1. Update $\mathbf{v}$:

$$\mathbf{v}'_k = \Gamma^{\pm}[\mathbf{v}_k; \zeta_{\mathbf{v}_k}]$$

Invertible NN

2. Update **half** of $\mathbf{x}$ via $\bar{m}_k \odot \mathbf{x}_k$:

$$\mathbf{x}'_k = m_k \odot \mathbf{x}_k + \bar{m}_k \odot \Lambda^{\pm}[\bar{\mathbf{x}}_k; \zeta_{\bar{\mathbf{x}}_k}]$$

3. Update (other) **half** of $\mathbf{x}$ using $m^k \odot \mathbf{x}'_k$:

$$\mathbf{x}''_k = \bar{m}^k \odot \bar{\mathbf{x}}'_k + m^k \odot \Lambda^{\pm}[\mathbf{x}'_k; \zeta_{\mathbf{x}'_k}]$$

4. Half-step full $\mathbf{v}$ update:

$$\mathbf{v}''_k = \Gamma^{\pm}[\mathbf{v}'_k; \zeta_{\mathbf{v}'_k}]$$