Lesson 7. Random Sampling

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1 Disclaimer

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2 Introduction

Random sampling of points in 1D and lines in 2D is is treated in [MR95, pages 258-261] from first principles. There the lemma proved is a bit weaker than the equivalent one in [Mul93] but via iteration we get the same result on building a $1/r$-cut in dimension 1. In Matoušek's book [Mat02, chapter 6] there is a quite advanced treatment focusing on cuts. This is the basis for the advanced cuts treatment in the slides.

In Chazelle [Cha00] there is chapter 4 devoted to sampling and epsilon-nets and epsilon approximations, but mostly uses deterministic tools (often derandomized ones).

References

[Cha00] B. Chazelle. *The Discrepancy method: randomness and complexity.* Cambridge University press, Cambridge, 2000.

[Mat02] J. Matoušek. *Lectures on Discrete geometry*, volume 212 of *Graduate Texts in Mathematics.* Springer erlag, New York, 2002.

[MR95] R. Motwani and P. Raghavan. *Randomized Algorithms.* Cambridge University Press, 1995.

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[Mul93] K. Mulmuley. *Computational Geometry, an Introduction through Randomized Algorithms.* Prentice Hall, 1993.