Manfred Jeusfeld, *Department of Information Management, Tilburg University*

Bibliography Manfred Jeusfeld

The list below starts with the most recent papers.

A rather complete list with contextual information is also available from NEC Research Index and Scientific Commons.

Most recent

M.A. Jeusfeld (2011): A Deductive View on Process-Data Diagrams. To appear in Proceedings IFIP WG8.1 Working Conference on Method Engineering, Paris, France, April 20-22, 2011 (postprint).

- Process-Data Diagrams (PDDs) are a popular technique to represent method fragments and their recombination to new adapted method specifications. It turns out that PDDs are at odds with a strict separation of MOF/MDA abstraction levels as advocated by MOF/MDA. We abandon the restriction and specify PDDs by a metametamodel that supports both process and product parts of PDDs. The instantiation of the process side of PDDs can then the used as the type level for a simple traceability framework. The deductive formalization of PDDs allows to augment them by a plethora of analysis tools. The recombination of method fragments is propagated downwards to the recombination of the process start and end points. The hierarchical structure of the product side of PDDs can be used to detect unstructured updates from the process side.

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Jarke, M., M.A. Jeusfeld, HW. Nissen, and C. Quix (2009): Heterogeneity in model management - a meta modeling approach. In A.T. Borgida, V.K. Chaudhri, P. Giorgini, E.S. Yu (eds.): Conceptual Modeling: Foundations and Applications, Essays in Honor of John Mylopoulos, *LNCS* 5600. Springer-Verlag, Berlin.

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Feng, L., M.A. Jeusfeld, and J. Hoppenbrouwers (2005): A strategic level for scientific digital libraries. *Journal of Information Processing and Management*, Volume 41, Issue 1, January 2005, pp. 97 - 120.

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[64] R. v. Kaathoven, M.A. Jeusfeld, M. Staudt, U. Reimer: Organizational Memory supported Workflow Management. In Proc. 4th Intl. Conference Wirtschaftsinformatik (WI'99), Saarbrücken, Germany, March 3-5, 1999 (pdf).

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[60] M. Jarke, M.A. Jeusfeld, T. List: Zielgerechte Informationsflußverwaltung in Entwicklungsprozessen. In M. Nagl, B. Westfechtel (eds.): *Integration von Entwicklungssystemen in Ingenieuranwendungen*, Springer Verlag, 1999, ISBN 3-540-63920-9, pp. 351-369.

- Paper on how we designed to use data warehousing techniques to support the integration of chemical engineering environments. Specifically, we propose to include knowledge about the workflows of engineers in order not deliver the right piece of information to the right workplace. The paper is related to the SFB-IMPROVE project on development support for engineers at RWTH Aachen.

[59] M.A. Jeusfeld, C. Quix, M. Jarke: Design and Analysis of Quality Information for Data Warehouses. In *Proc. 17th International Conference on Conceptual Modeling (ER'98)* , Singapore, Nov 16-19, 1998, Springer-Verlag, ISBN 3-540-65189-6, pp. 349-362 (pdf © Springer-Verlag).

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[49] M. Jarke, P. Peters, P. Szczurko, M.A. Jeusfeld: Model-driven Planning and Design of Cooperative Information Systems. In M. Papazoglou, G. Schlageter (eds.): *Cooperative Information Systems - Trends and Directions*, Academic Press, 1998.

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[47] M.A. Jeusfeld (ed.): Informationsserver für das Internet - Anforderungen, Konzepte, Methoden. Proceedings EMISA-Fachgruppentreffen 1996, Aachen, Deutschland, Oct. 9-11, 1996, *EMISA-Forum, Vol 1/1997*; also available online (html).

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[45] M.A. Jeusfeld, T.X. Bui: Distributed decision support and organizational connectivity: a case study. *Decision Support Systems*, 19, pp. 215-225, 1997 (abstract).

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[44] M.A. Jeusfeld, M. Jarke: Enterprise integration by market-driven schema evolution. *Intl. Journal Concurrent Engineering Research and Applications (CERA)*, 4, 3, September 1996. (draft.ps)

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[43] M. Jarke, M.A. Jeusfeld, P. Peters, P. Szczurko: Coordinating information systems engineering. *Proceedings 9th Intl. Symposium on Methodologies for Intelligent Systems (ISMIS'96)*, Zakopane, Poland, June 10-13, 1996. (draft.pdf)

- This paper presents the vision of continued cooperativity via information systems. Focus is on meta models which facilitate managament of change, simulation-based analysis, and forward/reverse mapping to relational databases. Examples are taken from the WibQuS project.

