

## Inclusion-Exclusion *Redux*

David Kessler, *Bar-Ilan University*  
Jeremy Schiff, *Bar-Ilan University*

### Abstract

We present a reordered version of the inclusion-exclusion principle, which is useful when computing the probability of a union of events which are close to independent. The advantages of this formulation are demonstrated in the context of 3 classic problems in combinatorics.

Full text: [PDF](#) | [PostScript](#)

Pages: 85-96

Published on: March 11, 2002

### Bibliography

1. G.Boole, *An Investigation of The Laws of Thought on which are Founded the Mathematical Theories of Logic and Probabilities*, Macmillan (1854), reprinted Dover (1958), [MR 19,1d](#)
2. N.Linial and N.Nisan, *Approximate Inclusion-Exclusion*, *Combinatorica* 10 (1990) 349-365, [MR 92d:05167](#)
3. J.Kahn, N.Linial and A.Samorodnitsky, *Inclusion-Exclusion: Exact and Approximate*, *Combinatorica* 16 (1996) 465-477, [MR 98b:05008](#)
4. A.Samorodnitsky, *Approximate Inclusion-Exclusion and Orthogonal Polynomials*, preprint.
5. S.Janson, *Poisson Approximation for Large Deviations*, *Random Structures and Algorithms* 1 (1990) 221-229, [MR 93a:60041](#)
6. P.Érdős and L.Lovász, *Problems and Results on 3-chromatic Hypergraphs and Some Related Questions*, in "Infinite and Finite Sets", ed. A.Hajnal et al., North Holland (1975), [MR 52 #2938](#)
7. N.Alon and J.Spencer, *The Probablistic Method*, Wiley (1992), [MR 95c:05113](#)
8. D.Q.Naiman and H.P.Wynn, *Inclusion-Exclusion-Bonferroni Identities and Inequalities for Discrete Tube-Like Problems via Euler Characteristics*, *Ann.Stat.* 20 (1992) 43-76, [MR 93b:60035](#)
9. D.Q.Naiman and H.P.Wynn, *Abstract Tubes, Improved Inclusion-Exclusion Identities and Inequalities and Importance Sampling*, *Ann.Stat.* 25 (1997) 1954-1983, [MR 99h:60034](#)
10. D.Q.Naiman and H.P.Wynn, *Improved Inclusion-Exclusion Inequalities for Simplex and Orthant Arrangements*, *JIPAM J.Inequal.Pure Appl. Math* 2 (2001) article 18, [MR 1 873 858](#)
11. J.Riordan, *An Introduction to Combinatorial Analysis*, Wiley (1958), [MR 20 #3077](#)
12. F.F.Knudsen and I. Skar, *On the Asymptotic Solution of a Card-Matching Problem*, *Math. Mag.* 69 (1996) 190-197, [MR 97f:15013](#)
13. W.Feller, *An Introduction to Probability Theory and its Applications*, third edition, Wiley (1968), [MR 37 #3604](#)
14. E.P.Miles, Jr., *Generalized Fibonacci Numbers and Associated Matrices*, *Amer. Math. Monthly* 67 (1960) 745-752, [MR 23 #A846](#)
15. R. Savit and M.L.Green, *Time Series and Dependent Variables*, *Physica D* 50 (1991) 95-116 (correction: *Physica D* 55 (1992) 234); M.L.Green and R.Savit, *Dependent Variables in Broad Band Continuous Time Series*, *Physica D* 50 (1991) 521-544, [MR 92i:58172](#)

### Research Support Tool

[Capture Cite](#)  
[View Metadata](#)  
[Printer Friendly](#)

▼ [Context](#)

[Author Address](#)

▼ [Action](#)

[Email Author](#)  
[Email Others](#)



[Home](#) | [Contents](#) | [Submissions, editors, etc.](#) | [Login](#) | [Search](#) | [EJP](#)

Electronic Communications in Probability. ISSN: 1083-589X