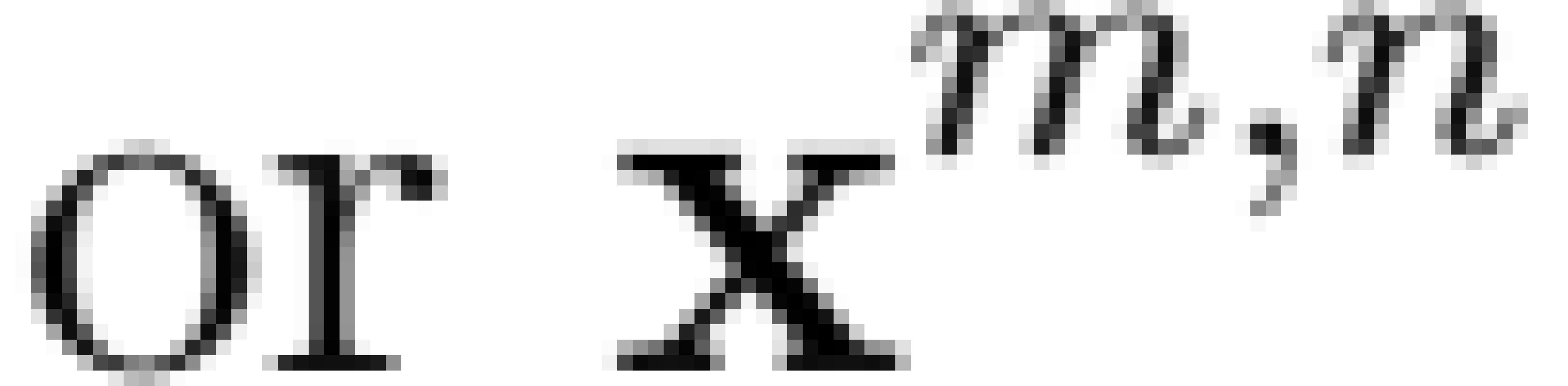




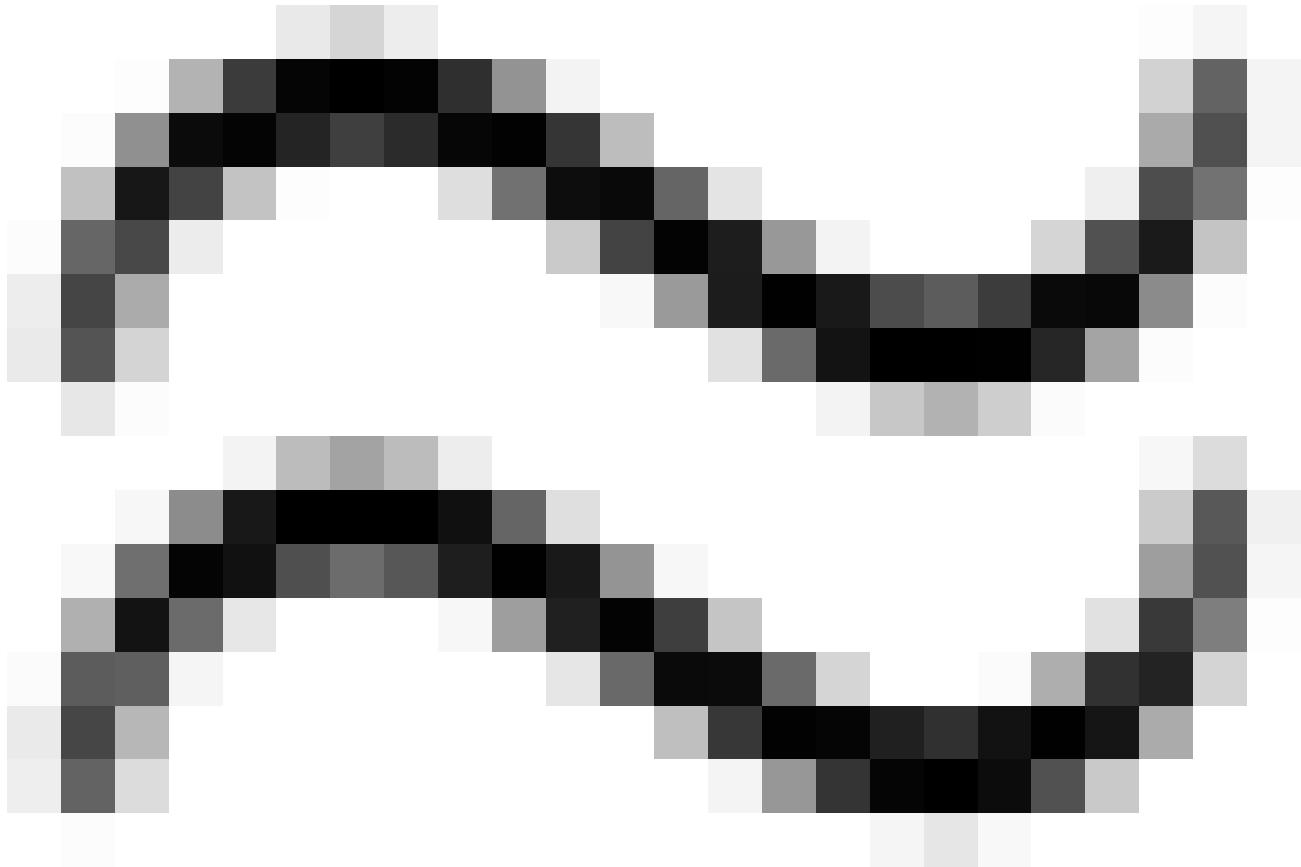


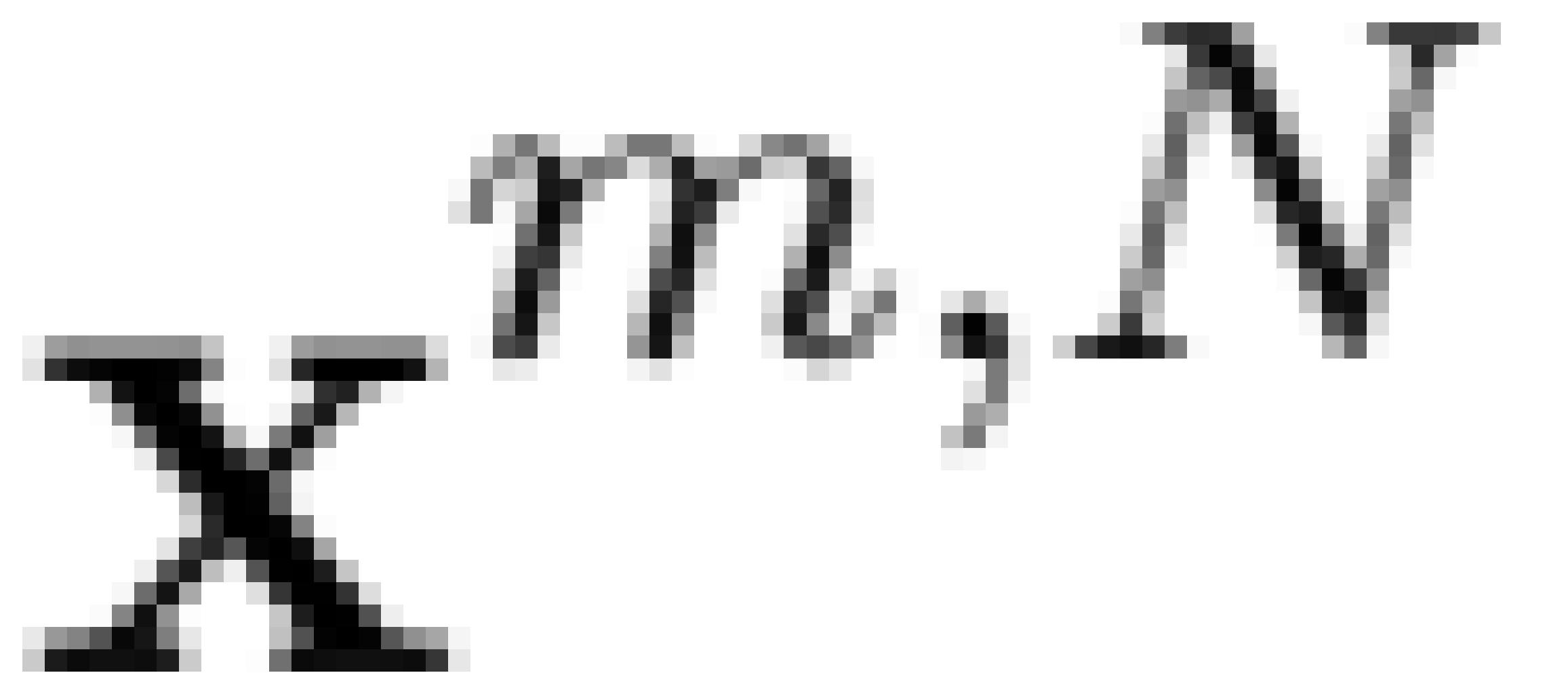
$$\sum_{j=1}^{n-m} W^m_{ij} \cdot f^m_{ij}(x^{m,n-1}),$$



