The complete algorithm

Definitions

- $g_i(x_i(k)) = f_i''(x_i(k))x_i(k) - f_i'(x_i(k))$
- $h_i(x_i(k)) = f_i''(x_i(k))$
- bold font = vectorization

Initialization

$$\mathbf{x}(k) = \mathbf{y}(k) = \mathbf{z}(k) = \mathbf{g}(\mathbf{x}(-1)) = \mathbf{h}(\mathbf{x}(-1)) = \mathbf{0}$$

Main procedure

$$\begin{cases} \mathbf{y}(k+1) = P^M\left(\mathbf{y}(k) + \mathbf{g}(\mathbf{x}(k)) - \mathbf{g}(\mathbf{x}(k-1))\right) \\ \mathbf{z}(k+1) = P^M\left(\mathbf{z}(k) + \mathbf{h}(\mathbf{x}(k)) - \mathbf{h}(\mathbf{x}(k-1))\right) \\ \mathbf{x}(k+1) = (1-\varepsilon)\mathbf{x}(k) + \varepsilon\dfrac{\mathbf{y}(k+1)}{\mathbf{z}(k+1)} \end{cases}$$