

Cardinal Invariants On Boolean Algebras

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LENGTH OF BOOLEAN ALGEBRAS AND ULTRAPRODUCTS

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ABSTRACT. We prove the consistency with ZFC of "the length of an ultraproduct of Boolean algebras is smaller than the ultraproduct of the lengths". Similarly for some other cardinal invariants of Boolean algebras.

0. INTRODUCTION

On the length of Boolean algebras (the cardinality of linearly ordered subsets) see Monk [M1], [M2] (and Definition 1.1 below). In Shelah [Sh 345, §1] it is said that Koppelberg and Shelah noted that by the Los theorem for an ultrafilter \mathcal{D} on κ and Boolean algebras B_i ($i < \kappa$) we have

$$(*) \quad \prod_{i < \kappa} \text{Length}(B_i)/\mathcal{D} \leq \text{Length}(\prod_{i < \kappa} B_i/\mathcal{D}), \text{ and} \\ \mu_i < \text{Length}(B_i) \Rightarrow \prod_{i < \kappa} \mu_i/\mathcal{D} < \text{Length}(\prod_{i < \kappa} B_i/\mathcal{D}).$$

D. Peterson noted that the indicated proof fails, but holds for regular ultrafilters (see [Pe97]). Now the intention in [Sh 345] was for Length^+ , i.e.

$$(*)^+ \quad \prod_{i < \kappa} \text{Length}^+(B_i)/\mathcal{D} \leq \text{Length}^+(\prod_{i < \kappa} B_i/\mathcal{D}),$$

where $\text{Length}^+(B)$ is the first cardinal not represented as the cardinality of a linearly ordered subset of the Boolean Algebra (the only difference being the case the supremum is not attained).

Here we prove that the statement $(*)$ may fail (see Theorem 1.3 and Proposition 1.6). The situation is similar for many cardinal invariants.

Of course, if $(*)$ fails then (using ultraproducts of $\langle \mathcal{H}(x), B_i : i < \kappa \rangle$ or see e.g. Roslanowski, Shelah [RoSh 534, §1]) we have $\{i < \kappa : \text{Length}^+(B_i) \text{ is a limit cardinal}\} \in \mathcal{D}$, and $\prod_{i < \kappa} \text{Length}^+(B_i)/\mathcal{D}$ is λ -like for some successor cardinal λ . Hence

$$\{i < \kappa : \text{Length}^+(B_i) \text{ is a regular cardinal}\} \in \mathcal{D}$$

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This book is concerned with cardinal number valued functions defined for any Boolean algebra. Examples of such functions are independence, which assigns to. Covers most of what was known on cardinal invariants in Boolean algebras " This book is an indispensable tool for anyone working in Boolean algebra, and is . This text covers cardinal number valued functions defined for any Boolean algebra such as cellularity. It explores the behavior of these. We address several questions of Donald Monk related to irredundance and spread of Boolean algebras, gaining both some ZFC knowledge. Abstract: The present status of the problems in my book "Cardinal Invariants on Boolean algebras" (Birkhauser) is described, with a. We prove consistency of the statement ``there is a Boolean algebra B a superatomic Boolean algebra B_* such that s(B_*)=inc(B_*)=kappa. Algebras answering questions of Monk on cardinal invariants. We deal with the existence of superatomic Boolean Algebras with ``few. Cardinal Invariants on Boolean Algebras We do not plan to review this book. The table of contents is not available. Tags: Boolean Algebras Set Theory. dance and spread of Boolean algebras, gaining both some ZFC knowl- of Donald Monk concerning cardinal invariants of Boolean algebras. cardinal invariants on boolean algebras by j donald monk is free for downloading from our digital library. Thanks to the electronic catalog you have the. Cardinal Invariants on Boolean Algebras [J. Donald Monk] Rahva Raamatust. Shipping from 24h. By J. Donald Monk. This publication is worried with cardinal quantity valued features outlined for any Boolean algebra. Examples of such. sequence of Boolean algebras, and D is an ultrafilter on ?. Define the Bi /D. The question (raised also for other cardinal invariants by. Monk in [5]) is about the . arXiv:math/v1 [lemeilleurnettoyantducolon.com] 15 Mar Cardinal invariants of ultraproducts of Boolean algebras Andrzej Roslanowski Institute of Mathematics Hebrew. Pages in brief download Cardinal Invariants on Boolean Algebras do associated accompanied in more than 95 register of reviews with unusual Rett. 23 editions published between and in English and held by WorldCat member libraries worldwide. Cardinal invariants on Boolean algebras by J. This ebook is anxious with cardinal quantity valued services outlined for any Boolean algebra. Examples of such services are independence. top We deal with some problems posed by Monk [Mo 1], [Mo 3] and related to cardinal invariants of ultraproducts of Boolean algebras. We also introduce and. The purpose of these notes is to describe the progress made on the 97 open problems formulated in the book Cardinal invariants on Boolean algebras. Let inv denote the cardinal invariants Depth^+ and Length^+ on Boolean algebras. For many singular cardinals we create a strict inequality between the product.

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