

Doctoral Dissertation

Anna Zamansky.

“Multi-valued Non-deterministic Matrices and their Applications in Computer Science”.

Supervisor: Prof. A. Avron, Tel Aviv University.

Degree awarded: August, 2010.

Runner up of the Beth Dissertation Prize of the Association of Logic, Language and Information, 2010.

Chapters in Collections

Arnon Avron and **Anna Zamansky.**

“Non-deterministic Semantics for Logical Systems - a survey”.

Handbook of Philosophical Logic, Kluwer Academic Publishers, vol. 16, 227–304, 2011.

Refereed Journal Articles

- 1) **Anna Zamansky**, Nissim Francez and Yoad Winter.
“A Natural Logic inference system based on the Lambek calculus”.
Journal of Logic, Language and Information, vol. 15, 273 – 295, 2006.
- 2) **Anna Zamansky** and Arnon Avron.
“Cut Elimination and Quantification in Canonical Systems”.
Studia Logica 82:156–172, 2006.
- 3) **Anna Zamansky** and Arnon Avron.
“Effective non-deterministic semantics for first-order LFIs”.
Journal of Multiple-Valued Logic and Soft Computing, 13:4-6, 335–352, 2007.
- 4) **Anna Zamansky** and Arnon Avron.
“Canonical systems with (n,k)-ary quantifiers”.
Journal of Logical Methods in Computer Science, 10.2168/LMCS-4(3:2), 2008.
- 5) Ofer Arieli and **Anna Zamansky.**
“Distance-based non-deterministic semantics for reasoning with uncertainty”.
The Logic Journal of the IGPL 17(4), 325–350, 2009.
- 6) Arnon Avron, Ofer Arieli and **Anna Zamansky.**
“Maximal and Premaximal Paraconsistency in the Framework of Three-valued Semantics”.
Studia Logica 97(1), 31–60, 2011.
- 7) Ofer Arieli and **Anna Zamansky.**
“Simplified Forms of Computerized Reasoning with Distance-based Semantics”.
Journal of Applied Logic 9(1):1–22, 2011.
- 8) Ofer Arieli and **Anna Zamansky.**
“A framework for reasoning under uncertainty based on non-deterministic distance semantics”.
International Journal of Approximate Reasoning 52:184–211, IJA7325, 2011.

- 9) Ofer Arieli, Arnon Avron, **Anna Zamansky**.
“Ideal Paraconsistent Logics”.
Studia Logica 99(1-3): 31–60, 2011.
- 10) Arnon Avron and **Anna Zamansky**.
“Canonical Signed Calculi with Multi-ary Quantifiers”.
Annals of Pure and Applied Logic 163(7): 951–960, 2012.
- 11) Ofer Arieli and **Anna Zamansky**.
“A Dissimilarity-Based Framework for Generating Inconsistency-Tolerant Logics”.
accepted to *Annals of Mathematics and Artificial Intelligence*.
- 12) A. Avron, B. Konikowska and **A. Zamansky**.
“Cut-free Sequent Calculi for C-systems with Generalized Finite-valued Semantics”.
accepted to *Journal of Logic and Computation*.

Refereed Conference Proceedings

- 1) Arnon Avron and **Anna Zamansky**.
“Quantification in Non-deterministic Multi-valued Structures”.
Proceedings of the 35-th IEEE International Symposium on Multi-valued Logic (ISMVL), 296–301, IEEE Computer Society Press, 2005.
- 2) **Anna Zamansky** and Arnon Avron.
“Non-deterministic semantics for first-order paraconsistent logics”.
Proceedings of the 10th International Conference on Knowledge Representation (KR), 431–440, 2006.
- 3) **Anna Zamansky** and Arnon Avron.
“Canonical Gentzen-type calculi with (n,k)-ary quantifiers”.
Proceedings of the 3rd International Joint Conference on Automated Reasoning (IJCAR), LNAI 4130, vol. 82(1), 251–265, 2006.
- 4) Arnon Avron and **Anna Zamansky**.
“Generalized non-deterministic matrices and (n,k)-ary quantifiers”.
Proceedings of the Symposium on Logical Foundations of Computer Science (LFCS), LNCS 4514, 26–40, Springer, 2007.
- 5) Arnon Avron and **Anna Zamansky**.
“Non-deterministic Multi-valued Matrices for First-order LFIs”.
Proceedings of the 37th International Symposium on Multiple-Valued Logic (ISMVL), 2007.
Best student paper award.
- 6) Ofer Arieli and **Anna Zamansky**.
“Distance-based Non-deterministic Semantics” .
Proceedings of the First Conference on Artificial General Intelligence (AGI), Frontiers in Artificial Intelligence and Applications, vol. 171, 39–50, IOS Press, 2008.

