$y = f(\boldsymbol{x}_{i-1} + t_i \boldsymbol{d}_i)$

$y = f(\boldsymbol{x}_{i-1}) + \alpha t_i \nabla f(\boldsymbol{x}_{i-1})^\top \boldsymbol{d}_i$

$f(\boldsymbol{x}_{i-1} + t_i \boldsymbol{d}_i) \leq f(\boldsymbol{x}_{i-1}) + \alpha t_i \nabla f(\boldsymbol{x}_{i-1})^\top \boldsymbol{d}_i$