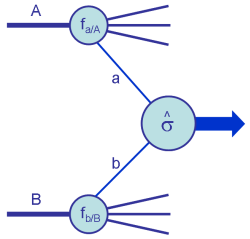
Linking theory and experiment

$$\sigma^{\text{exp}} \equiv \frac{1}{\int \mathcal{L} dt} \frac{N^{obs}}{A\,\epsilon} = \sigma^{\text{theory}}$$

$$\sigma^{\text{theory}} \equiv \sum_{a,b} \int_0^1 dx_1 dx_2 f_{a,H_1}(x_1, \mu_F^2, \mu_R^2) f_{b,H_2}(x_2, \mu_F^2, \mu_R^2) \times$$
$$\times \int_\Phi d\hat{\sigma}_{a,b}(x_1, x_2, Q^2/\mu_F^2, Q^2/\mu_R^2) + \mathcal{O}\left(\frac{\Lambda_{QCD}^n}{Q^n}\right)$$



Campbell, Huston, Stirling, hep-ph/0611148

- PDF's fitted from data
- $\hat{\sigma}$ calculated perturbatively

$$\sigma = \sigma_0(1 + \alpha_s \delta_1^{\text{QCD}} + \alpha_s^2 \delta_2^{\text{QCD}} + \alpha \delta_1^{\text{EWK}} + \ldots)$$