

Witten

$${}_{m+} \mathcal{A}^+ = \frac{\begin{array}{c|c} \mathcal{Q}_m^{-1/2} & \mathcal{Q}_m \mathcal{A} \\ \hline 0 & \mathcal{Q} \end{array}}{\quad}$$

$$\frac{\begin{array}{c|c} \mathcal{Q}_m^{-1/2} & \mathcal{Q}_m \mathcal{A} \\ \hline 0 & \mathcal{Q} \end{array}}{\quad} \frac{\begin{array}{c|c} \mathcal{Q}_m^{-1/2} & \mathcal{Q}_m \mathcal{A} \\ \hline 0 & \mathcal{Q} \end{array}}{\quad} = \frac{\begin{array}{c|c} \mathcal{Q}_m^{-1/2} & \mathcal{Q}_m \mathcal{A} \\ \hline 0 & \mathcal{Q} \end{array}}{\quad} \frac{\begin{array}{c|c} \mathcal{Q}_n^{-1/2} & \mathcal{Q}_n \mathcal{A} \\ \hline 0 & \mathcal{Q} \end{array}}{\quad} \\ = \frac{\begin{array}{c|c} \mathcal{Q}_m^{-1} \mathcal{Q}_n \mathcal{A} + \mathcal{Q}_m^2 \mathcal{A}_n \mathcal{A} & \mathcal{Q}_m^2 \mathcal{A} \\ \hline \mathcal{Q}_n \mathcal{Q}^2 & \mathcal{Q} \end{array}}{\quad}$$

$$\underline{x}^m \mid \underline{y} \quad {}_{m+} \mathcal{A}^+ \quad {}_{n+} \mathcal{A}^+ \underline{x}^n = \underline{x}^m \mid \underline{y} \quad \frac{\begin{array}{c|c} \mathcal{Q}_m^{-1} \mathcal{Q}_n \mathcal{A} + \mathcal{Q}_m^2 \mathcal{A}_n \mathcal{A} & \mathcal{Q}_m^2 \mathcal{A} \\ \hline \mathcal{Q}_n \mathcal{Q}^2 & \mathcal{Q} \end{array}}{\quad} \frac{\underline{x}^n}{\underline{y}}$$

$$= \underline{x}^m \mid \underline{y} \quad \frac{\mathcal{Q}_m^{-1} \mathcal{Q}_n \mathcal{A} \underline{x}^n + \mathcal{Q}_m^2 \mathcal{A}_n \mathcal{A} \underline{x}^n + \mathcal{Q}_m^2 \mathcal{A} \underline{y}}{\mathcal{Q}_n \mathcal{Q}^2 \underline{x}^n + \mathcal{Q} \underline{y}}$$

$$= \underline{x}^m \mathcal{Q}_m^{-1} \mathcal{Q}_n \mathcal{A} \underline{x}^n + \mathcal{Q}_m^2 \underline{x}^m \mathcal{A}_n \mathcal{A} \underline{x}^n + \mathcal{Q}_m^2 \underline{x}^m \mathcal{A} \underline{y} + \underline{y} \mathcal{Q}_n \mathcal{Q}^2 \underline{x}^n + \underline{y} \mathcal{Q}^2 \underline{y} \\ = \underline{x}^m \mathcal{Q}_m^{-1} \mathcal{Q}_n \mathcal{A} \underline{x}^n + \mathcal{Q}_m^2 \overbrace{\underline{y} + \underline{x}^m \mathcal{A}_n \mathcal{A}}^2$$