

List of Publications

See also [Google Scholar](#) or [DBLP](#). For each paper, only the “highest” publication is listed.

Book Chapters

- [b1] Michael R. Fellows, Lars Jaffke, Aliz Izabella Király, Frances A. Rosamond, and Mathias Weller. “What Is Known About Vertex Cover Kernelization?” In: *Adventures Between Lower Bounds and Higher Altitudes - Essays Dedicated to Juraj Hromkovič on the Occasion of His 60th Birthday*. Ed. by Hans-Joachim Böckenhauer, Dennis Komm, and Walter Unger. Vol. 11011. Lecture Notes in Computer Science. Springer, 2018, pp. 330–356. DOI: [10.1007/978-3-319-98355-4_19](#).
- [b2] René van Bevern, Rolf Niedermeier, Manuel Sorge, and Mathias Weller. In: *Arc Routing: Problems, Methods and Applications*. Ed. by Gilbert Laporte Ángel Corberán. SIAM, 2014. Chap. Complexity of arc routing problems, pp. 19–52. ISBN: 978-1-611973-66-2. DOI: [10.1137/1.9781611973679.ch2](#).

Theses

- [t1] Mathias Weller. “Aspects of Preprocessing Applied to Combinatorial Graph Problems”. Fakultät für Elektrotechnik und Informatik, Technische Universität Berlin, 2012. URL: <http://opus.kobv.de/tuberlin/volltexte/2013/3878/>.
- [t2] Mathias Weller. “Finding Transitive Approximations of Directed Graphs”. Germany: Friedrich-Schiller-Universität Jena, 2009. URL: https://igm.univ-mlv.fr/~mweller/weller_da09.pdf.
- [t3] Mathias Weller. “Counting, Generating, and Solving Sudoku”. 2008.

Journal Articles

- [j1] Leo van Iersel, Mark Jones, and Mathias Weller. “When Three Trees Go to War”. In: *Peer Community Journal* 4, e54 (2024). DOI: [10.24072/pcjournal.419](#).
- [j2] Vincent Froese, Brijnesh J. Jain, Maciej Rymar, and Mathias Weller. “Fast Exact Dynamic Time Warping on Run-Length Encoded Time Series”. In: *Algorithmica* 85.2 (2023), pp. 492–508. DOI: [10.1007/S00453-022-01038-3](#).
- [j3] Tom Davot, Annie Chateau, Rohan Fossé, Rodolphe Giroudeau, and Mathias Weller. “On a greedy approach for genome scaffolding”. In: *Algorithms Mol. Biol.* 17.1 (2022), p. 16. DOI: [10.1186/S13015-022-00223-X](#).
- [j4] Céline Scornavacca and Mathias Weller. “Treewidth-based algorithms for the small parsimony problem on networks”. In: *Algorithms Mol. Biol.* 17.1 (2022), p. 15. DOI: [10.1186/S13015-022-00216-W](#).
- [j5] Matthias Bentert and Mathias Weller. “Tree Containment With Soft Polytomies”. In: *J. Graph Algorithms Appl.* 25.1 (2021), pp. 417–436. DOI: [10.7155/JGAA.00565](#).
- [j6] Tom Davot, Annie Chateau, Rodolphe Giroudeau, Mathias Weller, and Dorine Tabary. “Producing Genomic Sequences after Genome Scaffolding with Ambiguous Paths: Complexity, Approximation and Lower Bounds”. In: *Algorithmica* 83.7 (2021), pp. 2063–2095. DOI: [10.1007/S00453-021-00819-6](#).
- [j7] Laurent Bulteau and Mathias Weller. “Parameterized Algorithms in Bioinformatics: An Overview”. In: *Algorithms* 12.12 (2019), p. 256. DOI: [10.3390/A12120256](#).
- [j8] Benoît Darties, Nicolas Champseix, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “Complexity and lower bounds for Power Edge Set Problem”. In: *J. Discrete Algorithms* 52–53 (2018), pp. 70–91. DOI: [10.1016/J.JDA.2018.11.006](#).
- [j9] Mathias Weller, Annie Chateau, Clément Dallard, and Rodolphe Giroudeau. “Scaffolding Problems Revisited: Complexity, Approximation and Fixed Parameter Tractable Algorithms, and Some Special Cases”. In: *Algorithmica* 80.6 (2018), pp. 1771–1803. DOI: [10.1007/S00453-018-0405-X](#).
- [j10] Mathias Weller, Annie Chateau, Rodolphe Giroudeau, Jean-Claude König, and Valentin Pollet. “On residual approximation in solution extension problems”. In: *J. Comb. Optim.* 36.4 (2018), pp. 1195–1220. DOI: [10.1007/S10878-017-0202-5](#).

