$$
\begin{aligned}
\Delta_{\pm R(\vec{r})}\mathrm{sum}_f(Q) &:= \mathrm{sum}_{\Delta_{\pm R(\vec{r})}f}(Q) && (1)\\
&+ \mathrm{sum}_f(\Delta_{\pm R(\vec{r})}Q)\\
&+ \mathrm{sum}_{\Delta_{\pm R(\vec{r})}f}(\Delta_{\pm R(\vec{r})}Q)\\
\Delta_{\pm R(\vec{r})}(Q_1 \times Q_2) &:= ((\Delta_{\pm R(\vec{r})}Q_1) \times Q_2) && (2)\\
&\cup (Q_1 \times (\Delta_{\pm R(\vec{r})}Q_2))\\
&\cup ((\Delta_{\pm R(\vec{r})}Q_1) \times (\Delta_{\pm R(\vec{r})}Q_2))\\
\mathrm{sum}_{f[\vec{A};\ldots]*g[\vec{B};\ldots]}(\rho_{\vec{A}}(Q_1) \times \rho_{\vec{B}}(Q_2)) &:= \mathrm{sum}_{f[\vec{A};\ldots]}(\rho_{\vec{A}}(Q_1)) && (3)\\
&* \mathrm{sum}_{f[\vec{B};\ldots]}(\rho_{\vec{B}}(Q_2))
\end{aligned}
$$