

D.K. Molzahn Dissertation Errata

This list describes the changes and corrections made to the dissertation [A] after its initial publication.

1. Error in the objective function of the dual form of the semidefinite relaxation of the OPF.

Corrected October 7, 2013

There was an error in the objective function of the dual form of the semidefinite relaxation of the optimal power flow problem. In equation (2.8), the term $\sum_{k \in \mathcal{G}} (c_{k0} - \mathbf{R}_k^{22})$ was incorrectly specified as $\sum_{k \in \mathcal{G}} (c_{k0} - \mathbf{R}_k^{12})$. In equation (3.20), the term $\sum_{k \in \mathcal{G}_i^q} (\underline{\psi}_g P_{Gg}^{min} - \bar{\psi}_g P_{Gg}^{max} + c_{g0} - \mathbf{R}_g^{22})$ was incorrectly specified as $\sum_{k \in \mathcal{G}_i^q} (\underline{\psi}_g P_{Gg}^{min} - \bar{\psi}_g P_{Gg}^{max} + c_{g0} - \mathbf{R}_g^{12})$.

2. Errors in the Seven-Bus System in Figure 6.4.

Corrected October 7, 2013

There were several errors in the system diagram shown in Figure 6.4. The load demands at buses 3, 4, and 5 of $0.942 + j0.190$, $0.135 + j0.058$, and $0.183 + j0.127$ per unit, respectively, were incorrectly specified as $0.2 + j0.1$, $0.6 + j0.1$, and $0.2 + j0.1$ per unit, respectively. The impedance of the line connecting buses 3 and 4 of $0.024 + j0.100$ per unit was incorrectly specified as $0.04 + j0.12$ per unit. The impedance of the line connecting buses 4 and 5 of $0.024 + j0.100$ per unit was incorrectly specified as $0.04 + j0.12$ per unit.

References

- [A] D.K. Molzahn, "Application of Semidefinite Optimization Techniques to Problems in Electric Power Systems," *Ph.D. Dissertation, University of Wisconsin–Madison Department of Electrical and Computer Engineering*, August 2013.