz.** *Casual Multimedia Process Annotation – CoMPAs.* Faculty of Electrical Engineering, Mathematics & Computer Science, UT. 2003-08
- D. Distefano.** *On model checking the dynamics of object-based software: a foundational approach.* Faculty of Electrical Engineering, Mathematics & Computer Science, UT. 2003-09
- M.H. ter Beek.** *Team Automata – A Formal Approach to the Modeling of Collaboration Between System Components.* Faculty of Mathematics and Natural Sciences, UL. 2003-10