- 7) Arnon Avron and **Anna Zamansky**.
“A Triple Correspondence in Canonical Calculi: Strong Cut-Elimination, Coherence, and Non-deterministic Semantics”.
Proceedings of The Third International Computer Science Symposium in Russia (CSR), LNCS 5010, 52–64, Springer, 2008.
- 8) Ofer Arieli and **Anna Zamansky**.
“Some Simplified Forms of Reasoning with Distance-Based Entailments”.
Proceedings of the 21st Canadian Conference on Artificial Intelligence (AI), LNAI 5032, 36–47, Springer, 2008.
- 9) Ofer Arieli and **Anna Zamansky**.
“Reasoning with Uncertainty by Nmatrix-Metric Semantics”.
Proceedings of the 15th Workshop on Logic, Language, Information and Computation (WoLLIC), LNAI 5110, 69–82, Springer, 2008.
- 10) Arnon Avron and *Anna Zamansky*.
“Signed Calculi, Non-deterministic Matrices and Cut-elimination”, *Proceedings of the Symposium on Logical Foundations of Computer Science (LFCS)*, LNCS 5407, Springer, 31–46, 2009.
- 11) Ofer Arieli and **Anna Zamansky**.
“Non-Deterministic Distance Semantics for Handling Incomplete and Inconsistent Data”.
Proceedings of the 10th European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU), LNAI 5590, 793 – 804, Springer, 2009.
- 12) Arnon Avron, Agata Ciabattoni and **Anna Zamansky**.
“Canonical Calculi: Invertibility, Axiom expansion and (Non)-determinism”.
Proceedings of the Fourth Computer Science Symposium in Russia (CSR), LNCS 5675, 26–37, Springer, 2009.
- 13) Ofer Arieli, Arnon Avron and **Anna Zamansky**.
“Maximally Paraconsistent Three-Valued Logics”,
Proceedings of the 12th International Conference on Principles of Knowledge Representation and Reasoning (KR), 310–318, AAAI Press, 2010.
- 14) Arnon Avron and **Anna Zamansky**.
“Non-deterministic Multi-valued Logics - a Tutorial”.
Proceedings of the 40th International Symposium on Multiple-Valued Logic (ISMVL), 23–60, 2010.
- 15) Ofer Arieli, Arnon Avron and **Anna Zamansky**.
“On strong maximality of paraconsistent finite-valued logics”.
Proceedings of the 25th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS), IEEE Press, 2010.
- 16) Ofer Arieli and **Anna Zamansky**.
“Similarity-based inconsistency-tolerant logics”.
Proceedings of the 12th European Conference on Logics in Artificial Intelligence (JELIA), Springer, LNAI6341, 11–23, 2010.
- 17) O. Arieli, A. Avron and **A. Zamansky**.
“What is an ideal logic for reasoning with inconsistency?”.
Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI), AAAI Press, 706-711, 2011.

- 18) A. Ciabattoni, O. Lahav and **A. Zamansky**.
 “Basic Constructive Connectives, Determinism and Matrix-based Semantics”.
Proceedings of Automated Reasoning with Analytic Tableaux and Related Methods (TABLEAUX),
 119–134, LNAI6793, 2011.
- 19) O. Arieli and **A. Zamansky**.
 “Inconsistency-tolerance in Knowledge-based Systems by Dissimilarities”.
Proceedings of the 7th International Symposium on Foundations of Information and Knowledge Systems (FoIKS), LNCS 7153, 34–50, Springer, 2012.
- 20) M. Baaz, O. Lahav and **A. Zamansky**.
 “Effective Finite-valued Semantics for Labelled Calculi”.
Proceedings of the 6th International Joint Conference on Automated Reasoning (IJCAR), 52–66, 2012.
- 21) A. Avron, B. Konikowska and **A. Zamansky**.
 “Modular Construction of Cut-free Sequent Calculi for Paraconsistent Logics”.
Proceedings of the 27th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS), 85–94, 2012.
- 22) **A. Zamansky**.
 “Preferential Framework for Trivialization-Resistant Reasoning with Inconsistent Information.
 accepted to *Proceedings of the 13th European Conference on Logics in Artificial Intelligence (JELIA)*, 2012.

Presentations in Scientific Conferences:

- 1) *The Seventh Conference on Formal Grammar (FG’02)*.
 “Order-based inference using the Lambek calculus”.
 Abstract presentation.
- 2) *The Fourth Workshop on Inference in Computational Semantics (ICOS’03)*.
 “A Natural Logic inference system”.
 Abstract presentation.
- 3) *The Second Workshop on Structural and Computational Proof Theory*, University of Innsbruck, 2011.
 “Nmatrices for Canonical Systems”.
 Invited lecture.
- 4) *Logical Models of Reasoning and Computation*, Steklov Institute, Moscow, 2012.
 “Modular Construction of Cut-free Sequent Calculi for Paraconsistent Logics”.
 Invited lecture.
- 5) *Muenchenwiler Proof Theory Summer Workshop*, Bern University, 2012.
 “Applications of Non-deterministic Semantics in Proof Theory”.
 Invited lecture.
- 6) *Proof Theory Workshop*, University of Pisa, 2012.
 “Effective semantics for labelled calculi”.
 Abstract presentation.
- 7) *Logic and Algebra Workshop*, Vienna University of Technology, 2012.
 “Non-determinism and Proof Theory”.
 Invited lecture.