- [j11] Nathann Cohen, Daniel Gonçalves, Eun Jung Kim, Christophe Paul, Ignasi Sau, Dimitrios M. Thilikos, and Mathias Weller. “A polynomial-time algorithm for Outerplanar Diameter Improvement”. In: *J. Comput. Syst. Sci.* 89 (2017), pp. 315–327. DOI: [10.1016/j.jcss.2017.05.016](https://doi.org/10.1016/j.jcss.2017.05.016).
- [j12] Edwin Jacox, Mathias Weller, Eric Tannier, and Céline Scornavacca. “Resolution and reconciliation of non-binary gene trees with transfers, duplications and losses”. In: *Bioinformatics* 33.7 (2017), pp. 980–987. DOI: [10.1093/BIOINFORMATICS/BTW778](https://doi.org/10.1093/BIOINFORMATICS/BTW778).
- [j13] Magnus Bordewich, Celine Scornavacca, Nihan Tokac, and Mathias Weller. “On the fixed parameter tractability of agreement-based phylogenetic distances”. In: *Journal of Mathematical Biology* (2016), pp. 1–19. ISSN: 1432-1416. DOI: [10.1007/s00285-016-1023-3](https://doi.org/10.1007/s00285-016-1023-3).
- [j14] Valentin Garnero and Mathias Weller. “Parameterized certificate dispersal and its variants”. In: *Theoretical Computer Science* 622 (2016), pp. 66–78. ISSN: 0304-3975. DOI: <http://dx.doi.org/10.1016/j.tcs.2016.02.001>.
- [j15] Steven Kelk, Leo van Iersel, Celine Scornavacca, and Mathias Weller. “Phylogenetic incongruence through the lens of Monadic Second Order logic”. In: *Journal of Graph Algorithms and Applications* 20.2 (2016), pp. 189–215. DOI: [10.7155/jgaa.00390](https://doi.org/10.7155/jgaa.00390).
- [j16] René van Bevern, Matthias Mnich, Rolf Niedermeier, and Mathias Weller. “Interval scheduling and colorful independent sets”. In: *Journal of Scheduling* 18.5 (2015), pp. 449–469. DOI: [10.1007/s10951-014-0398-5](https://doi.org/10.1007/s10951-014-0398-5).
- [j17] Jiehua Chen, Christian Komusiewicz, Rolf Niedermeier, Manuel Sorge, Ondrej Suchý, and Mathias Weller. “Polynomial-Time Data Reduction for the Subset Interconnection Design Problem”. In: *SIAM Journal on Discrete Mathematics* 29.1 (2015), pp. 1–25. DOI: [10.1137/140955057](https://doi.org/10.1137/140955057).
- [j18] Mathias Weller, Annie Chateau, and Rodolphe Giroudeau. “Exact approaches for scaffolding”. In: *BMC Bioinform.* 16.S14 (2015), S2. DOI: [10.1186/1471-2105-16-S14-S2](https://doi.org/10.1186/1471-2105-16-S14-S2).
- [j19] Morgan Chopin, André Nichterlein, Rolf Niedermeier, and Mathias Weller. “Constant Thresholds Can Make Target Set Selection Tractable”. In: *Theory of Computing Systems* 55.1 (2014), pp. 61–83. DOI: [10.1007/s00224-013-9499-3](https://doi.org/10.1007/s00224-013-9499-3).
- [j20] Martin Dörnfelder, Jiong Guo, Christian Komusiewicz, and Mathias Weller. “On the parameterized complexity of consensus clustering”. In: *Theoretical Computer Science* 542 (2014), pp. 71–82. DOI: [10.1016/j.tcs.2014.05.002](https://doi.org/10.1016/j.tcs.2014.05.002).
- [j21] Manuel Sorge, Hannes Moser, Rolf Niedermeier, and Mathias Weller. “Exploiting a hypergraph model for finding Golomb rulers”. In: *Acta Informatica* 51.7 (2014), pp. 449–471. DOI: [10.1007/s00236-014-0202-1](https://doi.org/10.1007/s00236-014-0202-1).
- [j22] Frederic Dorn, Hannes Moser, Rolf Niedermeier, and Mathias Weller. “Efficient Algorithms for Eulerian Extension and Rural Postman”. In: *SIAM Journal on Discrete Mathematics* 27.1 (2013), pp. 75–94. DOI: [10.1137/110834810](https://doi.org/10.1137/110834810).
- [j23] André Nichterlein, Rolf Niedermeier, Johannes Uhlmann, and Mathias Weller. “On tractable cases of Target Set Selection”. In: *Social Network Analysis and Mining* (2013), pp. 1–24. DOI: [10.1007/s13278-012-0067-7](https://doi.org/10.1007/s13278-012-0067-7).
- [j24] Johannes Uhlmann and Mathias Weller. “Two-Layer Planarization parameterized by feedback edge set”. In: *Theoretical Computer Science* 494 (2013), pp. 99–111. DOI: [10.1016/j.tcs.2013.01.029](https://doi.org/10.1016/j.tcs.2013.01.029).
- [j25] Manuel Sorge, René van Bevern, Rolf Niedermeier, and Mathias Weller. “A new view on Rural Postman based on Eulerian Extension and Matching”. In: *Journal of Discrete Algorithms* 16 (2012), pp. 12–33. DOI: [10.1016/j.jda.2012.04.007](https://doi.org/10.1016/j.jda.2012.04.007).
- [j26] Mathias Weller, Christian Komusiewicz, Rolf Niedermeier, and Johannes Uhlmann. “On making directed graphs transitive”. In: *Journal of Computer and System Sciences* 78.2 (2012), pp. 559–574. DOI: [10.1016/j.jcss.2011.07.001](https://doi.org/10.1016/j.jcss.2011.07.001).

