

Non-equivalent greedy and almost greedy bases in ℓ_p

Stephen J. Dilworth, Mark Hoffmann and Denka N. Kutzarova

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Abstract. For $1 < p < \infty$ and $p \neq 2$ we construct a family of mutually non-equivalent greedy bases in ℓ_p having the cardinality of the continuum. In fact, no basis from this family is equivalent to a rearranged subsequence of any other basis thereof. We are able to extend this statement to the spaces L_p and H_1 . Moreover, the technique used in the proof adapts to the setting of almost greedy bases where similar results are obtained.

1. Introduction

A *greedy* basis (x_n) is one for which a certain version of the ‘greedy algorithm’ is optimal for n -term approximation. Greedy bases are characterized as being *unconditional* and *democratic*.

There are exactly three Banach spaces which have unique unconditional bases up to equivalence, namely c_0, ℓ_1 , and ℓ_2 with their standard bases [8]. From the characterization of greedy bases mentioned above it follows

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