vector(10) auto(10) 10 vector(10) 10

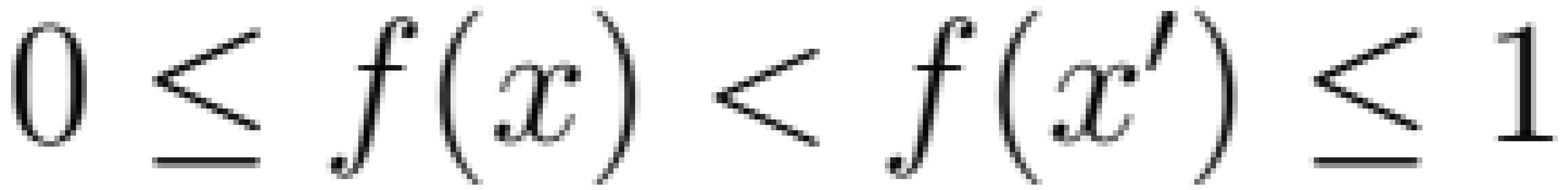


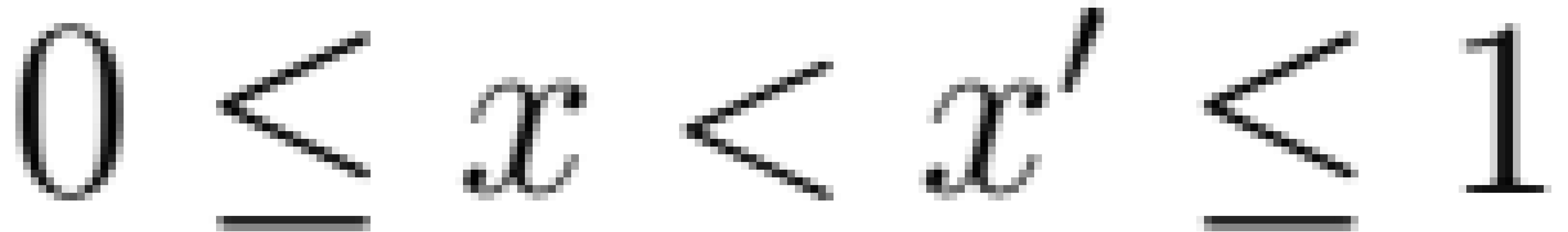




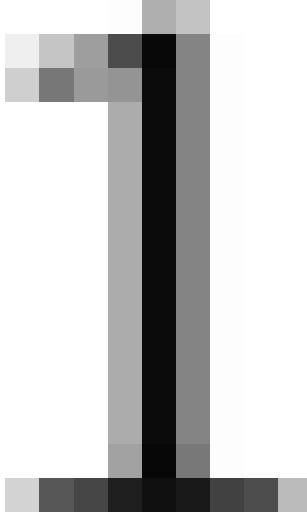








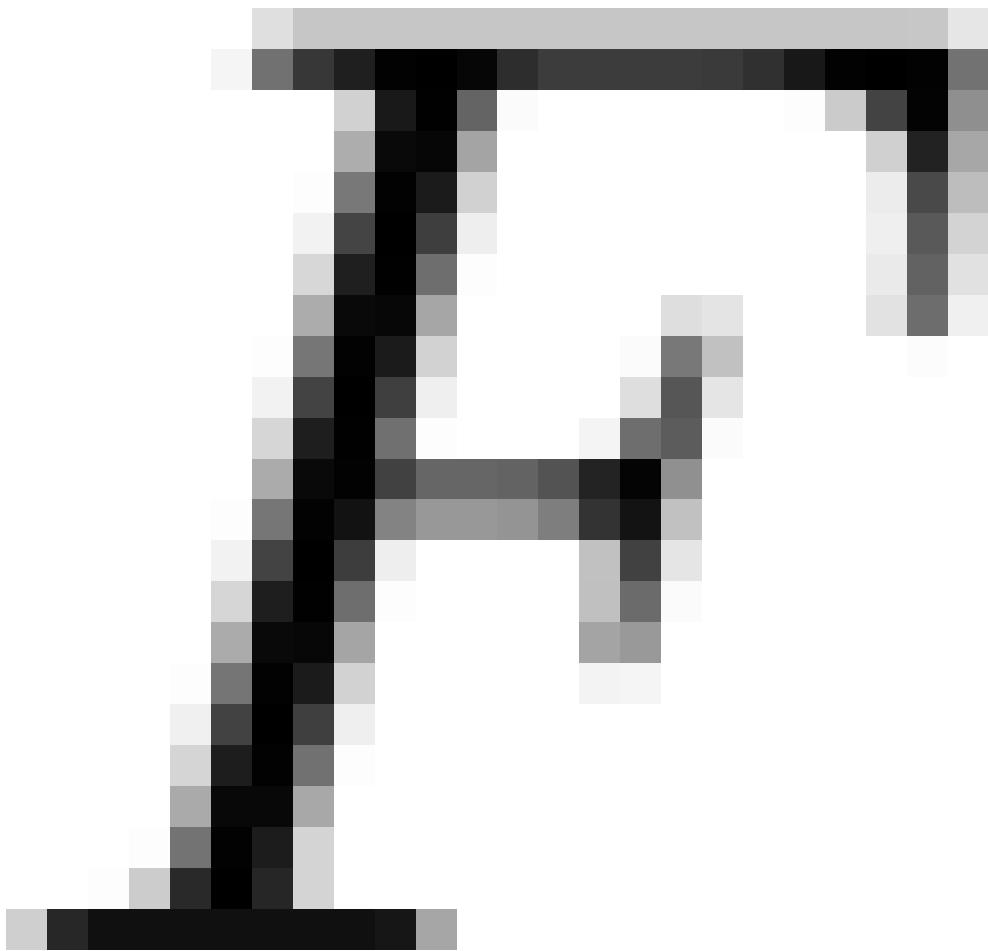






