grows exponentially where a linear number of tests is sufficient.

As the algorithm developed by Yau and Yang in [3] is claimed by the authors to be about as complex as the Bossen and Hong algorithm *NR* "and yet the number of tests in a test set generated will always be smaller for redundant circuits and the same for irredundant circuits as that generated by Bossen and Hong algorithm for irredundant circuits" (i.e., algorithm *NR*), we may reach the following conclusion.

Conclusion

The Bossen and Hong algorithms *G* and *NR* in [2] and the algorithm of Yau and Yang in [3] generate for a class of n-input networks a complete test set with a number of tests which grows exponentially with n where a complete test set with no more than $n + 2$ tests may be found. Hence these algorithms will not always generate a "near-minimal" or "near-optimal" number of tests in a useful sense of these notions.

The same conclusion must be drawn for the algorithm shown by Gosh in [4], which generates at least as many tests as algorithm *NR*.

On the other hand, it should be noted that the algorithms in [2]–[4] are computationally the simplest yet discovered, so that for networks with few input lines they may generate acceptable complete though not necessarily small multiple fault detection test sets in a short time.

References

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[2] D. C. Bossen and S. J. Hong, "Cause-effect analysis for multiple fault detection in combinational networks," *IEEE Trans. Comput.*, vol. C-20, pp. 1252–1257, Nov. 1971.

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[6] J. P. Hayes, "On realizations of Boolean functions requiring a minimal or near-minimal number of tests," *IEEE Trans. Comput.*, vol. C-20, pp. 1506–1513, Dec. 1971.

Author's Reply[2]

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We agree with Coy's observation. There exists a class of networks where the cause–effect algorithm [1] produces nowhere near minimal number of test patterns. We also agree with Coy that for practical computational reasons perhaps the cause–effect approach is the best bet for the so-called "random" combinational logic networks. For the EXCLUSIVE-OR trees we suspect that many near minimal single fault testing algorithms may exhibit nonminimality in the same manner.

References

[1] D. C. Bossen and S. J. Hong, "Cause-effect analysis for multiple fault detection in combinational networks," *IEEE Trans. Comput.*, vol. C-20, pp. 1252–1257, Nov. 1971.

[2] Manuscript received September 20, 1978; revised December 15, 1979. The authors are with the IBM Corporation, Poughkeepsie, NY 12602.

Correction to "Properties of the Multidimensional Generalized Discrete Fourier Transform"

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The following typographical errors should be noted in the above paper.[1]

1) On p. 820, first column, 21st row:

where $z = 0,1,\cdots, T-1$, be two vectors of T complex

2) On p. 820, second column, 5th row:

(where $n_u, k_u = 0,1,\cdots, N_n^{-1}$ for $u = 1,2,\cdots,\sigma$) be,

3) On p. 820, second column, 12th row:

$$h^{\sigma}_{k_1,k_2,\cdots,k_\sigma} = \sum_{n_\sigma=0}^{N_\sigma-1}\left(\cdots\left(\sum_{n_2=0}^{N_2-1}\left(\sum_{n_1=0}^{N_1-1} f^{\sigma}_{n_1,n_2,\cdots,n_\sigma} W[N_1]^{(n_1+a_1^{\sigma})(k_1+b_1^{\sigma})}\right) W[N_2]^{(n_2+a_2^{\sigma})(k_2+b_2^{\sigma})}\right)\cdots\right) W[N_\sigma]^{(n_\sigma+a_\sigma^{\sigma})(k_\sigma+b_\sigma^{\sigma})}$$

4) On p. 820, second column, 28th row:

$$\{d[i+1]^{\sigma}{}_{k_1^*,\cdots,k_{i-1}^*,k_i,n_{i+1}^*,\cdots,n_\sigma^*}\},\ k_i = 0,1,\cdots,N_{i-1}$$

5) On p. 826, first column, 14th row:

$$\text{if: a) } N_{\gamma_s+1}N_{\gamma_s+2}\cdots N_{\gamma_{s+1}} = T_s,\ \cdots.$$

6) On p. 826, first column, 29th row:

$$b^{\sigma}_{\gamma_s+u} = \begin{cases} b_s^{\alpha} \text{ if } u = 1 \\ 0 \text{ if } 1 < u \leqslant \gamma_{s+1} - \gamma_s \end{cases}$$

7) On p. 826, first column, 36th row:

$$T_s = N_{\gamma_s+1}N_{\gamma_s+2}\cdots N_{\gamma_{s+1}},\ \cdots.$$

8) On p. 826, second column, 18th row:

$$\text{that: a) } T_s = P_{\nu_s+1}P_{\nu_s+2}\cdots P_{\nu_{s+1}},\ \cdots.$$

9) On p. 827, second column, 31st row:

$$W[N_{\gamma_s+1}]^{(n_{\gamma_s+1}+a^{\sigma}_{\gamma_s+1})(k_{\gamma_s+1}+b^{\sigma}_{\gamma_s+1})}\cdots W[N_{\gamma_{s+1}}]^{(n_{\gamma_{s+1}}+a^{\sigma}_{\gamma_{s+1}})(k_{\gamma_{s+1}}+b^{\sigma}_{\gamma_{s+1}})}$$

10) On p. 828, first column, 4th row:

$$= \sum_{t_\alpha=0}^{T_\alpha-1}\left(\cdots\left(\sum_{t_2=0}^{T_2-1}\left(\sum_{t_1=0}^{T_1-1} e^{\alpha}_{t_1,t_2,\cdots,t_\alpha} W[T_1]^{(t_1+a_1^{\alpha})(z_1+b_1^{\alpha})}\right)\right.\right.$$

11) On p. 828, second column, 3rd row:

... and $\Phi^{\alpha'}$ and ...

12) On p. 828, second column, 28th row:

$$t_s = \sum_{u=\nu_s+1}^{\nu_{s+1}}\left[\sum_{x=\delta_u+1}^{\delta_{u+1}}\left(\prod_{y=x+1}^{\delta_{u+1}} N_y\right)\left(\prod_{v=\delta_{u+1}+1}^{\delta_{\nu_{s+1}}+1} N_v\right)\right] n_x = \sum_{x=\delta_{\nu_{s+1}}+1}^{\delta_{\nu_{s+1}}+1}\left(\prod_{y=x+1}^{\delta_{\nu_{s+1}}+1} N_y\right) n_x \quad (14)$$

13) On p. 829, first column, 14th row:

$$\cdot\, W[N_{\delta_{i+1}}]^{(n_{\delta_{i+1}}+a^{\sigma}_{\delta_{i+1}})(k_{\delta_{i+1}}+b^{\sigma}_{\delta_{i+1}})} \quad (16)$$

14) On p. 829, second column, 17th row:

$$e[1](p_2^*,\cdots,p_\tau^*)_{p_1^1,\cdots,p_{\lambda_1}^1} = f^{\tau}_{p_1,p_2^*,\cdots,p_\tau^*}$$

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[1] P. Corsini and G. Frosini, *IEEE Trans. Comput.*, vol. C-28, pp. 819–830, Nov. 1979.