ERRATA CORRIGE

Generalization of Conjugate Direction Methods in the Optimization of Functions

D. J. VAN WYK¹

Abstract. An erratic formulation of the construction of an A -conjugate pair given in Ref. 1 is corrected.

Key Words. Unconstrained optimization, function minimization, mathematical programming, nonlinear optimization.

While performing numerical experiments with the minimization method given in Section 5 of Ref. 1, an error in the formulation of the conjugation algorithm given in the same section was discovered.

$$u^0 = s_0 p^0,$$

$$r_{11} = v^{0T} A p^1 / v^{0T} A u^0,$$

$$u^1 = s_1 (p^1 - r_{11} u^0),$$

$$r_{12} = v^{0T} A p^2 / v^{0T} A u^0,$$

$$r_{22} = (v^{1T} A p^2 - v^{1T} A u^0 r_{12}) / v^{1T} A u^1,$$

$$u^2 = s_2 (p^2 - r_{12} u^0 - r_{22} u^1),$$

$$r_{13} = v^{0T} A p^3 / v^{0T} A u^0,$$

$$r_{23} = (v^{1T} A p^3 - v^{1T} A u^0 r_{13}) / v^{1T} A u^1,$$

$$r_{33} = (v^{2T} A p^3 - v^{2T} A u^0 r_{13} - v^{2T} A u^1 r_{23}) / v^{2T} A u^2,$$

¹ Senior Lecturer, Department of Mathematics and Applied Mathematics, Potchefstroom University for Christian Higher Education, Potchefstroom, South Africa.

$$\begin{aligned}
u^3 &= s_3(p^3 - r_{13}u^0 - r_{23}u^1 - r_{33}u^2), \\
&\vdots \\
r_{1k} &= v^{0T}Ap^k/v^{0T}Au^0, \\
&\vdots \\
r_{kk} &= (v^{k-1,T}Ap^k - v^{k-1,T}Au^0r_{1k} - \dots - v^{k-1,T}Au^{k-2}r_{k-1,k})/v^{k-1,T}Au^{k-1}, \\
u^k &= s_k(p^k - r_{1k}u^0 - r_{2k}u^1 - \dots - r_{kk}u^{k-1}), \\
&\vdots
\end{aligned}$$

The error had no effect on the results obtained in Section 6 of Ref. 1, due to the choice of $V = U$ in that section.

References

1. VAN WYK, D. J., *Generalization of Conjugate Direction Methods in the Optimization of Functions*, Journal of Optimization Theory and Applications, Vol. 21, No. 4, 1977.