

Abstract:

Any inequality expressing the boundedness of a linear operator on a Banach space may be interpreted as an inclusion between two spaces. One way of improving the inequality is to replace the smaller space by a larger space such that the best constant in the original inequality remains the same. The product between the original space and the space of all multipliers from the smaller space to the bigger one will satisfy the above requirements. In some concrete cases the space of multipliers can be described and the inclusion becomes actually an identity. The first inequality, produced in this way, is an enhancement of the original operator inequality, while the reversed inclusion replaces the operator inequality by an equality. Based upon this factorization we get also a renorming of the bigger space. We present such type of factorizations for some weighted spaces of functions, namely Cesaro and Copson, generalizing in this way previous results proved by Graham Bennet for classical spaces of sequences.