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Closure properties of Watson-Crick grammars (Conference Paper)

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Abstract

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In this paper, we define Watson-Crick context-free grammars, as an extension of Watson-Crick regular grammars and Watson-Crick linear grammars with context-free grammar rules. We show the relation of Watson-Crick (regular and linear) grammars to the sticker systems, and study some of the important closure properties of the Watson-Crick grammars. We establish that the Watson-Crick regular grammars are closed under almost all of the main closure operations, while the differences between other Watson-Crick grammars with their corresponding Chomsky grammars depend on the computational power of the Watson-Crick grammars which still need to be studied. © 2015 AIP Publishing LLC.

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References (15)

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- 1 Kari, L., Seki, S., Sosik, P. (2012) *Handbook of Natural Computing*, pp. 1073-1127.
- 2 Freund, R., Paun, G., Rozernberg, G., Salomaa, A. (1999) *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, 48, pp. 297-327. Cited 35 times.

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The computational power of Watson-Crick grammars: Revisited

Mohamad Zulkufli, N.L. , Turaev, S. , Mohd Tamrin, M.I.

- 3 Subramanian, K.G., Hemalatha, S., Venkat, I.
On watson-crick automata
- (2012) *ACM International Conference Proceeding Series*, pp. 151-156. Cited 3 times.
ISBN: 978-145031310-0
doi: 10.1145/2393216.2393242
- [View at Publisher](#)
-
- 4 Sutapa, D., Mukhopadhyay, S.
(2013) *PloS One*, 82.
-
- 5 Eng, T.L.
(1998) *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, 48.
-
- 6 Mohd Tamrin, M., Turaev, S., Tengku Sembok, T.M.
(2013) *The 21st National Symposium on Mathematical Sciences*
-
- 7 Mohamad Zulkifli, N., Turaev, S., Mohd Tamrin, M., Messikh, A.
Watson-crick linear grammars
(2015) *Lecture Notes in Electrical Engineering (DaEng 2015)*. Cited 3 times.
(Bali, Indonesia) (to appear)
-
- 8 Czeizler, E., Czeizler, E.
(2006) *Bulletin of the EATCS*, 88, pp. 104-119. Cited 14 times.
-
- 9 Paun, G., Rozenberg, G., Salomaa, A.
(1998) *DNA Computing. New Computing Paradigms*. Cited 496 times.
(Springer-Verlag)
-
- 10 Rozenberg, G., Salomaa, A.
(1997) *Handbook of Formal Languages*, 1-3. Cited 1183 times.
(Springer-Verlag)
-
- 11 Okawa, S., Hirose, S.
The relations among Watson-Crick automata and their relations with context-free languages
- (2006) *IEICE Transactions on Information and Systems*, E89-D (10), pp. 2591-2599. Cited 7 times.
<https://www.jstage.jst.go.jp/browse/transinf>
doi: 10.1093/ietisy/e89-d.10.2591
- [View at Publisher](#)
-
- 12 Kari, L., Păun, G., Rozenberg, G., Salomaa, A., Yu, S.
DNA computing, sticker systems, and universality*
- (1998) *Acta Informatica*, 35 (5), pp. 401-420. Cited 71 times.
- [View at Publisher](#)

(2016) *Communications in Computer and Information Science*

Context-free systems with a complementarity relation

Subramanian, K.G. , Venkat, I. , Mahalingam, K.

(2011) *Proceedings - 2011 6th International Conference on Bio-Inspired Computing: Theories and Applications, BIC-TA 2011*

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- 13 Leupold, P., Nagy, B.
5' → 3' Watson-Crick automata with several runs

(2010) *Fundamenta Informaticae*, 104 (1-2), pp. 71-91. Cited 10 times.
doi: 10.3233/FI-2010-336

[View at Publisher](#)

- 14 Subramanian, K.G., Venkat, I., Mahalingam, K.
(2011) *Bio-Inspired Computing: Theories and Applications (BIC-TA)*

- 15 Reece, J., Cain, M.L., Wasserman, S., Minorsky, P.V., Jackson, R.B.
(2011) *Campbell Biology*. Cited 148 times.
U. L.A., (10th Edition) (Pearson Education, Inc.)

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