PUBLIKÁCIÓS- ÉS HIVATKOZÁSLISTA
DR. PONGRÁCZ ANDRÁS

Publikációk

Beküldött cikkek (4 db)

(1) Pongrácz, A. *On the gambler's ruin problem and higher moments of some absorbing Markov chains*, (2020) 21 pp, beküldve.

(2) Pongrácz, A. *Existential reducts of the binary branching semilinear order and the Thomas conjecture*, (2020) 15 pp, beküldve.

(3) Pongrácz, A. *Extremal solutions of an inequality concerning supports of permutation groups and punctured Hadamard codes*, (2019) 20 pp, beküldve.

(4) Kátai-Urbán, K., Szabó, Cs., Pongrácz, A. *Voting protocols on the star graph*, (2018) 13 pp, beküldve.

Elfogadott és publikált cikkek (22 db)

(1) Pongrácz, A., Vincze, Cs. *On the reconstruction of the center of a projection by distances and incidence relations*, Journal of Mathematical Imaging and Vision **63:4** (2021) 443-456.

(2) Pongrácz, A. *Binary linear codes with near-extremal maximum distance*, SIAM Journal on Discrete Mathematics (2020) 18 pp, elfogadva.

(3) Bodirsky, M., Pinsker, M., Pongrácz, A. *Projective clone homomorphisms*, The Journal of Symbolic Logic (2018) 12 pp, elfogadva.

(4) Pongrácz, A. *Discordant voting protocols for cyclically linked agents*, The Electronic Journal of Combinatorics (2020) **27(1):P1.58** 14 pp. A cikk vázlatos formában megjelent itt: Lecture Notes in Engineering and Computer Science, Volume I, Proceedings of ICCSE'18 165-168.

(5) Kátai-Urbán, K., Szabó, Cs., Pongrácz, A. *The fine- and generative spectra of varieties of monounary algebras*, Algebra Universalis **80:22** (2019) 18 pp.

(6) Bodirsky, M., Martin, B., Pinsker, M., Pongrácz, A. *Constraint satisfaction problems for reducts of homogeneous graphs*, SIAM Journal on Computing (2019) **48:4** 1224-1264. A cikk vázlatos formában megjelent itt: Proceedings of ICALP'16 **119** 1–12.

(7) Bodirsky, M., Bradley-Williams, D., Pinsker, M., Pongrácz, A. *The universal homogeneous binary tree*, Journal of Logic and Computation **28:1** (2018) 133–163.

(8) Martin, B., Pongrácz, A., Wrona, M. *The complexity of counting quantifiers on equality languages*, Theoretical Computer Science **670** (2017) 56–67. A cikk vázlatos formában megjelent itt: Computablity in Europe (CiE 2016).

(9) Pongrácz, A. *Reducts of the Henson graphs with a constant*, Annals of Pure and Applied Logic **168:7** (2017) 1472–1489.

(10) Bodirsky, M., Pinsker, M., Pongrácz, A. *Reconstructing the topology of clones*, Transactions of the American Mathematical Society **369** (2017) 3707–3740.

(11) Bodirsky, M., Pinsker, M., Pongrácz, A. *The 42 reducts of the random ordered graph*, Proceedings of the London Mathematical Society **111:3** (2015) 591–632.

(12) Müller, M., Pongrácz, A. *Topological dynamics of unordered Ramsey structures*, Fundamenta Mathematicae **230:1** (2015) 77–98.

(13) Pach, P. P., Pinsker, M., Pluhár, G., Pongrácz, A., Szabó, Cs. *Reducts of the random partial order*, Advances in Mathematics **267** (2014) 94–120.

(14) Pongrácz, A. *Omega-kategorikus struktúrák és algebrai invariánsaik*, Matematikai Lapok **20:1** (2014) 5–37 (magyar nyelvű összefoglaló cikk).

(15) Pach, P. P., Pinsker, M., Pongrácz, A., Szabó, Cs. *A new operation on partially ordered sets*, Journal of Combinatorial Theory, Series A **120:7** (2013) 1450–1462.

(16) Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The number of rooted trees of given depth*, The Electronic Journal of Combinatorics **20:2** (2013) 11 pp.

(17) Horváth, G., Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On free algebras in varieties generated by iterated semidirect products of semilattices*, International Journal of Algebra and Computation **22:7** (2012) 11 pp.