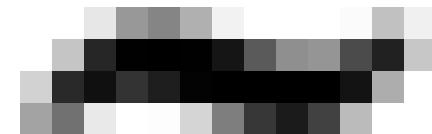
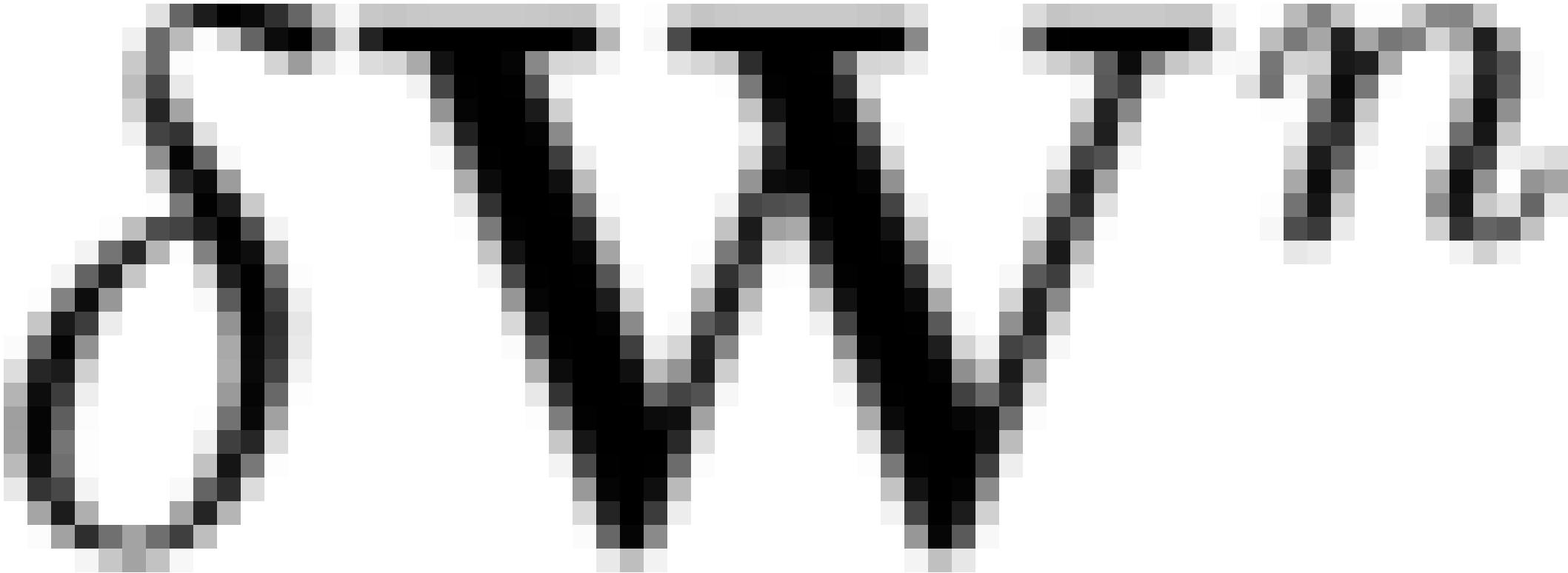


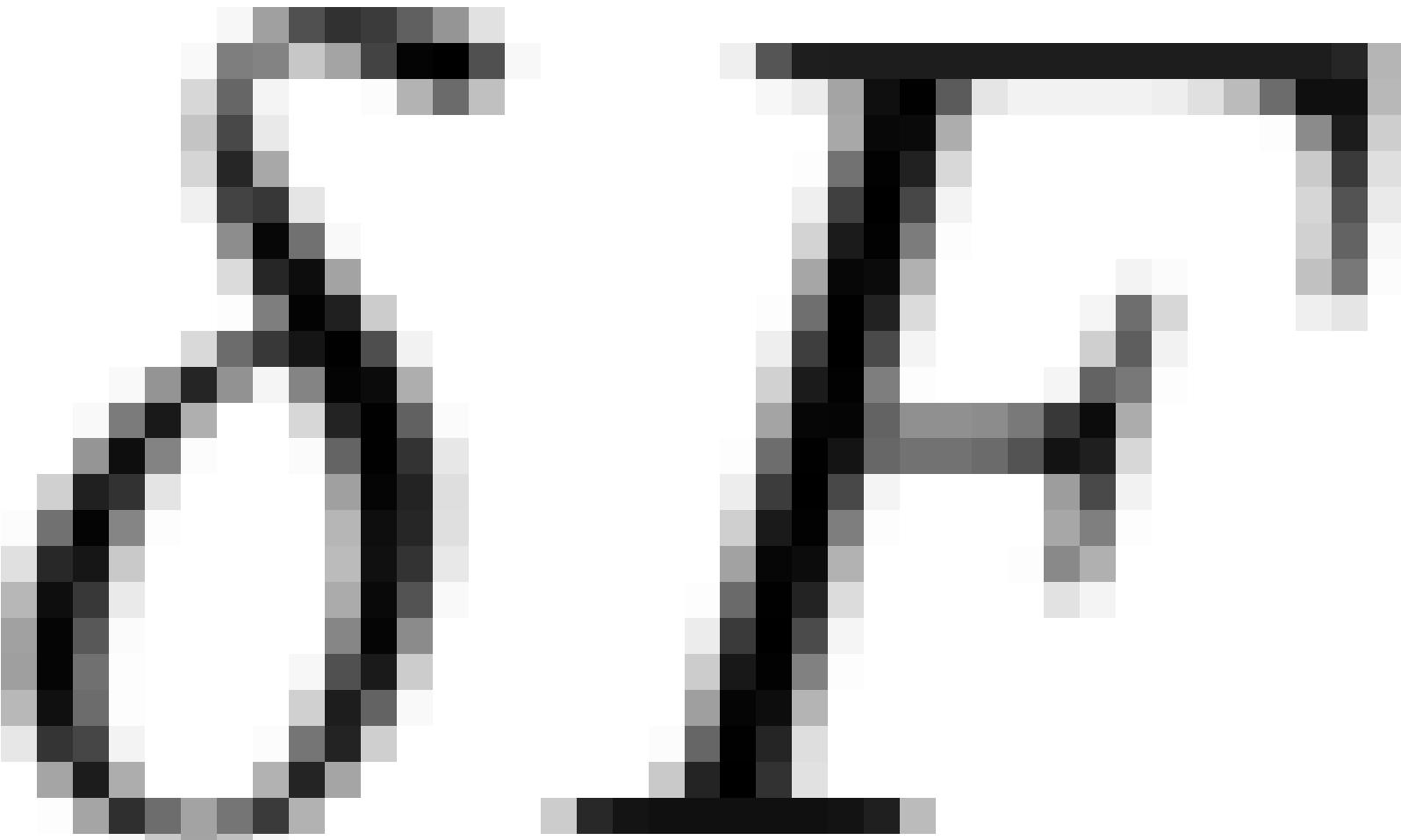




```
main()
{
    H(W1);
    W1;
    .
    .
    .
    WN;
}
```

