

$$\begin{aligned}
& \left(\{\hat{p}, \hat{f}, \hat{c}, \hat{d}\}_{m+1} \middle| \mathcal{H}(t) \middle| \{p, f, c, d\}_m \right) \\
&= \sum_{\substack{l,k \\ k \neq l}} \int_0^1 \frac{dy}{y} \int_0^1 dz \int_0^{2\pi} \frac{d\phi}{2\pi} \frac{\alpha_s(Q^2 e^{-t})}{2\pi} \delta\left(t + \log(T_{l,k}(p_l, p_k, z, y)/Q^2)\right) \\
&\quad \times \frac{\langle \{\hat{c}\}_{m+1} \middle| \{\hat{d}\}_{m+1} \rangle}{\langle \{c\}_m \middle| \{d\}_m \rangle} \left(\{\hat{c}, \hat{d}\}_{m+1} \middle| \mathcal{S}_{l,k}(z, y, \hat{f}_{l_1}, \hat{f}_{l_2}) \middle| \{c, d\}_m \right) \\
&\quad \times \frac{\hat{\eta}_a}{\eta_a} \frac{f_{\hat{a}/A}(\hat{\eta}_a, \mu_F^2)}{f_{a/A}(\eta_a, \mu_F^2)} \frac{\hat{\eta}_b}{\eta_b} \frac{f_{\hat{b}/B}(\hat{\eta}_b, \mu_F^2)}{f_{b/B}(\eta_b, \mu_F^2)} \left(\{\hat{p}, \hat{f}\}_{m+1} \middle| \mathcal{R}_{l,k}(z, y, \kappa_\perp) \middle| \{p, f\}_m \right)
\end{aligned}$$