$$(x_1,\ldots,x_{n_1})\in\mathbb{X}^{n_1}\longrightarrow \text{Initial Embedder} \\ z_i\leftarrow\psi(x_i) \qquad \qquad (z_1^{(1)},\ldots,z_n^{(1)})\in(\mathbb{R}^{d_1})^{n_1}$$

$$(z_1^{(1)},\ldots,z_{n_1}^{(1)})\longrightarrow \text{Multi-Head} \\ \text{Relational Layer} \qquad \qquad R^{(1)}\in\mathbb{R}^{n_1\times n_1\times r_1}$$

$$R^{(1)}\longrightarrow \text{Relational Convolution Layer} \\ (R*f)(G) \qquad \qquad (z_1^{(2)},\ldots,z_{n_2}^{(2)})\in(\mathbb{R}^{d_2})^{n_2}$$

$$\vdots \qquad \qquad \vdots \qquad \qquad R^{(l)}\longleftarrow \text{Multi-Head} \\ \text{Relational Layer} \qquad \qquad R^{(l)}\in\mathbb{R}^{n\times n\times r_l}$$

$$R^{(l)}\longrightarrow \text{Relational Convolution Layer} \\ (R*f)(G) \qquad \qquad (z_1^{(l+1)},\ldots,z_{n_{l+1}}^{(l+1)})\in(\mathbb{R}^{d_{l+1}})^{n_{l+1}}$$