



$$r_k^a = m_k - h_k(x^{a-1}) + H_k^{a-1} \times (x_{k-1}^a - x^{a-1})$$

$$r_k^a = (m_k - h_k(x^{a-1}) + H_k^{a-1} \times (x_{k-1}^a - x^{a-1}))/2$$