

$$\begin{aligned}
E(\textcolor{blue}{M}_1) \oplus E(\textcolor{red}{M}_2) &= \langle g^{\textcolor{blue}{r}_1}, (g^a)^{\textcolor{blue}{r}_1} \textcolor{blue}{M}_1 \rangle \oplus \langle g^{\textcolor{red}{r}_2}, (g^a)^{\textcolor{red}{r}_2} \textcolor{red}{M}_2 \rangle \\
&= \langle g^{\textcolor{blue}{r}_1} g^{\textcolor{red}{r}_2}, (g^a)^{\textcolor{blue}{r}_1} \textcolor{blue}{M}_1 (g^a)^{\textcolor{red}{r}_2} \textcolor{red}{M}_2 \rangle \\
&= g^{\textcolor{blue}{r}_1 + \textcolor{red}{r}_2}, g^{a(\textcolor{blue}{r}_1 + \textcolor{red}{r}_2)} \textcolor{blue}{M}_1 \textcolor{red}{M}_2 \\
&= E(\textcolor{blue}{M}_1 \textcolor{red}{M}_2)
\end{aligned}$$