$$\sum_{m,k} [p_k^m - c_k^{m,N}(d^m)]^2 = \sum_m \| p^m - x^{m,N} \|^2$$

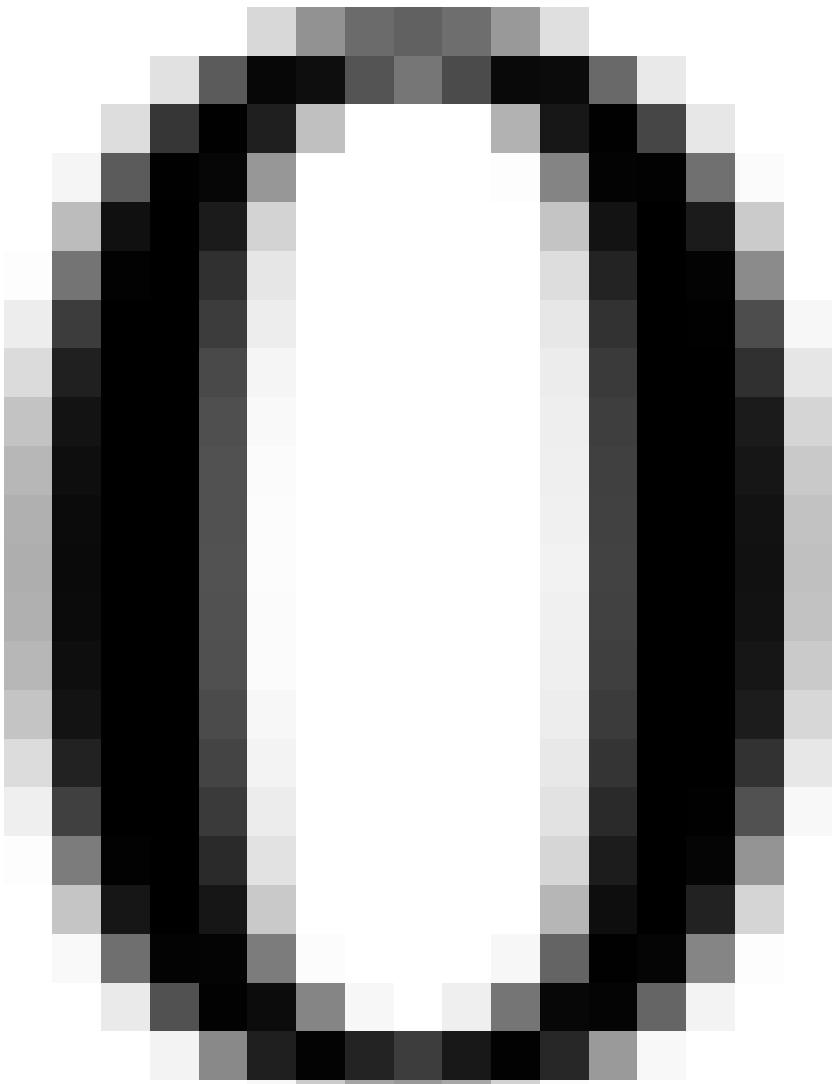


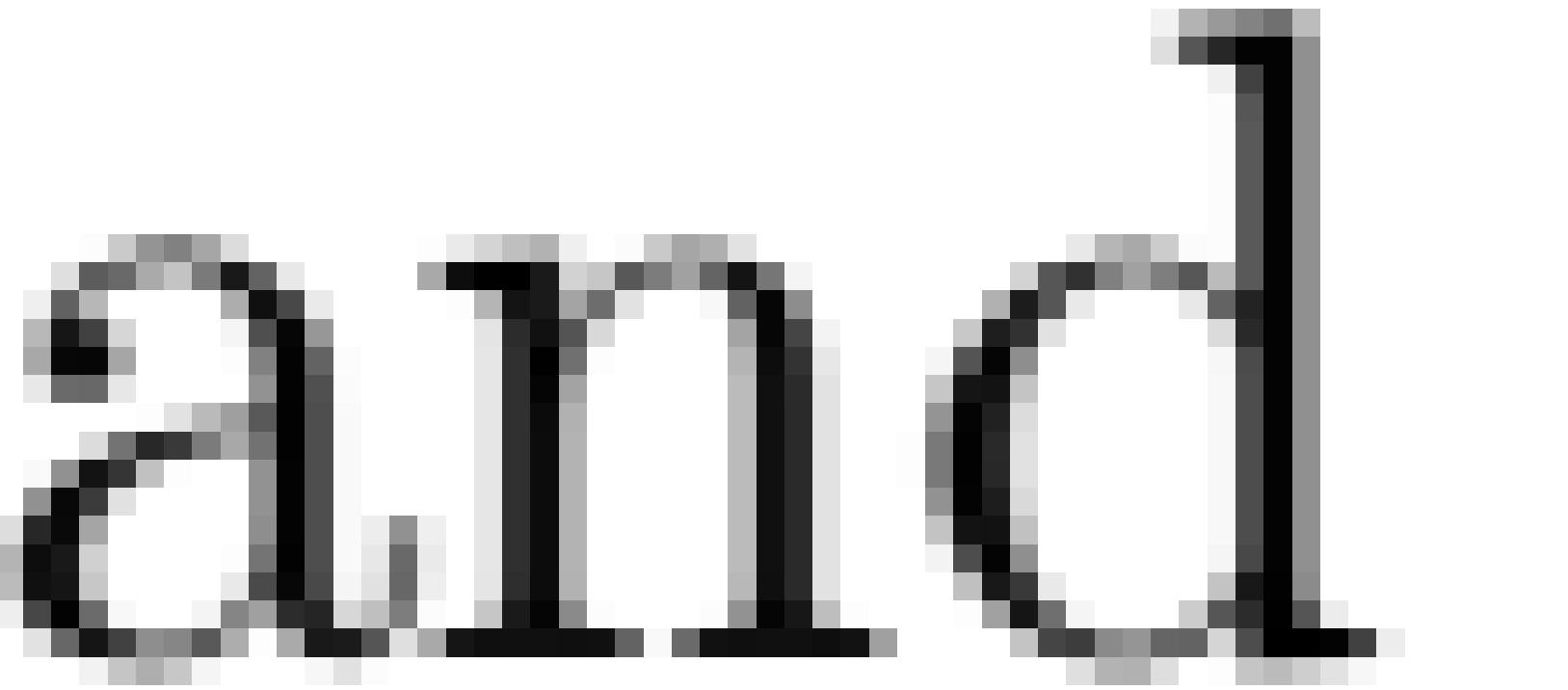




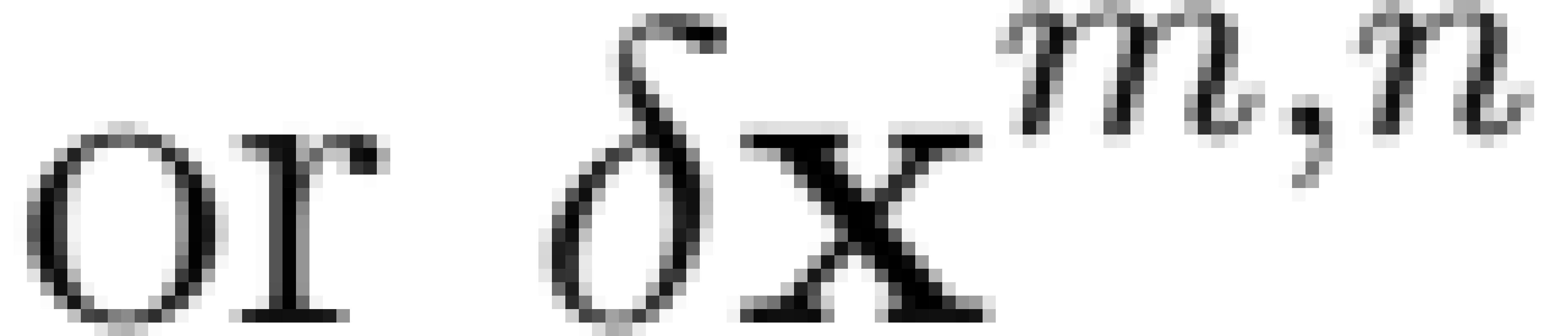
$$-\sum_{m,k} (\rho_k^m - x_k^{m,N}) s_{x_k}^{m,N} = -\sum_m (\mathbf{p}^m - \mathbf{x}^{m,N}) \cdot \delta \mathbf{x}_k^{m,N}$$