[42] F. Baader, M. Buchheit, M.A. Jeusfeld, W. Nutt (eds.): *Reasoning about structured objects - knowledge representation meets databases*. Proceedings of the 2nd Workshop KRDB'95, Bielefeld, Germany, Sept. 11-12, 1995, DFKI-Report No. D-95-12; also available online http://sunsite.informatik.rwth-aachen.de/Publications/CEUR-WS/Vol-2/ .

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[41] M. Jarke, M.A. Jeusfeld, P. Peters, K. Pohl: Coordinating distributed organizational knowledge. *Proc. 2nd Knowledge Engineering Forum*, SFB 501 Bericht 01/96, Universität Karlsruhe, Germany, Feb. 29 - Mar. 1, 1996; Extended paper in *Data & Knowledge Engineering*, 23, 3, pp. 247-268, 1997.

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[40] H.W. Nissen, M.A. Jeusfeld, M. Jarke, G.V. Zemanek, H. Huber: Managing multiple requirements perspectives with metamodels. *IEEE Software*, 13, 2, pp. 37-48, March 1996 (abstract/paper).

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[39] M. Jarke, M.A. Jeusfeld, P. Peters, P. Szczurko: Informationsmanagement im Qualitätskreis - ein vernetzter Ansatz. In T. Pfeifer et al. (eds.): *Wissensbasiertes Qualitätsmanagement - Methoden und Techniken zur Nutzung verteilten Wissens*, Springer-Verlag, 1996.

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[36] M.A. Jeusfeld, M. Jarke: Repository structures for evolving federated database schemas. In *Proc. IFIP Working Conference on Models and Methodologies for Enterprise Integration (EI95),* Heron Island, Australia, November 8-11, 1995.

- This paper describes an approach on how to cooperativly design and evolve federated database schemas via a meta model. The technique has been applied in the WibQuS project where heterogeneous quality management systems had to be integrated.

[35] B. v. Buol, J. Ingenerf, M.A. Jeusfeld: Kooperatives Erarbeiten medizinischer Terminologie. In H.J. Trampisch, S. Lange (eds.): *Medizinische Forschung - Ärztliches Handeln*, MMV Medizin Verlag, München, Germany, 1995, pp. 408-412.

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[34] P. Peters, P.Szczurko, M. Jarke, M.A. Jeusfeld: A federated information system for quality management processes. In *Proc. IFIP8.1 Working Conf. ISDO95*, Trondheim, Norway, August 21-23, 1995.

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[33] P. Peters, P.Szczurko, M. Jarke, M.A. Jeusfeld: Business process oriented information management - conceptual models at work. In *Proc. Conf. on Organizational Computing Systems (COOCS'95)*, Milpitas, California, Aug. 13-16, 1995; (draft.ps.gz)

- Conceptual models of processes and information support the design of a distributed information system for quality management. The conceptual model can also be used to guide formulation of queries across system boundaries.

[32] F. Baader, M. Buchheit, M.A. Jeusfeld, W. Nutt: *Reasoning about structured object -- knowledge representation meets databases*. In *Knowledge Engineering Review*, 10, 1, 1995, pp. 73-76.

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[31] F. Baader, M. Buchheit, M.A. Jeusfeld, W. Nutt (eds.): *Reasoning about structured objects - knowledge representation meets databases*. Proceedings of the KI'94 Workshop KRDB'94, Saarbrücken, Germany, Sept. 20-22, 1994, DFKI-Report No. D-94-11; also available online http://sunsite.informatik.rwth-aachen.de/Publications/CEUR-WS/Vol-1/ .

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[30] M.A. Jeusfeld: Generating queries from complex type definitions. In *Proc. Workshop KRDB'94*, DFKI research report, Saarbrücken, Germany, 1994.

- Complex type definitions with tuple, set, and pointer constructors are mapped to a logic program whose termination is guaranteed and whose models can be reasoned about.

[29] M.A. Jeusfeld, U.A. Johnen: An executable meta model for re-engineering of database schemas. In *Proc. ER'94*, Manchester, UK, December 13-16, 1994, pp. 533-547; extended version in *Intl. J. Cooperative Information Systems*, 4, 2&3, pp. 237-258, 1995. (draft.pdf)

- The common properties of data models are captured in a so-called meta model. Queries classify entities represented in a data model into the lattice of the meta model. Therby, the reverse and forward engineering of database schemas is lifted to a declarative framework. A version of the prototype has been implemented for the reverse engineering of relational schemas.

