

# ON THE WAITING TIME TILL SOME PATTERNS OCCUR IN I.I.D. SEQUENCES

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I show how gambling team techniques, pioneered by Li [2], can be used to obtain information for the distribution of waiting time for patterns in independent sequences of random letters and propose some general solution of the system of linear equations formed by Gerber and Li [1]. This solution allow us in the simple way to obtain formulas on probabilities for given patterns to be first to appear in random text, a generalization of the Conway algorithm and the expected waiting time till one of them is observed.

## REFERENCES

- [1] H. Gerber, S-Y.R. Li, *The occurrence of sequence of patterns in repeated experiments and hitting times in a Markov chain*, Stochastic Processes and Their Applications, 11, 101-108 (1981).
- [2] S-Y.R. Li, *A martingale approach to the study of occurrence of sequence patterns in repeated experiments*, The Annals of Probability, Vol. 8. (1980), 1171-1176.
- [3] U. Ostaszewska, K. Zajkowski, *On the waiting time till some patterns occur in i.i.d. sequences*, arXiv:1302.4859.
- [4] K. Zajkowski, *Penney's game between many players*, arXiv:1212.3973.