Method - Generalizable Shape Network
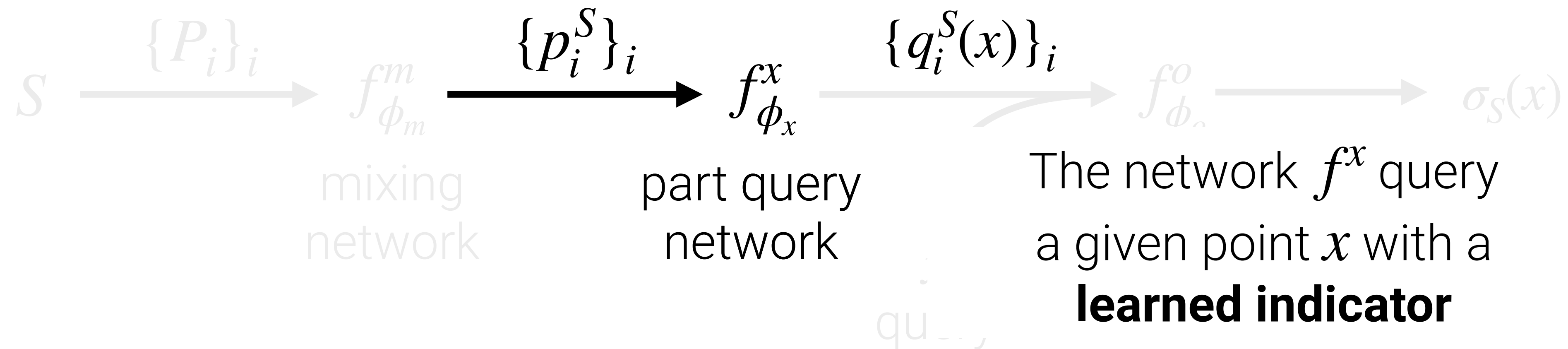
We approximate the object's occupancy $\sigma(x) \approx \sigma_S(x) := f_\theta(x \mid S)$ where f_θ is a neural network given shape parameters.

$$S \xrightarrow{\{P_i\}_i} f^m_{\phi_m} \xrightarrow{\{p_i^S\}_i} f^x_{\phi_x} \xrightarrow{\{q_i^S(x)\}_i} f^o_{\phi_o} \longrightarrow \sigma_S(x)$$

mixing network

part query network

The network f^x query a given point x with a **learned indicator**
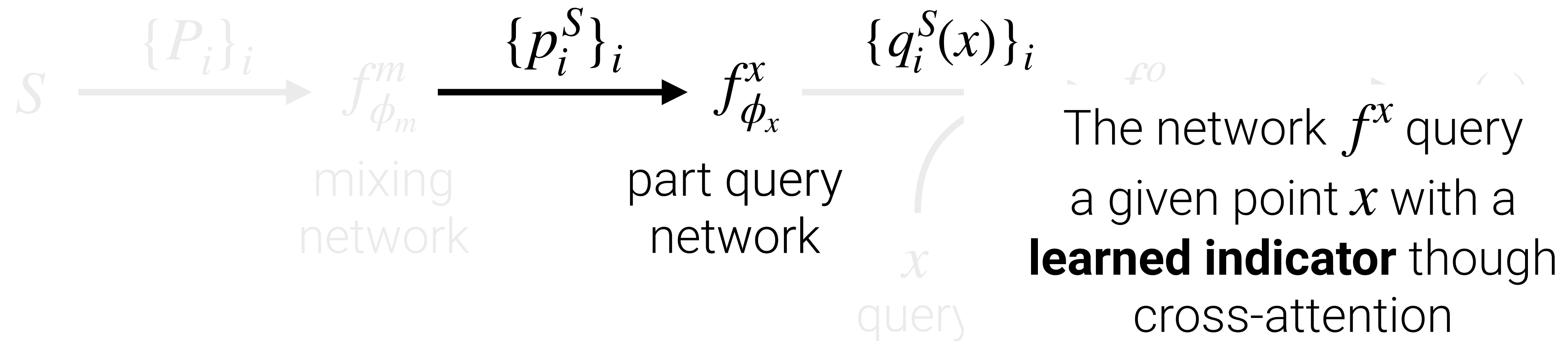
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We approximate the object's occupancy $\sigma(x) \approx \sigma_S(x) := f_\theta(x \mid S)$ where f_θ is a neural network given shape parameters.

$$\{P_i\}_i \qquad \{p_i^S\}_i \qquad \{q_i^S(x)\}_i$$

$$S \xrightarrow{} f_{\phi_m}^m \xrightarrow{} f_{\phi_x}^x$$

mixing network

part query network

The network f^x query a given point x with a **learned indicator** though cross-attention

$$q_i^S(x) := f_{\phi_x}^x(T_{C_i}^{-1}(x) \mid p_1^S + b_0, \cdots, p_i^S + b_1, \cdots, p_n^S + b_0)$$