Conference Papers

- [c1] Jaroslav Garvardt, Nils Morawietz, André Nichterlein, and Mathias Weller. “Graph Clustering Problems Under the Lens of Parameterized Local Search”. In: *18th International Symposium on Parameterized and Exact Computation, IPEC 2023, September 6-8, 2023, Amsterdam, The Netherlands*. Vol. 285. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023, 20:1–20:19. DOI: [10.4230/LIPICS.IPEC.2023.20](https://doi.org/10.4230/LIPICS.IPEC.2023.20).

- [c2] Jaroslav Garvardt, Malte Renken, Jannik Schestag, and Mathias Weller. “Finding Degree-Constrained Acyclic Orientations”. In: *18th International Symposium on Parameterized and Exact Computation, IPEC 2023, September 6-8, 2023, Amsterdam, The Netherlands*. Vol. 285. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023, 19:1–19:14. DOI: [10.4230/LIPICS.IPEC.2023.19](https://doi.org/10.4230/LIPICS.IPEC.2023.19).
- [c3] Leo van Iersel, Mark Jones, and Mathias Weller. “Embedding Phylogenetic Trees in Networks of Low Treewidth”. In: *30th Annual European Symposium on Algorithms, ESA 2022, September 5-9, 2022, Berlin/Potsdam, Germany*. Vol. 244. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022, 69:1–69:14. DOI: [10.4230/LIPICS.ESA.2022.69](https://doi.org/10.4230/LIPICS.ESA.2022.69).
- [c4] Krister M. Swenson, Afif Elghraoui, Faramarz Valafar, Siavash Mirarab, and Mathias Weller. “Quantifying Hierarchical Conflicts in Homology Statements”. In: *Comparative Genomics - 19th International Conference, RECOMB-CG 2022, La Jolla, CA, USA, May 20-21, 2022, Proceedings*. Vol. 13234. Lecture Notes in Computer Science. Springer, 2022, pp. 146–167. DOI: [10.1007/978-3-031-06220-9_9](https://doi.org/10.1007/978-3-031-06220-9_9).
- [c5] Vincent Berry, Céline Scornavacca, and Mathias Weller. “Scanning Phylogenetic Networks Is NP-hard”. In: *SOFSEM 2020: Theory and Practice of Computer Science - 46th International Conference on Current Trends in Theory and Practice of Informatics, SOFSEM 2020, Limassol, Cyprus, January 20-24, 2020, Proceedings*. Vol. 12011. Lecture Notes in Computer Science. Springer, 2020, pp. 519–530. DOI: [10.1007/978-3-030-38919-2_42](https://doi.org/10.1007/978-3-030-38919-2_42).
- [c6] Tom Davot, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “Linearizing Genomes: Exact Methods and Local Search”. In: *SOFSEM 2020: Theory and Practice of Computer Science - 46th International Conference on Current Trends in Theory and Practice of Informatics, SOFSEM 2020, Limassol, Cyprus, January 20-24, 2020, Proceedings*. Vol. 12011. Lecture Notes in Computer Science. Springer, 2020, pp. 505–518. DOI: [10.1007/978-3-030-38919-2_41](https://doi.org/10.1007/978-3-030-38919-2_41).
- [c7] Nils Morawietz, Carolin Rehs, and Mathias Weller. “A Timecop’s Work Is Harder Than You Think”. In: *45th International Symposium on Mathematical Foundations of Computer Science, MFCS 2020, August 24-28, 2020, Prague, Czech Republic*. Vol. 170. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020, 71:1–71:14. DOI: [10.4230/LIPICS.MFCS.2020.71](https://doi.org/10.4230/LIPICS.MFCS.2020.71).
