Corrections on “Cooperative Communications Using Reliability-Forwarding Relays”

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In the paper above [1], from (12) and (13), the variance of $z$ given $g$ and $s = -\sqrt{P_s}$ is obtained as

$$\text{Var}_{x,w}[z \mid s = -\sqrt{P_s}, g]$$

$$= \sum_{i=1}^{M} |\alpha_i|^2 \left( |g_i|^2 P_r \left( \frac{4p(1-p-q) + q(1-q)}{1-q} \right) + \sigma_w^2 \right)$$

instead of (14). This correction affects (15), (16), (17) and finally the optimal combining coefficient $\alpha_{\text{MDC},i}$ given in (18) which should be modified as

$$\alpha_{\text{MDC},i} = \frac{2c_1 q_i^* (2p + q - 1) \sqrt{\frac{P_r}{1-q}}}{|g_i|^2 P_r \left( \frac{4p(1-p-q) + q(1-q)}{1-q} \right) + \sigma_w^2}, \quad 1 \leq i \leq M$$

Note that, the approximated maximum deflection coefficient given in Lemma 2 should be similarly corrected and (32) should be modified as follows

$$d_{\text{def,max}}^2 = \frac{4P_r (2p + q - 1)^2}{P_r \left[ 4p(1-p-q) + q(1-q) \right] + \sigma_w^2 (1-q)}$$

REFERENCES