[28] P. Peters, M.A. Jeusfeld: Structuring information flow in quality management. *Proc. DKSME*, Hongkong, May 2-4, 1994, pp. 258-263.

- Structuring the information flow between heterogeneous decision support systems in quality management requires a language that integrates the human understanding of the tasks of the part systems. This is like planning streets between cities. From this plan (encoded in Telos) we derive the data structures and procedures to manage and control the actual "traffic". The second part is only sketched in the paper because it;s future work. The proposed method has partly been applied in the WibQuS project. Some results of this case study are presented.

1993

[27] M. Jarke, M.A. Jeusfeld, P. Szczurko: Three aspects of intelligent cooperation in the quality life cycle. In *Intl. Journal of Intelligent and Cooperative Information Systems*, 2, 4, December 1993, pp. 355-374.

- This is another paper referring to the WibQuS project. The aspects of conceptual integration (of method descriptions), technical integration (of method implementations), and social integration (of method users) are addressed by an approach that respects distribution, evolution, and cooperation.

[26] M. Jarke, R. Gallersdörfer, M.A. Jeusfeld, M. Staudt, S. Eherer: *ConceptBase - a deductive object base for meta data management. Journal of Intelligent Information Systems*, 4, 2, 1995, pp. 167-192 (SpringerLink); also available as Aachener Informatik-Berichte 93-14, 1993 (pdf).

- The standard paper on ConceptBase. More information can be obtained from the WWW page of ConceptBase.cc.

[25] M. Buchheit, M.A. Jeusfeld, W. Nutt, M. Staudt: Subsumption between queries to object-oriented databases. Proc. 4th Intl. Conf. Extending Database Technology (EDBT'94), Cambridge, UK, March 28-31, 1994. Also in *Information Systems*, 19, 1, pp. 33-54, 1994.

- Joint work with DFKI Saarbrücken: it shows that the structural part of queries (superclass relationships, attributes, path expressions) falls into a dialect of KL-One with polynomial complexity for the subsumption test. Knowing subsumption between queries is like "solid gold" for query optimization, and other kinds of reasoning on schema level information.

[24] M. Staudt, M. Jarke, M.A. Jeusfeld, H.W. Nissen: Query classes. In *Proc. 3rd Intl. Conf. on Deductive and Object-Oriented Databases (DOOD'93)*, Scottsdale, Ariz., Dec. 6-8, 1993 (postscript.gz).

- This is a shortened version of the above paper.

[23] M. Staudt, H.W. Nissen, M.A. Jeusfeld: Query by class, rule and concept. In *Applied Intelligence*, 4, Special Issue on Knowledge Base Management (ed. by J. Mylopoulos), pp. 133-156, 1994.

- Queries to databases have several faces: they intentionally describe a concept, they describe a set of solutions (the extension derived by evaluating the query as a rule), and they can appear as classes whose instances are the answer objects.

[22] M.A. Jeusfeld, M. Staudt: Query optimization in deductive object bases. In J.C. Freytag, D. Maier, G. Vossen (eds.): *Query Processing for Advanced Database Applications*, Morgan Kaufmann, pp. 145-176, 1994; draft appeared as technical report Aachener Informatik-Berichte 91-26 (report.ps.gz).

- In 1991 I attended a meeting at Schloß Dagstuhl on issues of query optimization in next-generation databases. This paper contains our proposal: optimization at the logical level. A preliminary version was published as Aachener Informatik-Bericht 91-26.

1992

[21] M.A. Jeusfeld, R. Grob: Kommunikation als Schlüssel zur Qualitätssicherung. In *Proc. Gemeinsame Jahrestagung DGOR &ÖGOR*, Aachen, Germany, Sept. 9-11, 1992.

- The title promotes communication as the key to quality management (in industry). The paper is actually a one-page abstract presenting our idea to make distributed environments supporting quality management tasks communicate. The first step is to find a common language for describing and relating the various tasks. The paper is related to the WibQuS project.

[20] M. Jarke, M.A. Jeusfeld, T. Rose: Process services in ConceptBase. In M. Jarke (ed.): *Database Application Engineering with DAIDA*, Springer-Verlag, 1993, ISBN 3-540-56291-5, pp. 389-412.

