$$\nabla \mathbf{L}_{\mathbf{i}} = \frac{\partial \mathbf{L}_{\mathbf{i}}}{\partial \mathbf{x}_{\mathbf{i}}} + \frac{\partial}{\partial t}(\rho^{\mathbf{i}}) \nabla \mathbf{L}_{\mathbf{i}} + \ldots \quad (7)$$