

$$0 = F(x+h, f(x+h)) = F(x, f(x)) + D_x F(x, f(x)) \cdot h + D_y F(x, f(x)) \cdot [f(x+h) - f(x)] + \omega(x+h, f(x+h))$$

Wegen $F(x, f(x)) = 0$ und $D_y F(x, f(x))$ (lokal) invertierbar erhalten wir daraus

$$f(x+h) - f(x) = -(D_y F(x, f(x)))^{-1} \cdot D_x F(x, f(x)) \cdot h + (D_y F(x, f(x)))^{-1} \cdot \omega(x+h, f(x+h))$$