

A Note on Talagrand's Concentration Inequality

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Abstract

In this paper we revisit Talagrand's proof of concentration inequality for empirical processes. We give a different proof of the main technical lemma that guarantees the existence of a certain kernel. Moreover, we generalize the result of Talagrand to a family of kernels which in one particular case allows us to produce the Poissonian bound without using the truncation argument. We also give some examples of applications of the abstract concentration inequality to empirical processes that demonstrate some interesting properties of Talagrand's kernel method.

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Bibliography

1. Dembo, A. (1997), *Information inequalities and concentration of measure*, Ann. Probab., 25, 527 - 539. [Math. Review 98e:60027](#)
2. Ledoux, M. (1996), *On Talagrand's deviation inequalities for product measures*, ESAIM: Probab. Statist., 1, 63 - 87. [Math. Review 97j:60005](#)
3. Massart, P. (2000), *About the constants in Talagrand's concentration inequalities for empirical processes*, Ann. Probab., 28, 863 - 885. [Math. Review 1 782 276](#)
4. Boucheron, S., Lugosi, G., Massart, P. (2000), *A sharp concentration inequality with applications*, Random Structures Algorithms, 16, 277 - 292. [Math. Review 1 749 290](#)
5. Rio E. (2000), *Inegalites exponentielles pour les processus empiriques*, C.R. Acad. Sci. Paris, t.330, Serie I, 597 - 600. [Math. Review 2000m:60020](#)
6. Rio E. (2001), *Inegalites de concentration pour les processus empiriques de classes de parties*, Probab. Theory Relat. Fields, 119, 163 -175.
7. Talagrand, M. (1995), *Concentration of measure and isoperimetric inequalities in product spaces*, Publications Mathematiques de l'I.H.E.S. 81, 73 - 205. [Math. Review 97h:60016](#)
8. Talagrand, M. (1996), *New concentration inequalities in product spaces*, Invent. Math., 126, 505 - 563. [Math. Review 99b:60030](#)