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

1. Update ${f v}$:

Invertible NN

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

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

$$egin{aligned} \mathbf{x}_k'' &= ar{m{m}}^k \odot ar{\mathbf{x}}_k' + m^k \odot ar{igwedge}^{oldsymbol{\pm} \left[\mathbf{x}_k'; \zeta_{\mathbf{x}_k'}
ight]} \end{aligned}$$

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

Half-step full
$${f v}$$
 update: ${f v}_k'' = {f \Gamma}^{\pm}[{f v}_k';\zeta_{{f v}_k'}]$