

Threshold phenomena on product spaces: BKKKL revisited (once more)

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Abstract

We revisit the work of Bourgain et al. (1992) -- referred to as "BKKKL" in the title -- about influences on Boolean functions in order to give a precise statement of threshold phenomenon on the product space $\{1, \dots, r\}^N$, generalizing one of the main results of Talagrand (1994).

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Bibliography

1. Benaim, Michel; Rossignol, Raphaël. Exponential concentration for First Passage Percolation through modified Poincaré inequalities. *To appear in Annales de l'IHP*. [arXiv.org: math.PR/0609730](https://arxiv.org/abs/math.PR/0609730)
2. Bollobás, Béla; Riordan, Oliver. The critical probability for random Voronoi percolation in the plane is $1/2$. *Probab. Theory Related Fields* 136 (2006), no. 3, 417--468. [MR2257131](#)
3. Bollobás, Béla; Riordan, Oliver. The critical probability for random Voronoi percolation in the plane is $1/2$. *Probab. Theory Related Fields* 136 (2006), no. 3, 417--468. [MR2257131](#)
4. Bollobás, Béla; Riordan, Oliver. Sharp thresholds and percolation in the plane. *Random Structures Algorithms* 29 (2006), no. 4, 524--548. [MR2268234](#) (2007h:60089)
5. Bollobás, Béla; Riordan, Oliver. A short proof of the Harris-Kesten theorem. *Bulletin of the London Mathematical Society* 38 (2006), no. 3, 470--484. [MR2239042](#)
6. Bourbaki, Nicolas. *Eléments de mathématique*. IX. Première partie: Les structures fondamentales de l'analyse. Livre IV: Fonctions d'une variable réelle (théorie élémentaire). Chapitre I: Dérivées. Chapitre II: Primitives et intégrales. Chapitre III: Fonctions élémentaires}. *Actualités Sci. Ind.*, (1949), no. 1074. Hermann et Cie., Paris. [MR0031013](#)
7. Bourgain, Jean; Kahn, Jeff; Kalai, Gil; Katznelson, Yitzhak; Linial, Nathan. The influence of variables in product spaces. *Israel J. Math.* 77 (1992), no. 1-2, 55--64. [MR1194785](#) (94g:05091)
8. Falik, Dvir; Samorodnitsky, Alex. Edge-isoperimetric inequalities and influences. *Combin. Probab. Comput.* 16 (2007), no. 5, 693--712. [MR2346808](#)
9. Friedgut, Ehud. Influences in product spaces: KKL and BKKKL revisited. *Combin. Probab. Comput.* 13 (2004), no. 1, 17--29. [MR2034300](#) (2004m:06021)
10. Friedgut, Ehud; Kalai, Gil. Every monotone graph property has a sharp threshold. *Proc. Amer. Math. Soc.* 124 (1996), no. 10, 2993--3002. [MR1371123](#) (97e:05172)
11. Grimmett, Geoffrey. *Percolation*. Second edition. Grundlehren der Mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences], 321. Springer-Verlag, Berlin, 1999. xiv+444 pp. ISBN: 3-540-64902-6 [MR1707339](#) (2001a:60114)
12. Hatami, H. (2006). Influences and decision trees. [arXiv.org: math/0612405](https://arxiv.org/abs/math/0612405).
13. Kahn, Jeff; Kalai, Gil; Linial, Nathan. The influence of variables on Boolean functions. *In Proc. 29-th Ann. Symp. on Foundations of Comp. Sci.*, (1988), pages 68--80. IEEE, Washington.
14. Margulis, G. A. Probabilistic characteristics of graphs with large connectivity.

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15. Paroissin, C. and Ycart, B. (2003). Zero-one law for the non-availability of multistate repairable systems. *Int. J. of Reliability, Quality and Safety Engineering*, 10(3): 311--322.
 16. Rossignol, Raphaël. Threshold for monotone symmetric properties through a logarithmic Sobolev inequality. *Ann. Probab.* 34 (2006), no. 5, 1707--1725. [MR2271478](#) (Review)
 17. Russo, Lucio. An approximate zero-one law. *Z. Wahrsch. Verw. Gebiete* 61 (1982), no. 1, 129--139. [MR0671248](#) (84e:60153)
 18. Talagrand, Michel. On Russo's approximate zero-one law. *Ann. Probab.* 22 (1994), no. 3, 1576--1587. [MR1303654](#)
 19. van den Berg, Rob. Approximate zero-one laws and sharpness of the percolation transition in a class of models including 2d Ising percolation. *To appear in Ann. Probab.* [arXiv.org:0707.2077](#).



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