(18) Horváth, G., Mayr, P., Pongrácz, A. *Characterizing translations on groups by cosets of their subgroups*, Communications in Algebra **40:9** (2012) 3141–3168.

(19) Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On the word problem for syntactic monoids of piecewise testable languages*, Semigroup Forum **84:2** (2012) 323–332.

(20) Horváth, G., Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The number of monounary algebras*, Algebra Universalis **66:1-2** (2011) 81–83.

(21) Juhász, M. L., Pongrácz, A. *Embedding semilattices of subspaces of vector spaces*, Studia Scientiarum Mathematicarum Hungarica **48:1** (2011) 122–129.

(22) Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The possible number of islands on the sea*, Journal of Mathematical Analysis and Applications **375:1** (2011) 8–13.

Független hivatkozások (77 db)

Pongrácz, A. *Discordant voting protocols for cyclically linked agents*, The Electronic Journal of Combinatorics (2020) **27(1):P1.58** 14 pp. A cikk vázlatos formában megjelent itt: Lecture Notes in Engineering and Computer Science, Volume I, Proceedings of ICCSE'18 165-168.

(1) Cooper, C., Dyer, M., Frieze, A., Rivera, M. *Discordant Voting Processes on Finite Graphs*, SIAM Journal on Discrete Mathematics **32:4** (2018) 2398–2420.

Bodirsky, M., Martin, B., Pinsker, M., Pongrácz, A. *Constraint satisfaction problems for reducts of homogeneous graphs*, SIAM Journal on Computing (2019) **48:4** 1224–1264. A cikk vázlatos formában megjelent itt: Proceedings of ICALP'16 **119** 1–12.

(1) Barto, L., Demeo, W., Mottet, A. *Constraint satisfaction problems over finite structures* Proceedings of LICS'21 (2021) 19 pp.
(2) Klin, B., Lasota, S., Ochremiak, J., Toruńczyk, S. *Homomorphism problems for first-order definable structures*, Proceedings of the FSTTCS **65** (2016) 14:1–15.
(3) Wrona, M. *Relational width of first-order expansions of homogeneous graphs with bounded strict width*, Proceedings of STACS (2020), elfogadva.
(4) Wrona, M. *On the relational width of first-order expansions of finitely bounded homogeneous binary cores with bounded strict width*, Proceedings of LICS (2020) 9:58-9:71, elfogadva.
(5) Kompatscher, M., Van Pham, T. *A complexity dichotomy for poset constraint satisfaction* Proceedings of the 34th Symposium on Theoretical Aspects of Computer Science (STACS'17), (ISBN 9783959770286) Paper 47, 2017.
(6) Jakubíková-Studenovská, D. *Homomorphism order of connected monounary algebras* Order, 2020.
(7) Viola, C., Zivny, S. *The combined basic LP and affine IP relaxation for promise VCSPs on infinite domains*, Proceedings of MFCS'20 **170** (2020) 85:1–85:15.

Kátai-Urbán, K., Szabó, Cs., Pongrácz, A. *The fine- and generative spectra of varieties of monounary algebras*, Algebra Universalis **80:22** (2019) 18 pp.

(1) Witt, B. *Residual finiteness and related properties in monounary algebras and their direct products* Algebra Universalis **82:2** (2021) 22 pp.

Bodirsky, M., Bradley-Williams, D., Pinsker, M., Pongrácz, A. *The universal homogeneous binary tree*, Journal of Logic and Computation **28:1** (2018) 133–163.

(1) Agarwal, L., Kompatscher, M. $2^{\aleph_0}$ *pairwise non-isomorphic maximal-closed subgroups of Sym*$(\mathbb{N})$ *via the classification of the reducts of the Henson digraphs*, The Journal of Symbolic Logic **83:2** (2018) 395–415.
(2) Ahlman, O. *Homogenizable structures and model completeness*, Archive for Mathematical Logic **55:7** (2016) 977–995.
(3) Chicot, K. M., Truss, J. K. *Countable 1-transitive trees*, Groups, Modules, and Model Theory - Surveys and Recent Developments (2017) 225–268.
(4) Jakubíková-Studenovská, D. *Homomorphism order of connected monounary algebras* Order, 2020.

(5) Kaplan, I., Rzepecki, T., Siniora, D. *On the automorphism group of the universal homogeneous meet-tree* The Journal of Symbolic Logic (2021) 33 pp.