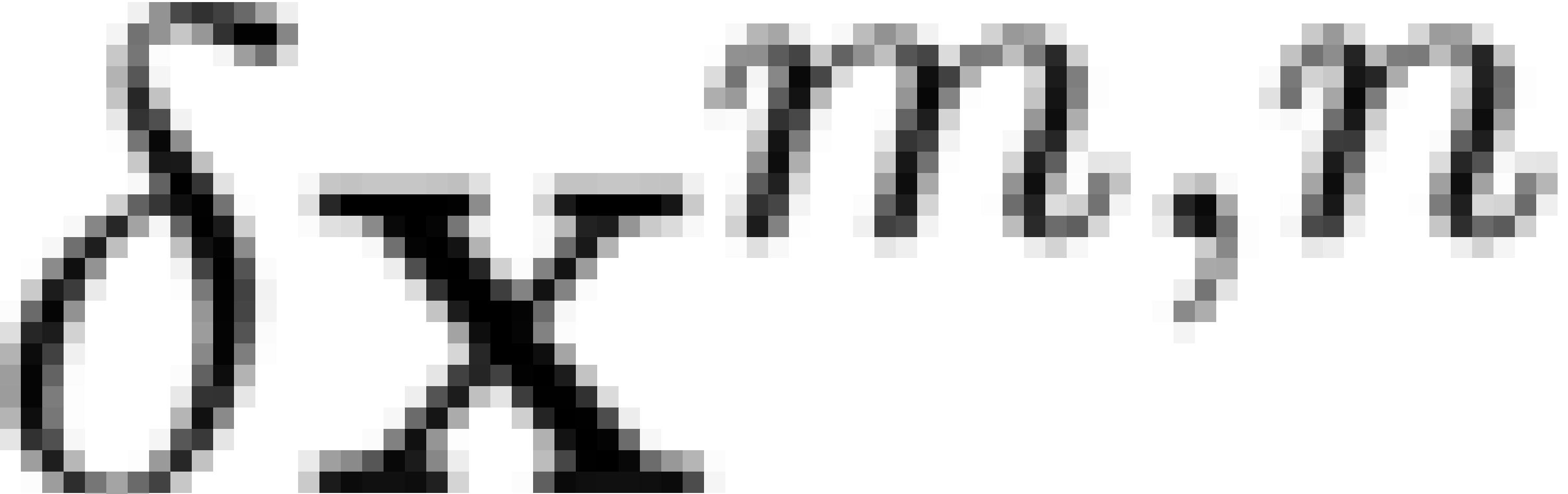


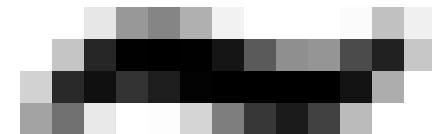
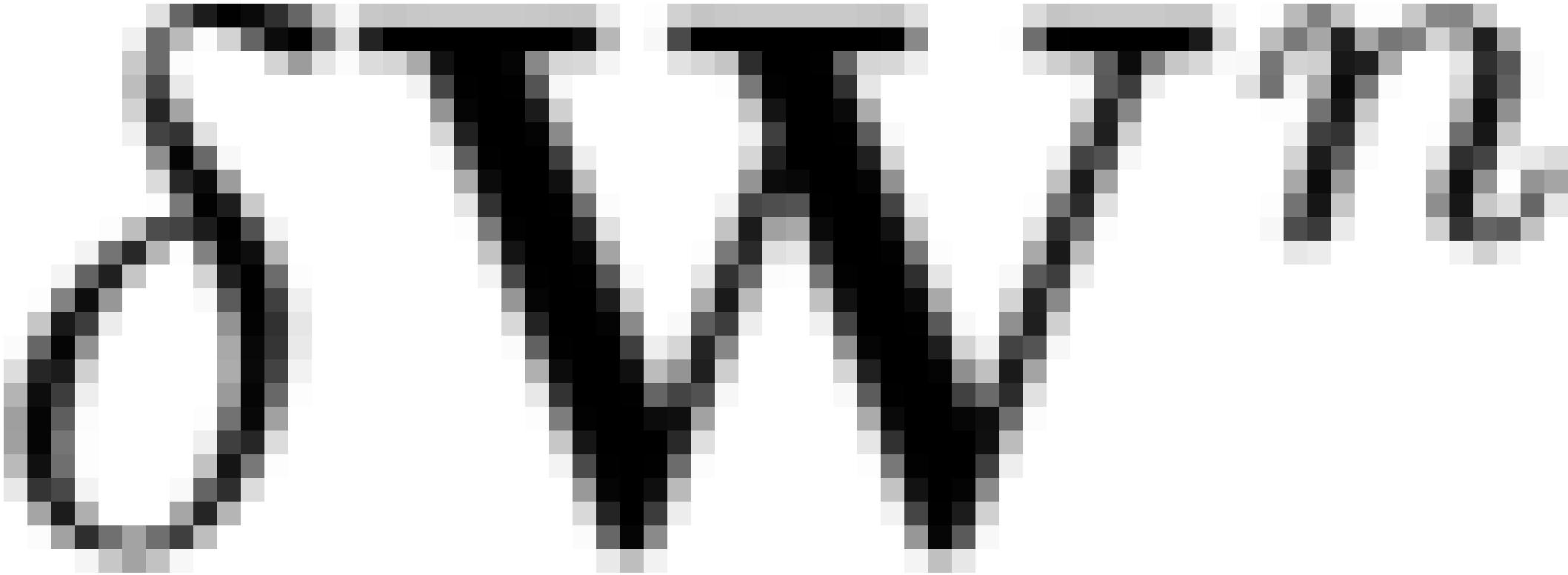


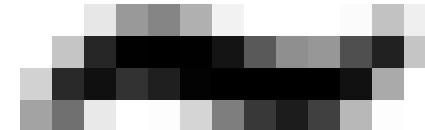
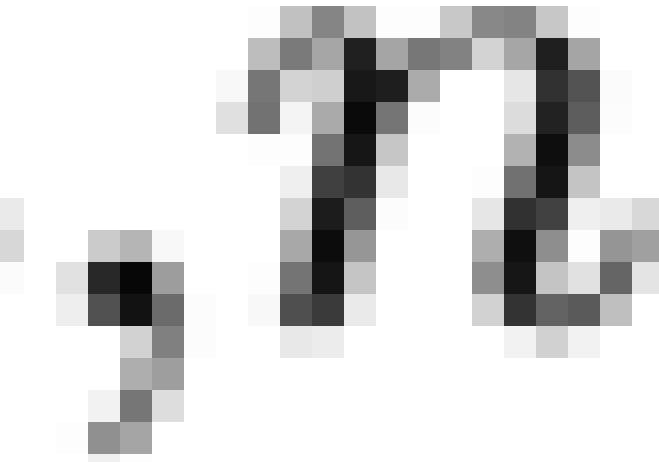
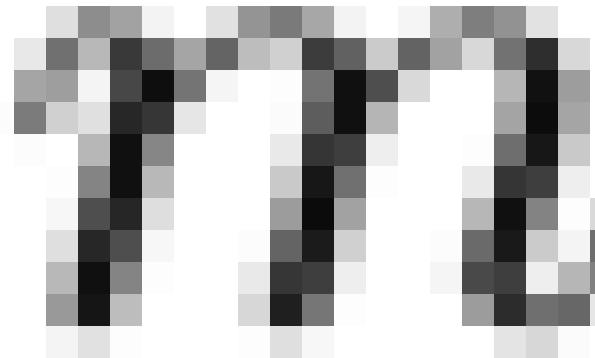
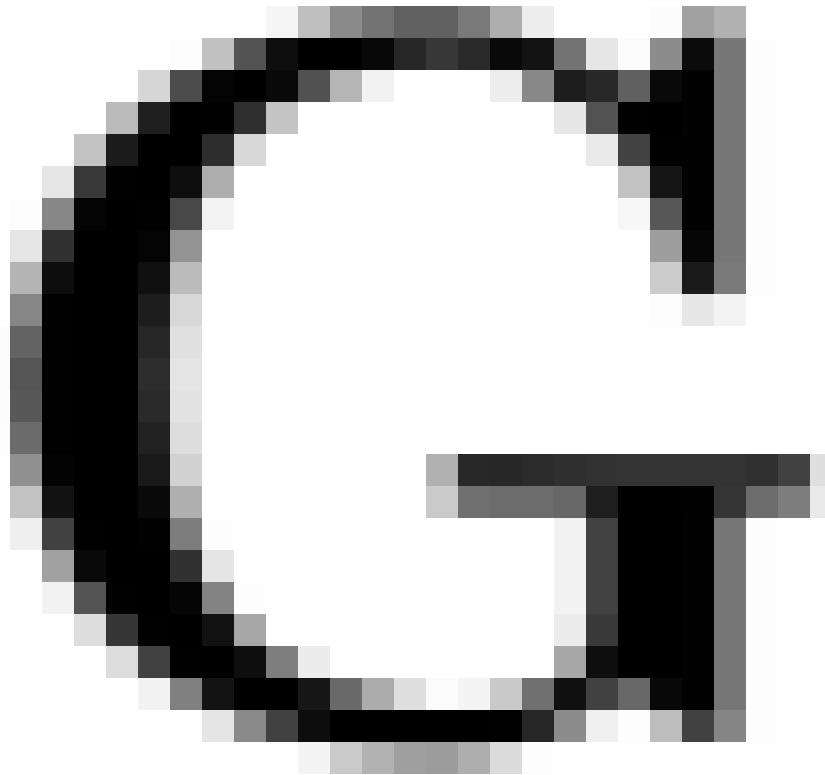
$$\sum_j \delta W_{ij}^n f^n_j(x^{m,n-1}) + \sum_j W_{ij}^n \sum_k \frac{\partial}{\partial x_k} f^n_j(x^{m,n-1}) \delta x_k$$

