$$\begin{array}{c} P_i \begin{pmatrix} \sigma_i \\ \eta_i \end{pmatrix} \\ \times \\ \bar{C}_R \begin{pmatrix} \bar{\theta}_R = \frac{1}{n} \sum_{i=1}^n \theta_i = M_{\mathrm{id}}(\theta_1, \dots, \theta_n) \\ \bar{\eta}_R = \nabla F(\bar{\theta}_R) = M_{\nabla F^*}(\eta_1, \dots, \eta_n) \end{pmatrix} \\ \times \\ \times \\ \bar{C}_L \begin{pmatrix} \bar{\theta}_L = M_{\nabla F}(\theta_1, \dots, \theta_n) \\ \bar{\eta}_L = \nabla F(\bar{\theta}_L) = M_{\mathrm{id}}(\eta_1, \dots, \eta_n) \end{pmatrix} \\ \times \\ (M, g, \nabla, \nabla^*) \\ \times \\ \end{array}$$