Bodirsky, M., Pinsker, M., Pongrácz, A. *Projective clone homomorphisms*, The Journal of Symbolic Logic (2018) 12 pp, elfogadva.

(1) Olšák, M. *Malt'sev conditions for general congruence meet-semidistributive algebras*, The Journal of Symbolic Logic (2021) 20 pp.
(2) Olšák, M. *The weakest nontrivial idempotent equations*, Bulletin of the London Mathematical Society **49** (2017) 1028–1047.

Pongrácz, A. *Reducts of the Henson graphs with a constant*, Annals of Pure and Applied Logic **168:7** (2017) 1472–1489.

(1) Bodirsky, M. *Ramsey Classes: Examples and Constructions*, London Mathematical Society Lecture Note Series 424, Cambridge University Press (2015) 1–48.
(2) Bodirsky, M. *Complexity of Infinite-Domain Constraint Satisfaction*, LNL Series of Cambridge University Press (2021) 415 pp.
(3) Bodirsky, M., Pinsker, M. *Canonical functions: a proof via topological dynamics*, Contributions to Discrete Mathematics (2020) 9 pp, elfogadva.
(4) Bodor, B., Cameron, P. J., Szabó, Cs. *Infinitely many reducts of homogeneous structures*, Algebra Universalis **79:43** (2018) 10 pp.
(5) Bodor, B., Kalina, K. *Az $\mathbb{F}_2^\omega$ vektortér reduktjai*, Matematikai Lapok **20:2** (2014) 20–28.
(6) Bodor, B., Kalina, K. *Az $\mathbb{F}_p^\omega$ vektortér reduktjai páratlan prímek esetén*, Matematikai Lapok **20:2** (2014) 29–56.
(7) Bodor, B., Kalina, K. *Boole-algebrák funkcionális reduktjai*, Matematikai Lapok **20:2** (2014) 57–72.
(8) Bodor, B., Kalina, K., Szabó, Cs. *Permutation groups containing infinite symplectic linear groups and reducts of linear spaces over the two element field*, Communications in Algebra **45:7** (2017) 2942–2955.
(9) Linman, J., Pinsker, M. *Permutations on the random permutation*, Electronic Journal of Combinatorics **22:2** (2015) 1–22.
(10) Rzepecki, T. *Hereditary G-compactness*, Archive for Mathematical Logic (2021) 20 pp.

Bodirsky, M., Pinsker, M., Pongrácz, A. *Reconstructing the topology of clones*, Transactions of the American Mathematical Society **369** (2017) 3707–3740.

(1) Behrisch, M. *Galois theory for semiclones*, Algebra Universalis **76:3** (2016) 385–413.
(2) Behrisch, M., Truss, J. K., Vargas-Garcia, E. *Reconstructing the topology on monoids and polymorphism clones of the rationals*, Studia Logica **105:1** (2017) 65–91.
(3) Feller, T., Pech, C., Pech, M. *The classification of homomorphism homogeneous tournaments*, European Journal of Combinatorics **89** (2020) 103-142.
(4) Pech, C., Pech, M. *Fraïssé limits of comma categories*, Applied Categorical Structures **26:4** (2018) 799–820.
(5) Pech, C., Pech, M. *On automatic homeomorphicity for transformation monoids*, Monatshefte für Mathematik **179:1** (2016) 129–148.

(6) Pech, C., Pech, M. *Polymorphism clones of homogeneous structures: gate coverings and automatic homeomorphicity*, Algebra Universalis **79:35** (2018) 24 pp.
(7) Pech, C., Pech, M. *Reconstructing the topology of the elementary self-embedding monoids of countable saturated structures*, Studia Logica (2017).

Bodirsky, M., Pinsker, M., Pongrácz, A. *The 42 reducts of the random ordered graph*, Proceedings of the London Mathematical Society **111:3** (2015) 591–632.