- [c8] Pierre Cazals, Benoît Darties, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “Power Edge Set and Zero Forcing Set Remain Difficult in Cubic Graphs”. In: *Combinatorial Algorithms - 30th International Workshop, IWOCA 2019, Pisa, Italy, July 23-25, 2019, Proceedings*. Vol. 11638. Lecture Notes in Computer Science. Springer, 2019, pp. 122–135. DOI: [10.1007/978-3-030-25005-8_11](https://doi.org/10.1007/978-3-030-25005-8_11).
- [c9] Tom Davot, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “New Polynomial-Time Algorithm Around the Scaffolding Problem”. In: *Algorithms for Computational Biology - 6th International Conference, AlCoB 2019, Berkeley, CA, USA, May 28-30, 2019, Proceedings*. Vol. 11488. Lecture Notes in Computer Science. Springer, 2019, pp. 25–38. DOI: [10.1007/978-3-030-18174-1_2](https://doi.org/10.1007/978-3-030-18174-1_2).
- [c10] Matthias Bentert, Josef Malik, and Mathias Weller. “Tree Containment With Soft Polytomies”. In: *Proceedings of the 16th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT’18)*. Vol. 101. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2018, 9:1–9:14. DOI: [10.4230/LIPICS.SWAT.2018.9](https://doi.org/10.4230/LIPICS.SWAT.2018.9).
- [c11] Tom Davot, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “On the Hardness of Approximating Linearization of Scaffolds Sharing Repeated Contigs”. In: *Comparative Genomics - 16th International Conference, RECOMB-CG 2018, Magog-Orford, QC, Canada, October 9-12, 2018, Proceedings*. Vol. 11183. Lecture Notes in Computer Science. Springer, 2018, pp. 91–107. DOI: [10.1007/978-3-030-00834-5_5](https://doi.org/10.1007/978-3-030-00834-5_5).
- [c12] Dorine Tabary, Tom Davot, Mathias Weller, Annie Chateau, and Rodolphe Giroudeau. “New Results About the Linearization of Scaffolds Sharing Repeated Contigs”. In: *Combinatorial Optimization and Applications - 12th International Conference, COCOA 2018, Atlanta, GA, USA, December 15-17, 2018, Proceedings*. Vol. 11346. Lecture Notes in Computer Science. Springer, 2018, pp. 94–107. DOI: [10.1007/978-3-030-04651-4_7](https://doi.org/10.1007/978-3-030-04651-4_7).
- [c13] Mathias Weller. “Linear-Time Tree Containment in Phylogenetic Networks”. In: *Comparative Genomics - 16th International Conference, RECOMB-CG 2018, Magog-Orford, QC, Canada, October 9-12, 2018, Proceedings*. Vol. 11183. Lecture Notes in Computer Science. Springer, 2018, pp. 309–323. DOI: [10.1007/978-3-030-00834-5_18](https://doi.org/10.1007/978-3-030-00834-5_18).
- [c14] Cédric Chauve, Mark Jones, Manuel Lafond, Céline Scornavacca, and Mathias Weller. “Constructing a Consensus Phylogeny from a Leaf-Removal Distance (Extended Abstract)”. In: *Proceedings of the 24th International Symposium on String Processing and Information Retrieval (SPIRE’17)*. Vol. 10508. LNCS. Springer, 2017, pp. 129–143. DOI: [10.1007/978-3-319-67428-5_12](https://doi.org/10.1007/978-3-319-67428-5_12).

