

Failures of the MacWilliams identities for many weight enumerators

Jay A. Wood

Western Michigan University

It is a consequence of the MacWilliams identities for the Hamming weight enumerator that if two linear codes have the same Hamming weight enumerator, then their dual codes have the same Hamming weight enumerator. We say that the Hamming weight ‘respects duality’. Weights that respect duality appear to be rather rare. We will survey recent research showing that familiar weights, such as the Lee, Euclidean, and homogeneous weights, seldom respect duality.

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