(1) Agarwal, L. *Reducts of the generic digraph*, Annals of Pure and Applied Logic **167:3** (2016) 370–391.
(2) Agarwal, L., Kompatscher, M. $2^{\aleph_0}$ *pairwise non-isomorphic maximal-closed subgroups of Sym*$(\mathbb{N})$ *via the classification of the reducts of the Henson digraphs*, Jornal of Symbolic Logic **83:2** (2018) 395–415.
(3) Bodor, B., Cameron, P. J., Szabó, Cs. *Infinitely many reducts of homogeneous structures*, Algebra Universalis **79:43** (2018) 10 pp.
(4) Bodor, B., Kalina, K. *Az* $\mathbb{F}_2^\omega$ *vektortér reduktjai*, Matematikai Lapok **20:2** (2014) 20–28.
(5) Bodor, B., Kalina, K. *Boole-algebrák funkcionális reduktjai*, Matematikai Lapok **20:2** (2014) 57–72.
(6) Mašulović, D. *Ramsey degress: Big v. small*, European Journal of Combinatorics **95(3)**:103323 (2021) 38 pp.
(7) Semenov, A., Soprunov, S., Uspensky, V. *The lattice of definability. Origins, recent developments, and further directions*, Lecture Notes in Computer Science - Theory and Applications **8476** (2014) 23–28.
(8) Tarzi, S. *Multicoloured Random Graphs: Constructions and Symmetry*, CreateSpace Independent Publishing Platform, 2015.

Müller, M., Pongrácz, A. *Topological dynamics of unordered Ramsey structures*, Fundamenta Mathematicae **230:1** (2015) 77–98.

(1) Bodirsky, M. *Ramsey Classes: Examples and Constructions*, London Mathematical Society Lecture Note Series 424, Cambridge University Press (2015) 1–48.
(2) Mašulović, D. *A dual Ramsey theorem for permutations*, The Electronic Journal of Combinatorics **24:3** (2017) 12 pp.
(3) Mašulović, D. *Pre-adjunctions and the Ramsey property*, European Journal of Combinatorics **70** (2018) 268–283.
(4) Mašulović, D. *Ramsey degress: Big v. small*, European Journal of Combinatorics **95(3)**:103323 (2021) 38 pp.
(5) Mašulović, D. *The Kechris-Pestov-Todorčević correspondence from the point of view of category theory*, Applied Categorical Structures (2020).
(6) Mašulović, D., Scow, L. *Categorical equivalence and the Ramsey property for finite powers of a primal algebra*, Algebra Universalis **78** (2017) 159–179.
(7) Melleray, J., Nguyen Van Thé, L., Tsankov, T. *Polish groups with metrizable universal minimal flows*, International Mathematics Research Notices **5** (2016) 1285–1307.
(8) Zucker, A. *Topological dynamics of automorphism groups, ultrafilter combinatorics, and the generic point problem*, Transactions of the American Mathematical Society **368:9** (2016) 6715–6740.

Pach, P. P., Pinsker, M., Pluhár, G., Pongrácz, A., Szabó, Cs. *Reducts of the random partial order*, Advances in Mathematics **267** (2014) 94–120.

(1) Agarwal, L. *Reducts of the generic digraph*, Annals of Pure and Applied Logic **167:3** (2016) 370–391.
(2) Agarwal, L., Kompatscher, M. $2^{\aleph_0}$ *pairwise non-isomorphic maximal-closed subgroups of Sym*($\mathbb{N}$) *via the classification of the reducts of the Henson digraphs*, Jornal of Symbolic Logic **83:2** (2018) 395–415.
(3) Bodirsky, M. *Ramsey Classes: examples and constructions*, London Mathematical Society Lecture Note Series 424, Cambridge University Press (2015) 1–48.
(4) Bodirsky, M. *Complexity of Infinite-Domain Constraint Satisfaction*, LNL Series of Cambridge University Press (2021) 415 pp.
(5) Bodirsky, M., Bodor, B. *Permutation groups with small orbit growth*, Journal of Group Theory (2021) 48 pp.
(6) Bodirsky, M., Jonsson, P., Van Pham, T. *The reducts of the homogeneous binary branching C-relation*, The Journal of Symbolic Logic **81:4** (2016) 1255–1297.
(7) Bodirsky, M., Macpherson, D. *Reducts of structures and maximal-closed permutation groups*, The Journal of Symbolic Logic **81:3** (2016) 1087–1114.
(8) Bodor, B., Kalina, K. *Az* $\mathbb{F}_2^\omega$ *vektortér reduktjai*, Matematikai Lapok **20:2** (2014) 20–28.
(9) Bodor, B., Kalina, K. *Az* $\mathbb{F}_p^\omega$ *vektortér reduktjai páratlan prímek esetén*, Matematikai Lapok **20:2** (2014) 29–56.
(10) Bodor, B., Kalina, K. *Boole-algebrák funkcionális reduktjai*, Matematikai Lapok **20:2** (2014) 57–72.
(11) Kompatscher, M., Van Pham, T. *A complexity dichotomy for poset constraint satisfaction* Proceedings of the 34th Symposium on Theoretical Aspects of Computer Science (STACS'17), (ISBN 9783959770286) Paper 47, 2017.
(12) Mašulović, D. *Ramsey degress: Big v. small*, European Journal of Combinatorics **95(3)**:103323 (2021) 38 pp.

