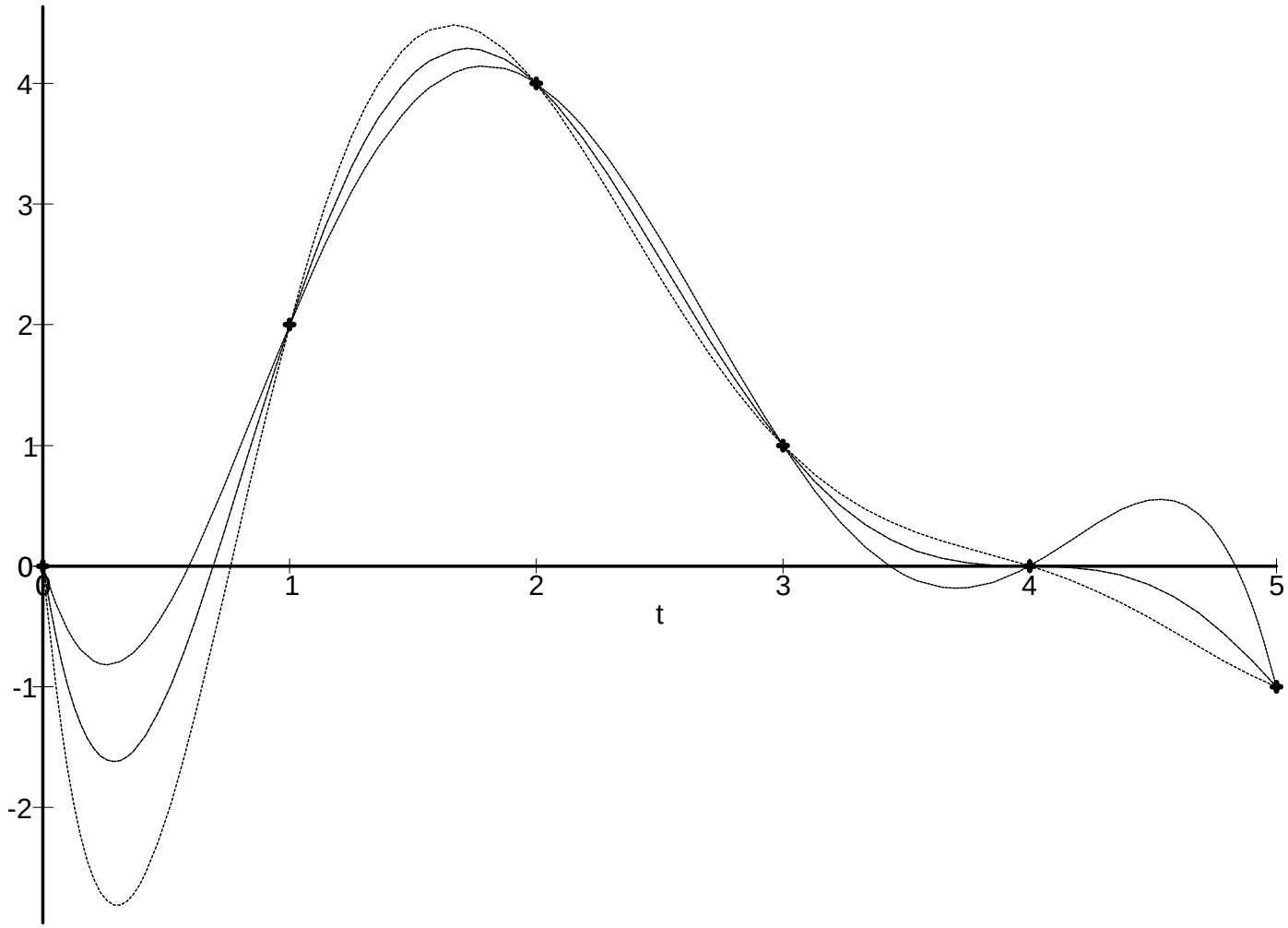Non-locality of Lagrange Interpolation