- [c15] Benoît Darties, Annie Chateau, Rodolphe Giroudeau, and Mathias Weller. “Improved Complexity for Power Edge Set Problem”. In: *Proceedings of the 28th International Workshop on Combinatorial Algorithms (IWOCOA’17), Revised Selected Papers*. Vol. 10765. Lecture Notes in Computer Science. Springer, 2017, pp. 128–141. DOI: [10.1007/978-3-319-78825-8_11](https://doi.org/10.1007/978-3-319-78825-8_11).
- [c16] Holger Dell, Christian Komusiewicz, Nimrod Talmon, and Mathias Weller. “The PACE 2017 Parameterized Algorithms and Computational Experiments Challenge: The Second Iteration”. In: *Proceedings of the 12th International Symposium on Parameterized and Exact Computation (IPEC’17)*. Vol. 89. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2017, 30:1–30:12. DOI: [10.4230/LIPIcs.IPEC.2017.30](https://doi.org/10.4230/LIPIcs.IPEC.2017.30).
- [c17] Mathias Weller, Annie Chateau, and Rodolphe Giroudeau. “On the Linearization of Scaffolds Sharing Repeated Contigs”. In: *Proceedings of the 11th International Conference on Combinatorial Optimization and Applications (COCOA’17), Part III*. Vol. 10628. Lecture Notes in Computer Science. Springer, 2017, pp. 509–517. DOI: [10.1007/978-3-319-71147-8_38](https://doi.org/10.1007/978-3-319-71147-8_38).
- [c18] Clément Dallard, Mathias Weller, Annie Chateau, and Rodolphe Giroudeau. “Instance Guaranteed Ratio on Greedy Heuristic for Genome Scaffolding”. In: *Combinatorial Optimization and Applications - 10th International Conference, COCOA 2016, Hong Kong, China, December 16-18, 2016, Proceedings*. Vol. 10043. Lecture Notes in Computer Science. Springer, 2016, pp. 294–308. DOI: [10.1007/978-3-319-48749-6_22](https://doi.org/10.1007/978-3-319-48749-6_22).
- [c19] Mathias Weller, Annie Chateau, Rodolphe Giroudeau, Jean-Claude König, and Valentin Pollet. “On Residual Approximation in Solution Extension Problems”. In: *Combinatorial Optimization and Applications - 10th International Conference, COCOA 2016, Hong Kong, China, December 16-18, 2016, Proceedings*. Vol. 10043. Lecture Notes in Computer Science. Springer, 2016, pp. 463–476. DOI: [10.1007/978-3-319-48749-6_34](https://doi.org/10.1007/978-3-319-48749-6_34).
- [c20] Maxim A. Babenko, Andrew V. Goldberg, Haim Kaplan, Ruslan Savchenko, and Mathias Weller. “On the Complexity of Hub Labeling”. In: *Proceedings of the 40th International Symposium on Mathematical Foundations of Computer Science (MFCS ’15), Part II*. Vol. 9235. Lecture Notes in Computer Science. Springer, 2015, pp. 62–74. DOI: [10.1007/978-3-662-48054-0_6](https://doi.org/10.1007/978-3-662-48054-0_6).
- [c21] Mathias Weller, Annie Chateau, and Rodolphe Giroudeau. “On the Complexity of Scaffolding Problems: From Cliques to Sparse Graphs”. In: *Proceedings of the 9th International Conference on Combinatorial Optimization and Applications (COCOA ’15)*. Vol. 9486. Lecture Notes in Computer Science. Springer, 2015, pp. 409–423. DOI: [10.1007/978-3-319-26626-8_30](https://doi.org/10.1007/978-3-319-26626-8_30).
- [c22] Mathias Weller. “An Improved Branching Algorithm for Two-Layer Planarization Parameterized by the Feedback Edge Set Number”. In: *Experimental Algorithms, 12th International Symposium, SEA 2013, Rome, Italy, June 5-7, 2013. Proceedings*. Vol. 7933. Lecture Notes in Computer Science. Springer, 2013, pp. 337–353. DOI: [10.1007/978-3-642-38527-8_30](https://doi.org/10.1007/978-3-642-38527-8_30).
- [c23] René van Bevern, Sepp Hartung, Frank Kammer, Rolf Niedermeier, and Mathias Weller. “Linear-Time Computation of a Linear Problem Kernel for Dominating Set on Planar Graphs”. In: *Parameterized and Exact Computation - 6th International Symposium, IPEC 2011, Saarbrücken, Germany, September 6-8, 2011. Revised Selected Papers*. Vol. 7112. Lecture Notes in Computer Science. Springer, 2011, pp. 194–206. DOI: [10.1007/978-3-642-28050-4_16](https://doi.org/10.1007/978-3-642-28050-4_16).
- [c24] Rudolf Fleischer, Jiong Guo, Rolf Niedermeier, Johannes Uhlmann, Yihui Wang, Mathias Weller, and Xi Wu. “Extended Islands of Tractability for Parsimony Haplotyping”. In: *Proceedings of the 21st Annual Symposium on Combinatorial Pattern Matching (CPM ’10)*. Vol. 6129. Lecture Note in Computer Science. Springer, 2010, pp. 214–226. DOI: [10.1007/978-3-642-13509-5_20](https://doi.org/10.1007/978-3-642-13509-5_20).