Pach, P. P., Pinsker, M., Pongrácz, A., Szabó, Cs. *A new operation on partially ordered sets*, Journal of Combinatorial Theory, Series A **120:7** (2013) 1450–1462.

(1) Bodor, B., Kalina, K. *Az* $\mathbb{F}_p^\omega$ *vektortér reduktjai páratlan prímek esetén*, Matematikai Lapok **20:2** (2014) 29–56.
(2) Harsányi, G., Imre, S., Jobbágy, Á., Katona, Gy., Kiss, B., Kiss, I., Magyar, G., Nagy, L., Poppe, A., Vajk, I. *Annual research report on electrical engineering and computer science 2015*, Periodica Polytechnica - Electrical Engineering **60:1** (2016) 1–36.
(3) Kompatscher, M., Van Pham, T. *A complexity dichotomy for poset constraint satisfaction* Proceedings of the 34th Symposium on Theoretical Aspects of Computer Science (STACS'17), (ISBN 9783959770286) Paper 47, 2017.

Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The number of rooted trees of given depth*, The Electronic Journal of Combinatorics **20:2** (2013) 11 pp.

(1) Harsányi, G., Imre, S., Jobbágy, Á., Katona, Gy., Kiss, B., Kiss, I., Magyar, G., Nagy, L., Poppe, A., Vajk, I. *Annual research report on electrical engineering and computer science 2015*, Periodica Polytechnica - Electrical Engineering **60:1** (2016) 1–36.

Horváth, G., Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On free algebras in the varieties of iterated semidirect products of meet-semilattices*, International Journal of Algebra and Computation **22:7** (2012) 11 pp.

(1) Dolinka, I. *On free spectra of finite monoids from the pseudovariety DA*, Semigroup Forum **85:2** (2012) 244–254.

Horváth, G., Mayr, P., Pongrácz, A. *Characterizing translations on groups by cosets of their subgroups*, Communications in Algebra **40:9** (2012) 3141–3168.

(1) Aichinger, E., Mudrinski, N. *Sequences of commutator operations*, Order **30:3** (2013) 859–867.

Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On the word problem for syntactic monoids of piecewise testable languages*, Semigroup Forum **84:2** (2012) 323–332.

(1) Karandikar, P., Kufleitner, M., Schnoebelen, Ph. *On the index of Simon's congruence for piecewise testability*, Information Processing Letters **115:4** (2015) 515–519.
(2) Fleischer, L., Kufleitner, M. *Testing Simon's congruence*, Leibniz International Proceedings in Informatics, 43rd International Symposium on Mathematical Foundations of Computer Science **117** (2018) 62:1-62:13.

Horváth, G., Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The number of monounary algebras*, Algebra Universalis **66:1-2** (2011) 81–83.

(1) Czédli, G., Jakubíková-Studenovská, D. *Large rigid sets of algebras with respect to embeddability*, Mathematica Slovaca **66:2** (2016) 7 pp.
(2) Jakubíková-Studenovská, D., Potpinková, K. *The endomorphism spectrum of a monounary algebra*, Mathematica Slovaca **64:3** (2014) 675–690.

Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *The possible number of islands on the sea*, Journal of Mathematical Analysis and Applications **375:1** (2011) 8–13.

(1) Czédli, G. *CD-independent subsets in meet-distributive lattices*, Acta Mathematica Hungarica **143:1** (2014) 232–248.
(2) Földes, S., Horváth, K. E., Radeleczki, S., Waldhauser, T. *A general framework for island systems*, Acta Scientiarum Mathematicarum **81** (2015) 3–24.
(3) Horváth, K. E. *Islands: from coding theory to enumerative combinatorics and to lattice theory - overview and open problems*, Miskolc Mathematical Notes **14:3** (2013) 927–939.
(4) Horváth, K. E. *Survey on islands - a possible research topic, even for students*, Interesting Mathematical problems in Sciences and in Everyday Life, 2011.

