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Classical Banach spaces. I, by Joram Lindenstrauss and Lior Tzafriri, Ergebnisse der mathematik und ihrer Grenzgebiete, no. 92, Springer-Verlag, Berlin, Heidelberg, New York, 1977, xiii + 190 pp.

Although it was difficult to prove theorems about Banach spaces fifteen years ago, it was certainly easy to learn Banach space theory. Indeed, after going through Banach's classic [1] one needed only to fill in with sections from Day's book [2] and read a few papers. By 1970, the subject had developed tremendously, but the novice could still enter easily the mainstream of Banach space theory. Now, however, despite the appearance in recent years of a number of expository monographs and textbooks centered around the subject ([3], [4], [5], [6], [8], [9], [10], [11] and [12]), students and nonspecialists find it difficult to develop a broad understanding of Banach space theory. Indeed, the aforementioned books pick out relatively narrow parts of the subject (and, in some cases, present them well), but they do not give a broad perspective of Banach space theory as seen by leaders in the field.

In their Springer Lecture notes [7], Lindenstrauss and Tzafriri summarized "the main directions and current problems in Banach space theory". These notes apparently were well received, but their usefulness was restricted by the lack of proofs. Moreover, many of the problems mentioned in [7] were solved shortly after (or even before) [7] appeared in print, so [7] was already out of date by 1974. Consequently, Lindenstrauss and Tzafriri decided to write a three volume (now four volumes) expanded and updated version of [7] entitled *Classical Banach spaces*, broken down as follows: volume 1, *Sequence spaces*; volume 2, *Function spaces*; volume 3, L_p *and* $C(K)$; volume 4, *Local theory*.

Volume 1 begins, naturally enough, with a discussion of the main part of basis theory. Here you will find, for example, the classical results on the characterization of reflexivity in terms of properties of bases, the usual material on unconditional bases, and gliding hump procedures (included is the recently developed blocking technique as well as the classical gliding hump arguments which every student must know). Significant open problems involving these notions in general spaces are discussed, for example, on page 27 appears the most important (in the reviewer's opinion) unsolved problem in the theory of general Banach spaces–"Does every infinite-dimensional Banach space contain an unconditional basic sequence?"–and on the next page you find the Maurey-Rosenthal example of a weakly null normalized sequence which has no unconditionally basic subsequence.

In view of the fact that entire books have been written on general basis theory, it is worthy of note that Lindenstrauss and Tzafriri have managed to present most of the important part of this material in 47 pages.

The well-developed structure theory for l_p and c_0 is contained in Chapter 2. The spaces which have a unique unconditional basis are classified as being l_1,