Techreports, arXiv, HAL, Unpublished Work

- [u1] Annie Chateau, Rodolphe Giroudeau, Michael Poss, and Mathias Weller. “Scaffolding with multiplicities using ILP”. In preparation.
- [u2] Leo van Iersel, Mark Jones, Jannik Schestag, Céline Scornavacca, and Mathias Weller. “Maximizing Network Phylogenetic Diversity”. 2024. DOI: [10.48550/ARXIV.2405.01091](https://doi.org/10.48550/ARXIV.2405.01091). arXiv: [2405.01091](https://arxiv.org/abs/2405.01091).
- [u3] Laurent Bulteau, Mathias Weller, and Louxin Zhang. “On Turning A Graph Into A Phylogenetic Network”. working paper or preprint. 2023. URL: <https://hal.science/hal-04085424>.
- [u4] Mathias Weller. “Neighbor Joining And Leaf Status”. working paper or preprint. 2023. URL: <https://hal.science/hal-04109091>.

- [u5] Mathias Weller. “Listing Conflicting Triples in Optimal Time”. 2019. arXiv: [1911.11048](https://arxiv.org/abs/1911.11048).
- [u6] Stephan Bessy, Alexander Grigoriev, Christophe Paul, Dimitrios Thilikos, and Mathias Weller. “Reconstructing Trees using Status Sequences”. Unpublished manuscript. 2014.
- [u7] Manuel Sorge and Mathias Weller. “The Graph Parameter Hierarchy”. Unpublished manuscript, available at <http://lirmm.fr/~weller/parameter-hierarchy.pdf>. 2014.
- [u8] Mathias Weller. “Optimal Hub Labeling is NP-complete”. 2014. URL: <http://arxiv.org/abs/1407.8373>.
- [u9] Manuel Sorge Mathias Weller Rolf Niedermeier. “Novel Directions in Data Reduction for NP-Hard Problems: Truth-Table Kernelizations”. Unpublished manuscript. 2013.