that the nonzero reduced costs are

$$\overline{c}_1 = c_1 - c_{(4,5,6)} \begin{pmatrix} -1 \\ -4 \\ 1 \end{pmatrix} = -4$$
$$\overline{c}_2 = c_2 - c_{(4,5,6)} \begin{pmatrix} -1 \\ -2 \\ 1 \end{pmatrix} = -2$$
$$\overline{c}_3 = c_3 - c_{(4,5,6)} \begin{pmatrix} -2 \\ 1 \\ 4 \end{pmatrix} = -1,$$

and our tableau becomes

$$\begin{array}{|c|cccccc|}\hline 0 & -4 & -2 & -1 & 0 & 0 & 0 \\ \hline u_4 = -3 & -1 & -1 & 2 & 1 & 0 & 0 \\ u_5 = -4 & -4 & -2 & 1 & 0 & 1 & 0 \\ u_6 = 2 & 1 & 1 & -4 & 0 & 0 & 1 \\ \hline \end{array}.$$

Since $k^- = 4$, our pivot row is the first row of the tableau. To determine candidates for j^+, we scan this row, locate negative entries and compute

$$\mu^+ = \max\left\{ -\frac{\overline{c}_j}{\gamma_4^j} \;\middle|\; \gamma_4^j < 0,\ j \in \{1,2,3\} \right\} = \max\left\{ \frac{-2}{1}, \frac{-4}{1} \right\} = -2.$$

Since μ^+ occurs when $j = 2$, we set $j^+ = 2$. Our new basis is $K^+ = (2, 5, 6)$. We must normalize the first row of the tableau, namely multiply by -1, then add twice this normalized row to the second row, and subtract the normalized row from the third row to obtain the updated tableau.

$$\begin{array}{|c|cccccc|}\hline 0 & -4 & -2 & -1 & 0 & 0 & 0 \\ \hline u_2 = 3 & 1 & 1 & -2 & -1 & 0 & 0 \\ u_5 = 2 & -2 & 0 & -3 & -2 & 1 & 0 \\ u_6 = -1 & 0 & 0 & -2 & 1 & 0 & 1 \\ \hline \end{array}$$

It remains to update the reduced costs and the value of the objective function by adding twice the normalized row to the top row.

$$\begin{array}{|c|cccccc|}\hline 6 & -2 & 0 & -5 & -2 & 0 & 0 \\ \hline u_2 = 3 & 1 & 1 & -2 & -1 & 0 & 0 \\ u_5 = 2 & -2 & 0 & -3 & -2 & 1 & 0 \\ u_6 = -1 & 0 & 0 & -2 & 1 & 0 & 1 \\ \hline \end{array}$$

We now repeat the procedure of Case (B2) and set $k^- = 6$ (since this is the only negative entry of u^+). Our pivot row is now the third row of the updated tableau, and the new μ^+