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Erratum: Predictor-corrector methods for sufficient linear complementarity problems in a wide neighborhood of the central path

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We correct an error in Algorithms 4.1 and 4.8 from [1]

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The higher order predictor (43) from [1] has to be modified in the degenerate case in order for the asymptotic convergence results from Lemma 4.6 and Theorem 4.7 to hold. More precisely equation (43) should be replaced by:

$$\begin{cases} su^1 + xv^1 = -(1+\epsilon)xs \\ Qu^1 + Rv^1 = 0 \end{cases},$$
$$\begin{cases} su^2 + xv^2 = \epsilon xs - u^1 v^1 \\ Qu^2 + Rv^2 = 0 \end{cases}, \tag{1}$$
$$\begin{cases} su^i + xv^i = -\sum_{j=1}^{i-1} u^j v^{i-j} \\ Qu^i + Rv^i = 0 \end{cases}, \quad i = 3, \ldots, m\,,$$

where

$$\epsilon = \begin{cases} 0\,, & \text{if HLCP is nondegenerate} \\ 1\,, & \text{if HLCP is degenerate} \end{cases}. \tag{2}$$

The computational complexity results hold for the new algorithm, with slight modifications in the proof. Complete proofs can be found in a technical report available at http://www.math.umbc.edu/~potra/PstarPC2006.pdf

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References

[1] Potra, F. A. and Liu, X., 2005, Predictor-corrector methods for sufficient linear complementarity problems in a wide neighborhood of the central path. *Optimization Methods and Software,* **20**, 1, 145–168.