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Remarks on the complementability of spaces of Bochner integrable functions in spaces of vector measures

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Abstract: In the paper [5] L. Drewnowski and the author proved that if X is a Banach space containing a copy of c_0 then $L_1(\mu, X)$ is not complemented in $cabv(\mu, X)$ and conjectured that the same result is true if X is any Banach space without the Radon-Nikodym property. Recently, F. Freniche and L. Rodriguez-Piazza ([7]) disproved this conjecture, by showing that if μ is a finite measure and X is a Banach lattice not containing copies of c_0, then $L_1(\mu, X)$ is complemented in $cabv(\mu, X)$. Here, we show that the complementability of $L_1(\mu, X)$ in $cabv(\mu, X)$ together with that one of X in the bidual X^{**} is equivalent to the complementability of $L_1(\mu, X)$ in its bidual, so obtaining that for certain families of Banach spaces not containing c_0 complementability occurs (Section 2), thanks to the existence of general results stating that a space in one of those families is complemented in the bidual.
We shall also prove that certain quotient spaces inherit that property (Section 3).

Keywords: spaces of vector measures and vector functions, complementability, Banach lattices, preduals of W-algebras, quotient spaces
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