- The 500+ pages book edited by Matthias Jarke is a detailed summary of all results achieved in DAIDA. The two papers [19] and [20] coauthored by me reflect my contribution.

[19] M.A. Jeusfeld, T. Rose, M. Jarke: ConceptBase - a Telos-based software information system. In M. Jarke (ed.): *Database Application Engineering with DAIDA*, Springer-Verlag, 1993, ISBN 3-540-56291-5, pp. 367-388.

[18] M.A. Jeusfeld: *Änderungskontrolle in deduktiven Objektbanken.* ISBN 392903719X, Infix-Verlag, St. Augustin, Germany, 1992; now published by AKA-Verlag, Berlin, Germany (pdf with kind permission from AKA-Verlag).

- This book is identical to my dissertation at the Univerity of Passau. The main contribution is a completely axiomatized data model for deductive object bases. Particularily, a partial evaluation technique is developed which allows efficient processing of deductive rules and integrity constraints at the meta class level. A short overview is contained in M.A. Jeusfeld: Update control in deductive object bases, *SIGART Bulletin*, 4, 2, pp. 24-25.

[17] M. Jarke, M.A. Jeusfeld, A. Miethsam, M. Gocek: Towards a logic-based reconstruction of software configuration management. In *Proc. 7th Intl. Conf. Knowledge-based Software Engineering (KBSE'92)*, McLean, VA, Sept. 20-23, 1992, pp. 132-141.

- Research of my collegue Thomas Rose on version and configuration management exhibited that a large amount of "test procedures" for configuring software components to larger units can be specified as integrity constraints. This paper takes a further step: the configuration itsself is represented as deductive rule (the head is the interface of the lager unit, and the body enumerates the interfaces of the components). Logical abduction is proposed to find a configuration for a goal interface. The integrity constraints are then tested "on-the-fly".

1991

[16] M.A. Jeusfeld, M. Jarke: From relational to object-oriented integrity simplification. In *Proc. 2nd Intl. Conf. on Deductive and Object-Oriented Databases (DOOD'91)*, pp. 460-477.

- This paper shows that integrity checking methods can be enhanced when incorporating object-oriented paradigms. On the one hand, algorithms get faster since update granularity can be as fine as single attribute updates. On the other hand, treating classes as objects opens a way to specify constraints (or deductive rules) at the meta-class level. This saves a lot of coding time since often used constraints like non-circularity can be specified once and forever. More detailed results are in my dissertation.

1990

[15] M.A. Jeusfeld, M. Mertikas, I. Wetzel, M. Jarke, J.W. Schmidt: Database application development as an object modeling activity. In *Proc. 16th Intl. Conf. on*

Very Large Data Bases (VLDB'90), Brisbane, Australia, 1990, 442-45.

- This paper elaborates on bridging the gap between the semantic and computational aspects of database application development. The proposed method is to "conceptualize" each of the aspects as descriptions in the Telos language and then maintain dependencies between these descriptions. Such descriptions can then be processed by the ConceptBase system. The paper is related to DAIDA.

[14] M. Jarke, M.A. Jeusfeld, T. Rose: Process management in the DAIDA Environment. In *Proc. 6th Intl. Software Process Workshop*, Hakodate, Japan, Oct. 29-31, 1990.

- A short position statement on the relationship between programming-in-the-small, -large, and -many.

[13] M. Jarke, M.A. Jeusfeld, J. Mylopoulos, J.W. Schmidt, Y. Vassiliou: Information systems development as knowledge engineering - a review of the DAIDA project. In *Proc. Ingegneria del Software - CASE, e la Qualitá del Software (CQS'90)*, Milano, Italy, Oct. 17-19, 1990, pp. 481-506.

- A summary of the achievements in DAIDA.

[12] M.A. Jeusfeld, E. Krüger. *Deductive integrity maintenance in an object-oriented setting.* Technical Report MIP-9013, University of Passau, Germany, 1990 (pdf).

- In 1990, the first version of the integrity checking component of ConceptBase was completed. This paper reports on algorithms and on the exploitation of the Telos data model to represent management of integrity constraints.

[11] M. Jarke, S. Eherer, M.A. Jeusfeld, T. Rose: Konzeptuelle Modellierung als Grundlage der Managementunterstützung in verteilten Anwendungen. In A. Reuter (ed.): *GI - 20. Jahrestagung I*, *Informatik-Fachberichte*, 257, Springer-Verlag, 1990.