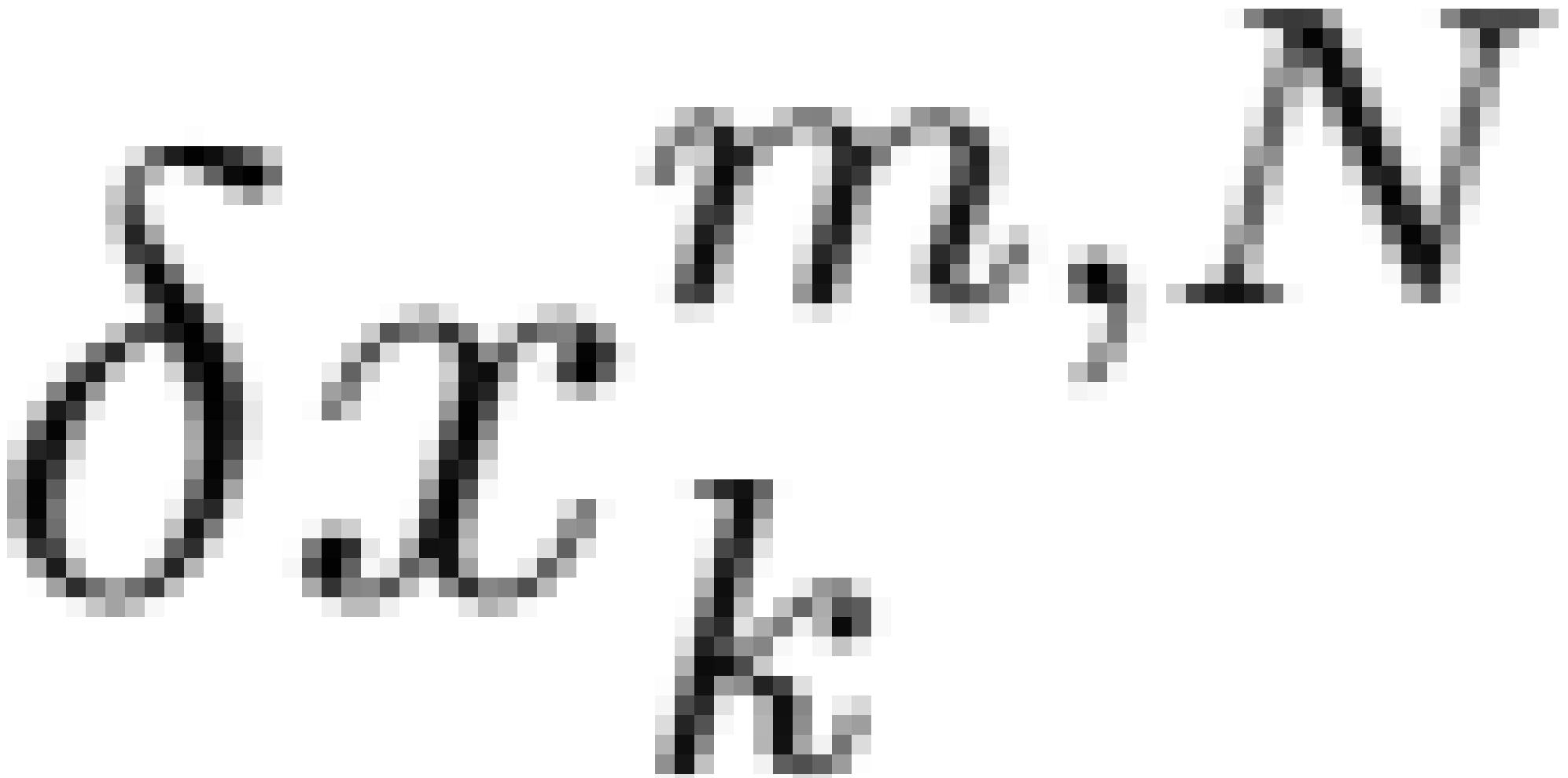


$$\delta w^{m,n} = f^r(x^{m,n}, t_0-1) + \delta x^{m,n}(x^{m,n}, t_0-1)$$









Game, π STV^m
Kij · SW^{i,j}

n, i, j

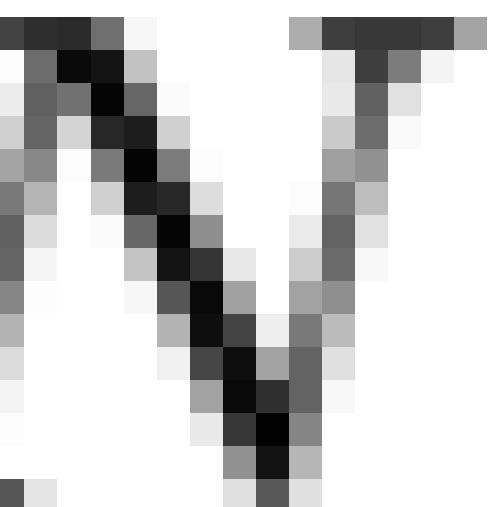
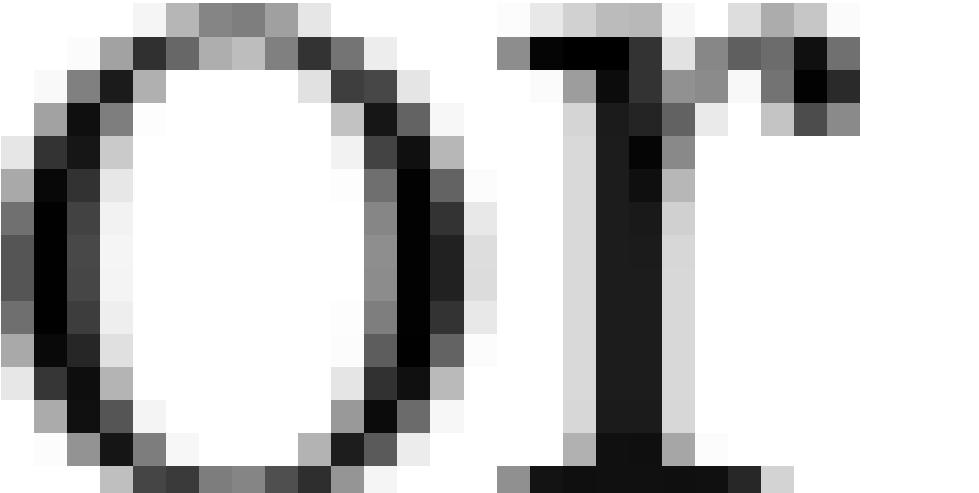
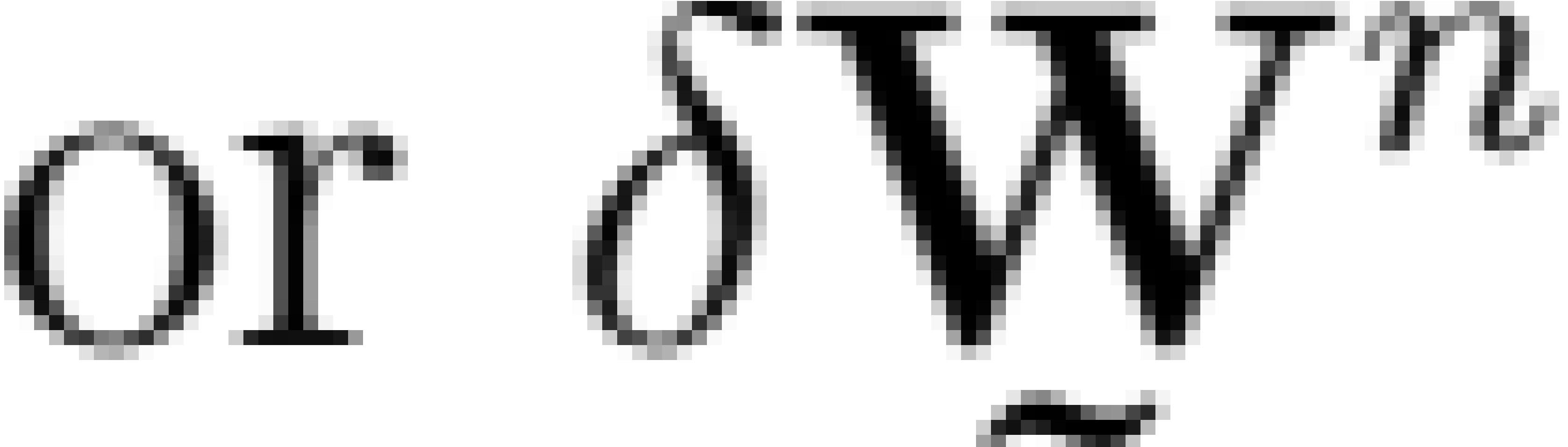


Figure 10 shows the results of the proposed method for the handwritten digit recognition task. The input image is a noisy handwritten digit '4'. The proposed method correctly identifies the digit as '4'.

