$$v'_k = \Gamma^+(v_k;\, \zeta_{v_k}) \equiv \underbrace{v_k \odot \exp\Big(\tfrac{\varepsilon_v^k}{2}\, s_v^k(\zeta_{v_k})\Big)}_{v\text{ scaling}} - \tfrac{\varepsilon_v^k}{2}\Big[\underbrace{\partial_x S(x_k) \odot \exp\big(\varepsilon_v^k q_v^k(\zeta_{v_k})\big)}_{\text{force scaling}} + \underbrace{t_v^k(\zeta_{v_k})}_{\text{translation}}\Big]$$

$$x'_k = m^k \odot x_k + \bar{m}^k \odot \Lambda^+(x_k;\, \zeta_{v_k}) \equiv \underbrace{x_k \odot \exp\big(\varepsilon_x^k\, s_x^k(\zeta_{x_k})\big)}_{x\text{ scaling}} + \varepsilon_x^k \Big[\underbrace{v'_k \odot \exp\big(\varepsilon_x^k q_x^k(\zeta_{x_k})\big)}_{v\text{ scaling}} + \underbrace{t_x^k(\zeta_{x_k})}_{\text{translation}}\Big]$$