- This paper proposes to embed the development knowledge of an information system into the implementation. Thereby, explanation and evolution of the systems functionality is facilitated.

[10] M. Jarke, M.A. Jeusfeld, T. Rose: A software process data model for knowledge engineering in information systems. In *Information Systems*, 15, 1, 1990, pp. 85-116.

- The standard paper on our Decision-Object-Tool (D.O.T) software process model (pdf).

1989

[9] M. Jarke, M.A. Jeusfeld, T. Rose: Software process modeling as a strategy for KBMS implementation. In *Proc. 1st Intl. Conf. on Deductive and Object-Oriented Databases (DOOD'89)*, Kyoto, Japan, Dec. 4-6, 1989, pp. 531-550.

- This paper identifies two abstraction layers of deductive object managers: the deductive layer specifies the behavior of the system which is implemented by an object-oriented database. This observation is validated by two applications: integrity checking and version &configuration management.

[8] M. Jarke, M.A. Jeusfeld, T. Rose, J. Mylopoulos, J.W. Schmidt, I. Wetzel, A. Ziegler: Information systems development as knowledge engineering - examples from the DAIDA project. In *Proc. Summer School on Software Engineering in ESPRIT*, Sophia-Antipolis, France, Sept. 4-8, 1989.

- A paper accompanying the presentation of the whole DAIDA project at the 1989 summer school on software engineering. Included was a demonstration of the DAIDA prototype (integrated by the software process control mechanism built into ConceptBase).

[7] M. Jarke, M.A. Jeusfeld, T. Rose: Knowledge bases for software process control. In *Proc. 1989 ACM SIGMOD Workshop on Software CAD Databases (SCAD'89)*, Napa, Calif., Feb. 27-28, 1989, pp. 62-66.

- A quite short paper summarizing our results on software process control for data-intensive applications.

[6] M. Jarke, M.A. Jeusfeld: Rule representation and management in ConceptBase. In *SIGMOD Record*, 18, 3, September 1989, pp. 46-51 (pdf).

- An overview on the integration of deductive rules, integrity constraints, and queries within the ConceptBase system. Basically, such formulas are stored as string-valued attributes of classes. Insertion (deletion) of a formula triggers formula (re-)compilation. Similarily, insertion (deletion) of objects affecting the truth of a formula trigger formula evaluation. Some proposals on representing long-term proofs in ConceptBase are also made.

1988

[5] M. Jarke, M.A. Jeusfeld, T. Rose: ConceptBase - a prototype knowledge manager for software processes. In *Proc. Knowledge-Based Software Assistant Conf.*, Utica, NY, 1988, pp. 85-98.

- This paper describes the goals and the functionality of the first ConceptBase prototype. Especially, a method of design decision control and documentation is proposed.

[4] M. Jarke, M.A. Jeusfeld, T. Rose: Modelling software processes in a knowledge base - the case of information systems. In *Knowledge-Based Systems*, 1, 4, Sept. 1988, pp. 197-210.

- This is an early paper on a software process description language relating so-called design objects with decisions and tools. The language (or "model") is implemented with a few Telos classes. The paper presents the architecture of DAIDA, too.

[3] M. Jarke, M.A. Jeusfeld, T. Rose: A global KBMS for database software evolution - documentation of first ConceptBase prototype. Technical Report MIP-8819, University of Passau, Germany, 1988.

- At that time, ConceptBase provided the functionality of storing and retrieving object frames. Some primitive query language was also provided.

1987

[2] M. Jarke, M.A. Jeusfeld, T. Rose: *A global KBMS for database software evolution - design and development strategy.* Technical Report MIP-8722, University of Passau, Germany, 1987.

- The first report specifying ConceptBase's role in the DAIDA project. Basic properties of Telos - the data model of ConceptBase - are elaborated.

[1] H. Klocke, T. Schecke, M.A. Jeusfeld et al.: Wissensbasierte Entscheidungsunterstützung mit dem AES. In *Proc. Fachtagung Expertensysteme - Konzepte und Werkzeuge*, Erlangen, Germany, April 7-8, 1987.

- This paper reviews the decision support by the AES tool developed in my diploma thesis. The tool used to monitor patient parameters during heart surgery. A version of the diploma thesis without figures and appendices is available as diplom.ps.gz.

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