(5) Horváth, K. E., Šešelja, B., Tepavčević, A. *Cardinality of height function's range in case of maximally many rectangular islands - computed by cuts*, Central European Journal of Mathematics **11:2** (2013) 296–307.
(6) Lengvárszky, Zs. *Systems of islands with continuous height functions*, Journal of the Australian Mathematical Society **94:3** (2013) 385–396.

Néhány részletes hivatkozás

Bodirsky, M., Pinsker, M., Pongrácz, A. *Reconstructing the topology of clones*, Transactions of the American Mathematical Society **369** (2017) 3707–3740.

-Az [1]-es hivatkozás a következő cikkben:

Behrisch, M., Truss, J. K., Vargas-Garcia, E. *Reconstructing the topology on monoids and polymorphism clones of the rationals*, Studia Logica **105:1** (2017) 65–91.

"Thus, we have to invent another method to ensure closedness, which is done by generalizing Lemma 12 from [1]"

"A main technical lemma, adapted from [1], shows how certain pairs of finite partial automorphisms can be extended to pairs of automorphisms."

"By Corollary 6.3 we conclude that Θ is continuous. To see that it must be open too, we use Proposition 32 from [1], which holds for clone isomorphisms and is applicable here since G acts transitively on A and $\Theta \restriction_E$ is open."

- Az [5]-ös hivatkozás a következő cikkben:

Pech, C., Pech, M. *Reconstructing the topology of the elementary self-embedding monoids of countable saturated structures*, Studia Logica (2017)

"*Proof of Theorem 2.4.* Let $\psi := \varphi \restriction_{Aut(\mathbf{A})}$. By Theorem 2.3 we have that $\psi : Aut(\mathbf{A}) \to \mathbf{Aut}(\mathbf{B})$ is a homeomorphism. It is well-known (cf. [5, Proposition 11]) that ψ extends to a homeomorphism $\overline{\psi} : EEmb(\mathbf{A}) \to \overline{Aut(\mathbf{B})} \leq EEmb(\mathbf{B})$."

"In order to prove Proposition 2.5, we will use a strategy that was established in [5], and adapted in [2]."

Horváth, G., Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On free algebras in the varieties of iterated semidirect products of meet-semilattices*, International Journal of Algebra and Computation **22:7** (2012) 11 pp.

- A [11]-es hivatkozás a következő cikkben:

Dolinka, I. *On free spectra of finite monoids from the pseudovariety DA*, Semigroup Forum **85:2** (2012) 244–254.

"This approach roughly parallels (and in several points generalises) that of Horváth et al. [11] who utilised the results of Almeida [1, 2] and Stiffler [18] to obtain an analogous result for finite $\mathcal{R}$-trivial (and, dually, $\mathcal{L}$-trivial) monoids, which form subpseudovarieties R and L, respectively, of DA."

"**Fact 11** (Horváth et al. [11]). $\log f_n(\mathcal{V}_t) \in O(n^t)$.

Remark 12. In fact, Theorem 5.1 of [11] describes the asymptotic behavior of $\log f_n(\mathcal{V}_t)$ for the semigroup variety $\mathcal{V}_t$ defined by identities (2.3) and (2.4), but it is quite easy to run through

[11] to see that the same asymptotic bound holds for the monoid variety defined by the same identities."

Kátai-Urbán, K., Pach, P. P., Pluhár, G., Pongrácz, A., Szabó, Cs. *On the word problem for syntactic monoids of piecewise testable languages*, Semigroup Forum **84:2** (2012) 323–332.

- A [10]-es hivatkozás a következő cikkben:

Karandikar, P., Kufleitner, M., Schnoebelen, Ph. *On the index of Simon's congruence for piecewise testability*, Information Processing Letters **15:4** (2015) 515–519.

"Since the question of estimating $C_k(n)$ was raised in [2] (and to the best of our knowledge) no progress has been made on the question, until Kátai-Urbán et al. proved the following bounds:

Theorem 1.1 (Kátai-Urbán et al. [10]). For all k>1,

$\frac{k^n}{3^{n^2}} \log k \leq \log C_k(n) < 3^n k^n \log k$ if n is even,

$\frac{k^n}{3^{n^2}} < \log C_k(n) < 3^n k^n$ if n is odd.

The proof is based on two reductions, one showing $C_{k+l}(n+2) \geq C_k^{l+2}(n)$ for proving lower bounds, and one showing $C_k(n+2) \leq (k+1)^{2k} C_k^{2k-1}(n)$ for proving upper bounds."