Erratum
Lower Bounds for Some Factorable Matrices

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The purpose of this erratum is to correct both the mathematical and typographical errors made in 2006.

The typos are as follows.

  (i) Page 2, line 17, t_0 should read t_0^p.

  (ii) Page 3, line 5, $j = r + 2$ should read $j = r + 1$.

  (iii) Page 3, line 15, $\Delta y r^p$ should read Δy_r^p.

  (iv) Page 3, line 16 should read

$$g(r) - g(r + 1) = (r + 2)a_{r+1}^p \Delta y_r^p + (r + 2)\Delta y_r^p \sum_{j=r+2}^{\infty} a_j^p. \tag{1.1}$$

  (v) Page 4, line 7, $q < t < 1$ should read $r > 0$.

  (vi) Page 4, line 11, $v(r)$ should read $u(r)$.

  (vii) Page 6, line 17 $(t^{r+1}/(r + 2))^p$ should read $(t^{r+1}/(r + 2))^p \times$.

  (viii) Page 6, line 18, $=$ should read $\times$.

  (ix) Page 7, line 6, $-1p]$ should read $-1]$.

  (x) Page 7, line 21 $(n + 1)^{s-1}$ should read $(n + 1)^{1-s}$.

  (xi) Page 8, line 7, $q(p - 1)$ should read $p(p - 1)$.

  (xii) Page 8, line 14, $(r + 1)^{s-1} - (r + 2)^{s-1}$ should read $(r + 1)^{p-1} - (r + 2)^{p-1}$.

  (xiii) Page 8, line 16, $(j + 1)^{(p-1)s}$ should read $(j + 1)^{(s-1)p}$.

  (xiv) Page 10, line 12, $\geq P_r(r + 1)$ should read $\geq 1/(r + 1)$.

  (xv) Page 10, line 14, $(r + 1)P_r^p$ should read $(r + 1)$.

(xvi) Page 10, line 14, $P_{r+1}^p[$ should read $[$.

(xvii) Page 10, lines 15, 16, $P_{r+1}^p[$ should read P_r^p.

(xviii) Page 10, line 17, $p_{r+1}/P_r)$ should read $p_{r+1}/P_r)^p$.

(xix) Page 12, line 7, $+(r+2)^\alpha$ should read $+(r+2)^{2\alpha}$.

The mathematical errors occur showing that $\lim_r h(r) = 0$ in Theorems 6 and 7.

In Theorem 6, from the formula on line 2 of page 4,

$$\lim_r h(r) = \lim_r \frac{a_{r+1}^p \Delta y_r^p}{\Delta^2 y_r^p}$$

$$= \lim_r \frac{[(r+1)^p - (r+2)^p]}{(r+2)^s[(r+1)^p - 2(r+2)^p + (r+3)^p]}$$

$$= \lim_r \frac{(1/(r+2)^s)[1 - ((r+2)/(r+1))^p]}{(1 - 2((r+2)/(r+1))^p + ((r+3)/(r+2))^p)}$$

$$= ((-s/(r+2)^{s+1})[1 - ((r+2)/(r+1))^p]$$

$$- (-p/(r+2)^s)((r+2)/(r+1))^{p-1}(-1/(r+1)^2))$$

$$/(-2p((r+2)/(r+1))^{p-1}(-1/(r+1)^2)$$

$$+ p((r+3)/(r+1))^{p-1}(-2/(r+1)^2))$$

$$= \lim_r ((-s(r+1)^2/2p(r+2)^{s+1})[1 - ((r+2)/(r+1))^p]$$

$$+ (1/(r+2)^s)((r+2)/(r+1))^{p-1})$$

$$/(((r+2)/(r+1))^{p-1} - ((r+3)/(r+1))^{p-1})$$

$$= \lim_r \frac{(-s(r+1)/2p(r+2)^{s+1})[(r+1)^p - (r+2)^p] + ((r+2)^{p-1}/(r+2)^s)}{(r+2)^{p-1} - (r+3)^{p-1}}$$

$$= \lim_r \frac{(-s(r+1)/2p(r+2)^s)[((r+1)/(r+2))^p - 1] + 1/(r+2)^s}{1 - ((r+3)/(r+2))^{p-1}}$$

$$= \lim_r (-s(r+2)^2/2p)((r+2-s(r+1))/(r+2)^{s+1})((r+1)/(r+2))^p - 1)$$

$$- (s/2p(r+2)^{s-1})((r+1)/(r+2))^p - (s/(r+2)^{s-1})$$

$$/(p-1)((r+3)/(r+2))^{p-2} = \lim_r A,$$

(1.2)

where

$$A = \frac{-s(r+2-s(r+1))}{2p(p-1)(r+2)^{s-1}}\left(\left(\frac{r+1}{r+2}\right)^p - 1\right).$$

(1.3)

If $s \geq 2$, then, clearly $\lim_r A = 0$. Suppose that $1 < s < 2$,

$$
\begin{aligned}
\lim_r A &= \lim_r \frac{(-s/2p(p-1))\left[((r+1)/(r+2))^p - 1\right]}{(r+2)^{s-1}/(r+2-s(r+1))} \\
&= \frac{(-s/2)((r+1)/(r+2))^{p-1}}{((r+2)^2(s-1)/(r+2-s(r+1))^2)[r+2-s(r+1)+r+2]} = 0.
\end{aligned}
\tag{1.4}
$$

Thus g is monotone decreasing in r. The balance of the proof of [1, Theorem 6] is correct, and $L^p = f(\infty)$.

In Theorem 7,

$$
h(r) = \frac{\left[(r+1)^p - (r+2)^p\right]}{(r+1)^p\left[(r+1)^p - 2(r+2)^p + (r+3)^p\right]},
\tag{1.5}
$$

which is the same h as in Theorem 6, with s replaced by p. Therefore, $\lim_r h(r) = 0$. In the proof of Theorem 7, $g(0) \leq 0$, so $L^p = f(0)$.

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