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Geir Dahl, Alexander Guterman, Pavel Shteyner

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Majorization for Matrix Classes*

Geir Dahl^{1,a}, Alexander Guterman^{2,3,4,b}, Pavel Shteyner^{2,3,4,c}

Abstract

We introduce a new majorization order for classes (sets) of matrices which generalizes several existing notions of matrix majorization. Roughly, the notion says that every matrix in one class is majorized by some matrix in the other class. The motivation to study this majorization concept comes from mathematical statistics and involves the information content in experiments. This connection is briefly described. We investigate properties of this new order both of algebraic and geometric character. In particular, we establish results on so-called minimal cover classes with respect to the introduced majorization.

Key words. Matrix majorization, partial order, doubly stochastic matrix.

AMS subject classifications. 06A06, 15B51.

1 Introduction

The notion of majorization has been studied a lot, in connection with vectors (the classical notion), matrices, and even more general structures, such

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¹ Department of Mathematics, University of Oslo, Norway.

² Lomonosov Moscow State University, Moscow, 119991, Russia.

³ Moscow Center for Continuous Mathematical Education, Moscow, 119002, Russia.

⁴ Moscow Institute of Physics and Technology, Dolgoprudny, 141701, Russia.

^a geird@math.uio.no

^b guterman@list.ru

^c pashteiner@ya.ru

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