$$egin{align*} egin{align*} oldsymbol{\Gamma^+}[\mathbf{v}_k;\, oldsymbol{\zeta_{\mathbf{v}}}] &\equiv \mathbf{v}_k \odot \exp\left(rac{arepsilon_{\mathbf{v}}^k}{2} s_{\mathbf{v}}^k(oldsymbol{\zeta_{\mathbf{v}_k}})
ight) - rac{arepsilon_{\mathbf{v}}^k}{2} \left[\partial_x S(x_k) \odot \exp\left(arepsilon_{\mathbf{v}}^k q_{\mathbf{v}}^k(oldsymbol{\zeta_{\mathbf{v}_k}})
ight) + t_{\mathbf{v}}^k(oldsymbol{\zeta_{\mathbf{v}_k}})
ight] + t_{\mathbf{v}}^k(oldsymbol{\zeta_{\mathbf{v}_k}}) \\ oldsymbol{\Lambda^+}[ar{\mathbf{x}}_k;\, oldsymbol{\zeta_{ar{\mathbf{x}}}}] &\equiv egin{bmatrix} \mathbf{x}_k \odot \exp\left(arepsilon_{ar{\mathbf{x}}}^k s_{\mathbf{x}}^k(oldsymbol{\zeta_{ar{\mathbf{x}}_k}})
ight) + arepsilon_{\mathbf{x}}^k \left[v_k' \odot \exp\left(arepsilon_{ar{\mathbf{x}}}^k q_{\mathbf{x}}^k(oldsymbol{\zeta_{ar{\mathbf{x}}_k}})
ight) + t_{\mathbf{x}}^k(oldsymbol{\zeta_{ar{\mathbf{x}}_k}}) \end{bmatrix} \end{aligned}$$

force scaling

translation

V scaling