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CORRECTIONS 1984 DECEMBER ISSUECORRECTIONS 1984 DECEMBER ISSUECORRECTIONS 1984 DECEMBER ISSUECORRECTIONS

On Reliability Evaluation by Network Decomposition

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There are 7 corrections for [1].

1. Page 380, col 2, eq. (3).
Remove the parenthesis at the very end.

2. Page 381, col 1, eq. (4).

$$R = (S_{\text{dis}})_{\{X_i, \overline{X}_i, \cup, \cap\} \to \{p_i, q_i, +, .\}} \tag{4}$$

3. Page 381, col 1.
Remember eq. (5a) as (5). Remove the number "(5b)".

4. Page 381, col 2.
Expression (7) requires 19 multiplications and 7 sums for numerical calculations ... .

5. Page 382, col 1.

$$\begin{aligned} R_{s-t} &= p_4(p_1 + q_1p_2p_3)\,(p_8 + q_8p_9(p_7 + p_5p_6q_7)) \\ &\quad + (q_4(p_2 + p_1q_2p_3) + q_1p_2q_3p_4) \\ &\quad (p_6(p_9 + p_8q_9(p_5 + q_5p_7)) + p_5q_6(p_8 + p_7q_8p_9)) \\ &\quad + p_4(p_1(p_2 + q_2p_3) + q_1p_2p_3)q_5p_6q_7q_8p_9. \end{aligned} \tag{9}$$

6. Page 382, col 2.

$$\begin{aligned} S_{\text{dis}} &= (N_6)_{\text{dis}}(M_6)_{\text{dis}} \cup (\overline{N}_6N_2)_{\text{dis}}(M_2)_{\text{dis}} \\ &\quad \cup (N_6N_2)_{\text{dis}}(\overline{M}_6M_2)_{\text{dis}}. \end{aligned} \tag{11}$$

$(N_6)_{\text{dis}}$ and $(M_6)_{\text{dis}}$ are obtained directly as:

$$(N_6)_{\text{dis}} = J(K \cup \overline{CK}(B \cup \overline{AB}F)),$$

$$(M_6)_{\text{dis}} = L \cup H\overline{IL}(G \cup \overline{DEG}).$$

$(\overline{M}_6M_2)_{\text{dis}}$ is obtained from:

$$\begin{aligned} \overline{M}_6M_2 &= \overline{L}(\overline{I} \cup \overline{H} \cup \overline{G}(\overline{D} \cup \overline{E}))\,(D(H \cup GIL) \\ &\quad \cup E(GH \cup IL)) \\ &= H\overline{L}\,\overline{I}(D \cup EG) \cup D\overline{E}\,\overline{G}) \end{aligned}$$

$$(\overline{M}_6M_2)_{\text{dis}} = H\overline{L}\,\overline{I}(D \cup \overline{D}EG) \cup D\overline{E}\,\overline{G}I).$$

$(\overline{N}_6N_2)_{\text{dis}}$, $(N_6N_2)_{\text{dis}}$, $(M_2)_{\text{dis}}$ are obtained with the aid of the Karnaugh maps in figure 4. Finally, direct application of (4) yields:

$$\begin{aligned} R_{s-t} &= p_j(p_k + p_cq_k(p_b + p_aq_bp_f))(p_l + p_hp_iq_l(p_g + p_dp_eq_g)) \\ &\quad + (q_jp_k(p_f + p_aq_f(p_c + p_bq_c)) \\ &\quad + p_cq_k(q_j(p_a + q_ap_bp_f) + p_jp_aq_bq_f))(p_d(p_h \\ &\quad + q_hp_ip_l(p_e + q_ep_g)) + q_dp_e(p_ip_l + p_hp_g(q_i \\ &\quad + q_l))) + p_j(p_k(p_f + p_aq_f(p_b + q_bp_c)) \\ &\quad + p_cq_k(p_f(p_b + p_aq_b) + q_fp_ap_b)) \\ &\quad p_hq_l(q_i(p_d + q_dp_ep_g) + p_dq_eq_gp_i). \end{aligned} \tag{12}$$

7. Page 384, col 1.

Expression (12) requires 55 multiplications and 23 sums for numerical calculation ... .

REFERENCE

[1] A. M. Rushdi, "On reliability evaluation by network decomposition," *IEEE Trans. Reliability,* vol R-33, 1984 December, pp 379-384.