

Operators preserving ℓ_∞

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Let Y be a Banach space, let the space ℓ_∞ be real, let W denote the Banach space ℓ_∞/c_0 , and let Q denote the quotient map $\ell_\infty \rightarrow W$. In 1981 J. Partington proved there is a topological embedding J of ℓ_∞ into W such that the composition QJ is an isometry; in particular, Q preserves ℓ_∞ . By combining this result with H. Rosenthal's theorem on operators on $\ell_\infty(\Gamma)$ we obtain that every injective operator $T : \ell_\infty(\Gamma)/c_0(\Gamma) \rightarrow Y$ preserves ℓ_∞ . This allows us to show that natural quotient mappings of some real function spaces preserve ℓ_∞ .

I will also review some results on operators preserving other Banach spaces.