Correction to "Asymptotic Bounds on Optimal Noisy Channel Quantization Via Random Coding *"

Kenneth Zeger † Vic Manzella ‡

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On page 1927, first column, 9 lines from the bottom, change "decay rate" to "distortion".

On page 1928, second column, line 14 the text "$\hat{Q} = \hat{Q}_E \circ \eta \circ \hat{Q}_D$" should read "$\hat{Q} = \hat{Q}_D \circ \eta \circ \hat{Q}_E$".

On page 1929, first column, in the proof of Theorem 1, the text after equation (9) and up to equation (11) should be corrected to the text below (the theorem remains valid):

Let $I = Q_E(X)$ and $J = \phi(\eta(I))$. Then $\psi(I)$ is transmitted across the BSC and $\eta(\psi(I))$ is received. The mean r^{th}-power vector error of such a noisy channel vector quantizer, averaged over both the source and channel statistics, can be bounded as

$$\begin{aligned} D &= E\|X - y_J\|^r && (10) \\ &= \sum_i E[\|X - y_i\|^r | I = i] P(I = i) P(J = i | I = i) \\ &\quad + \sum_i \sum_{j \neq i} E[\|X - y_j\|^r | I = i, J = j] P(I = i, J = j) \\ &\leq \sum_i E[\|X - y_i\|^r | I = i] P(I = i) + G_2 \sum_i \sum_{j \neq i} P(I = i) P(J = j | I = i) \\ &= E\|X - y_I\|^r + G_2 \sum_i P(I = i) \sum_{j \neq i} P(J = j | I = i) \\ &\leq G_1 2^{-rRR_c} + 4G_2 2^{-kRE_{max}(R_c)} \sum_i P(I = i) \\ &= G_1 2^{-rRR_c} + 4G_2 2^{-kRE_{max}(R_c)} \stackrel{\text{def}}{=} D_u(R_c) \qquad \forall R_c \in (0, \mathcal{C}) && (11) \end{aligned}$$

On page 1930, first column, 17 lines from the bottom, change "performance" to "distortion".

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*K. Zeger and V. Manzella, *IEEE Trans. on Information Theory,* vol. 40, no. 6, pp. 1926-1938, Nov. 1994.

†K. Zeger is with the Dept. of Electrical Engineering, University of Illinois, Urbana, IL 61801.

‡V. Manzella is with the Dept. of Electrical Engineering, University of Rhode Island, Kingston, RI 02881.