70

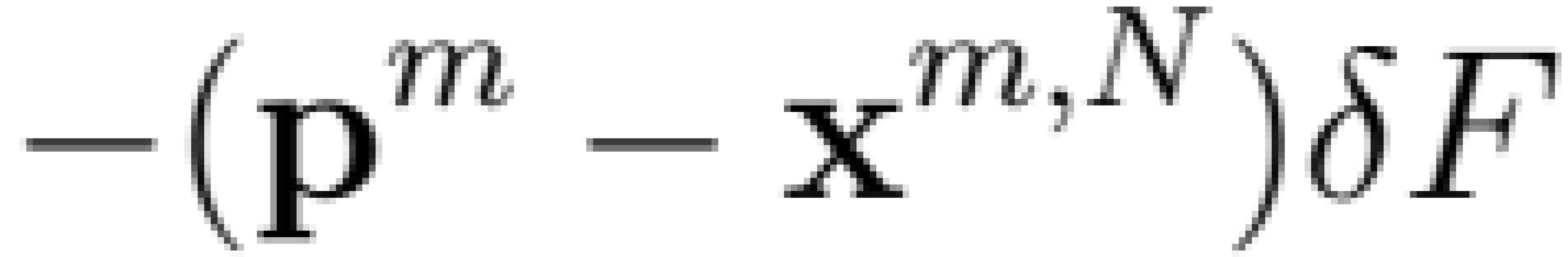


$$\sum_{m=0}^{\infty} \delta_{\alpha_2^{(m)}, \tau_0} f^{\tau_0}(x^{m, \tau_0 - 1})$$



$$\sum_{m=0}^{\infty} \delta x^{m,n} [f^n(x^{m,n-1})]^* (outer\ product),$$

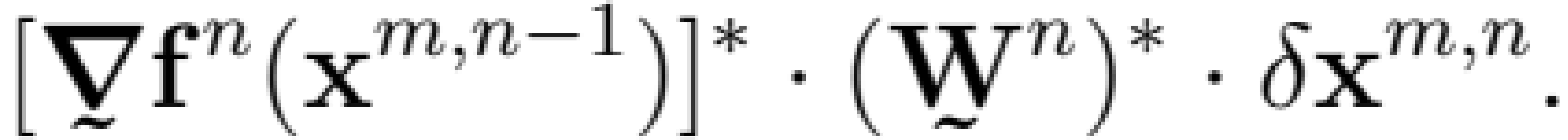






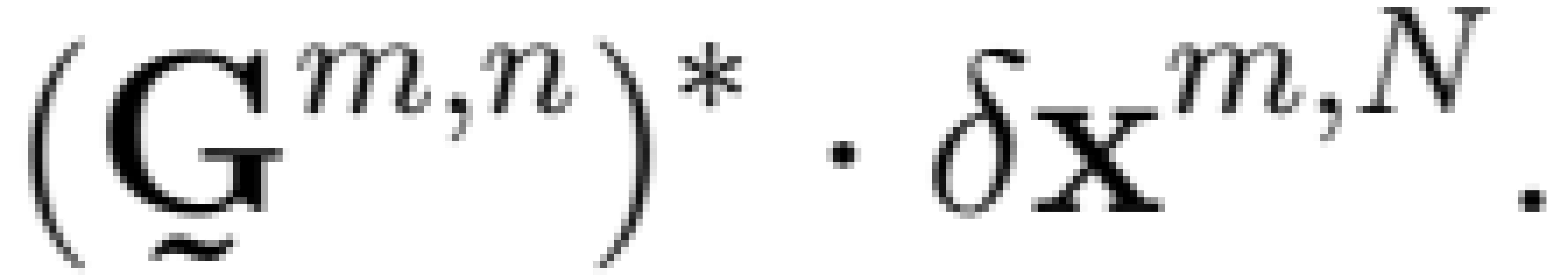
$$\sum_j \overrightarrow{\partial c_k}^j \circ f^n \circ j_i(x^{m,n-1}) \geq \sum_i W^n \delta c_i^{m,n},$$



