Code decomposition in the analysis of a convolutional code

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Resumen

Some convolutional codes can be decomposed into smaller codes (subcodes). This happens if they admit decoupled encoders among its encoders [2]. We will consider such convolutional codes and study the relation between a code and its subcodes in terms of their free distances and column distances. It was shown in [1] that the free distance of a code is equal to the minimum of the free distances of its subcodes and we will show that the same happens with the corresponding column distances.

[1] J.-J. Climent, V. Herranz, C. Perea, *New convolutional codes from old convolutional codes, Electronic Proceedings of the 16th International Symposium on Mathematical Theory and Systems (MTNS2004)* (2004).

[2] E. Fornasini, R. Pinto, *Matrix fraction descriptions in convolutional coding, Linear Algebra and its Applications* (2004), 392, 119-158.