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**Robert B Ellis\*** (rellis@math.iit.edu). *Coverings containing packings for adaptive binary block coding.* Preliminary report.

We present an algorithm which simultaneously constructs an optimal covering containing an optimal packing of the discrete hypercube  $Q_q = \{0, 1\}^q$  from an optimal covering containing an optimal packing of  $Q_{q-1}$ . The packing/covering sets used are adaptive radius 1 hamming balls of size  $q + 1$ , which are relaxations of the standard radius 1 hamming balls in  $Q_q$ . The relaxation here corresponds to allowing feedback on a binary symmetric communication channel. The corresponding non-adaptive versions of these packings and coverings are error-correcting codes with minimum distance 3 and covering codes with covering radius 1, respectively. (Received September 27, 2005)