ERRATA CORRIGE

A Differential Game Model of Labor-Management Negotiation During a Strike

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Abstract. Some modifications to the results of Ref. 1 are given.

Key Words. Collective bargaining, differential games, Pareto optimality.

Professor H. Y. Wan (Ref. 2) has called our attention to the fact that the strategy pair $\{\mathcal{U}^*, \mathcal{B}^*\}$ in Ref. 1 is not a Nash equilibrium, except in the scalar case, since it is not admissible for all possible initial conditions. It should be replaced by

$$\{\mathcal{U}^*, \mathcal{B}^*\} = \{k_2(z-m)f'(z)/\|f(z)\|^2 l_2'(z-m), k_1(z-m)g'(z)/\|g(z)\|^2 l_1'(z-m)\}.$$

This is a Nash equilibrium pair since it satisfies all the conditions of the definition; in particular, it is admissible for all possible (z_0, t_0) . The equation governing the rate of progress of negotiation is then

$$\dot{z} = -[k_2/l_2'(z-m) + k_1/l_1'(z-m)](z-m),$$

$$z(t_0) = z_0.$$

Thus, $\|z-m\|$ diminishes at constant rate and the components of $z-m$ reach zero simultaneously at time T^* , where³

$$T^* - t_0 = \|z_0 - m\| (k_1/l_1'e + k_2/l_2'e)^{-1} \quad \text{and} \quad e = (z_0 - m)/\|z_0 - m\|.$$

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³ The authors are indebted to S. Chen for this observation.

While there may exist other equilibria, the one obtained here is of particular interest since it results in bargaining rates $\dot{x}(t)$ and $\dot{y}(t)$ which do not depend on the assumed dynamic behavior; that is, they are independent of the functions f and g .

References

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