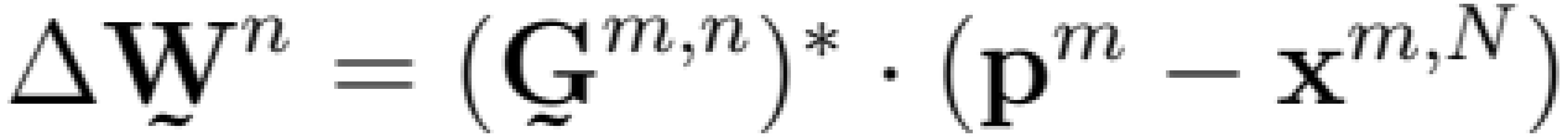


m, k

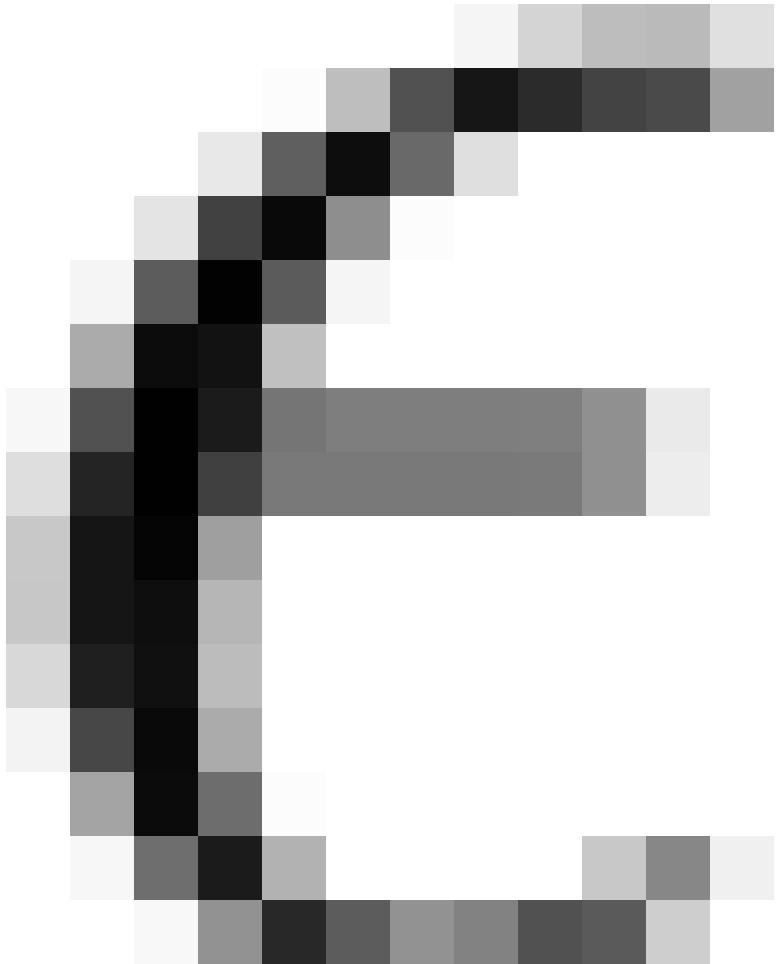
$\sum_{m,n} G_{mn} \sigma_m \sigma_n$

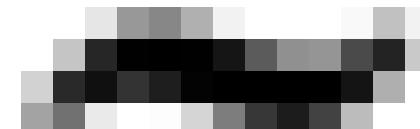
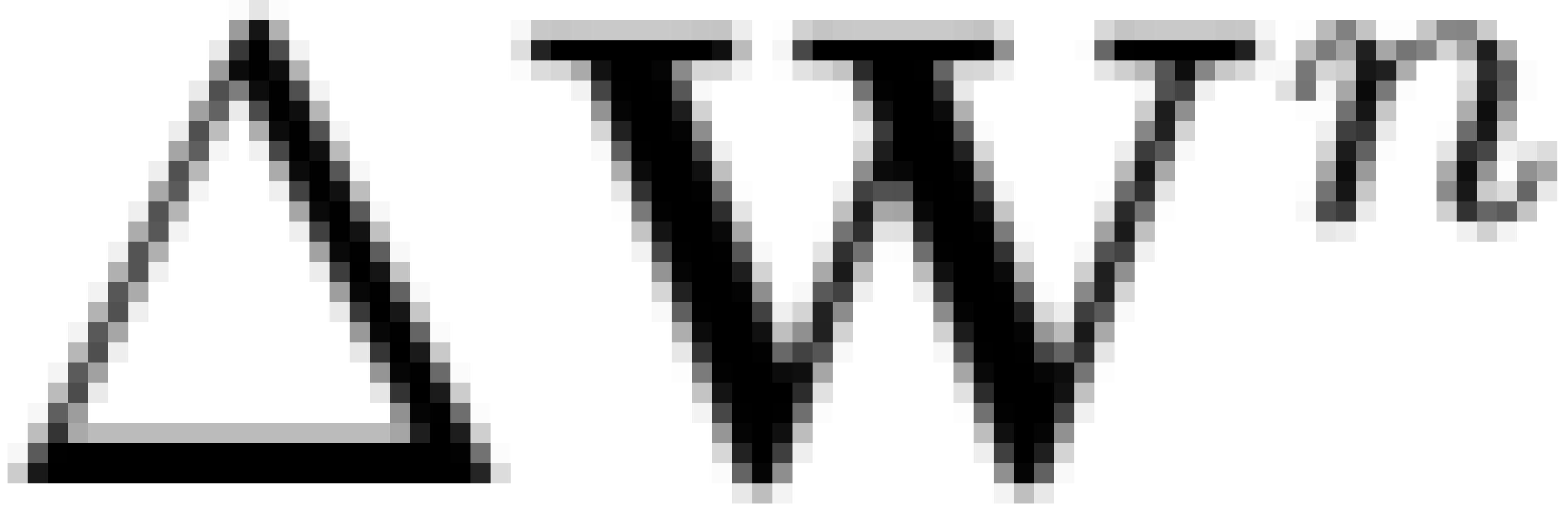


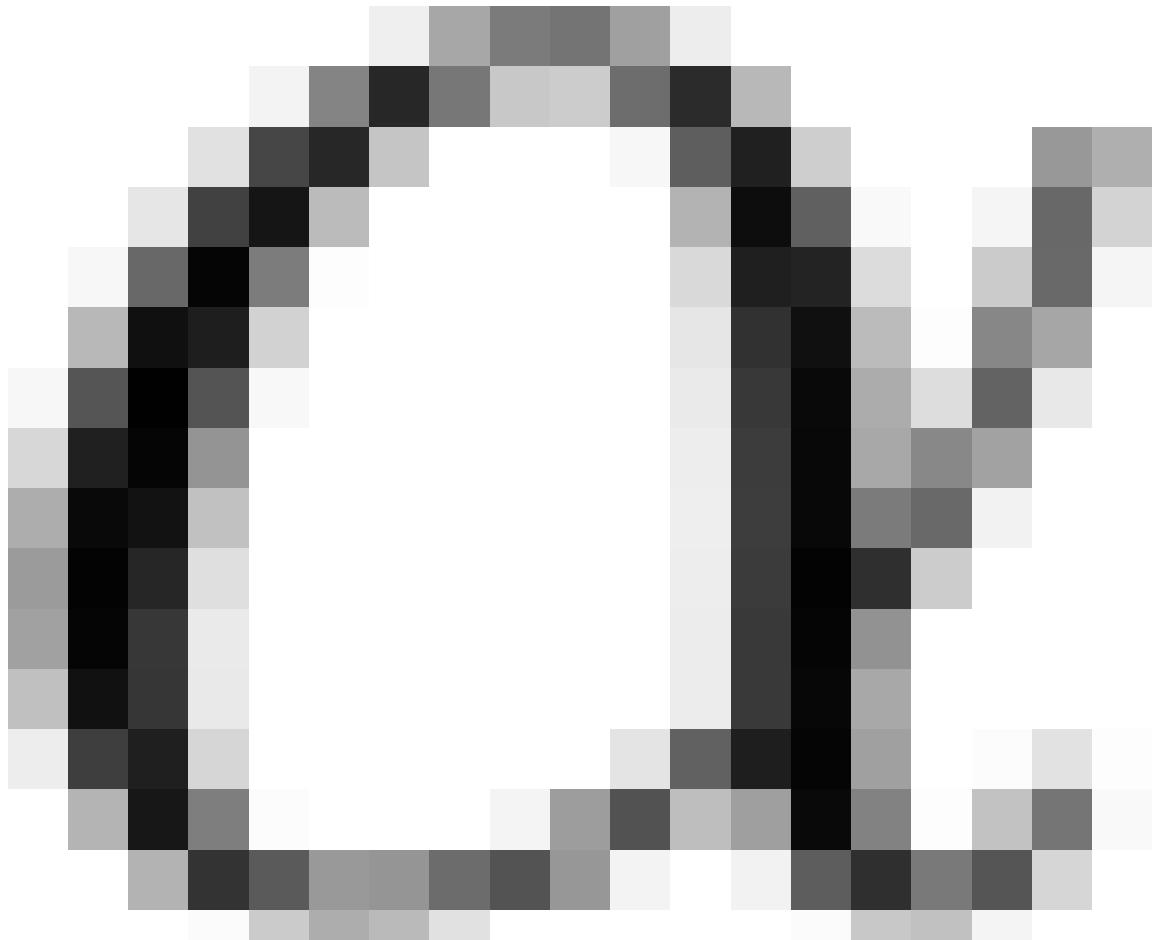
$$\Delta W_{ij} = \sum_{m,k} \alpha_k^m \rho_k^{m,n} G_{mk}^{m,n} \left(d_{ij}^{m,n}, N_1^{m,n} \right)$$



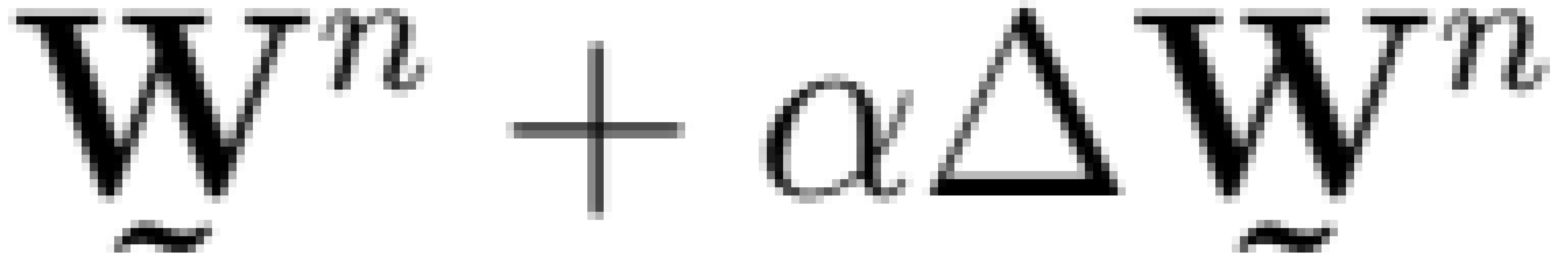




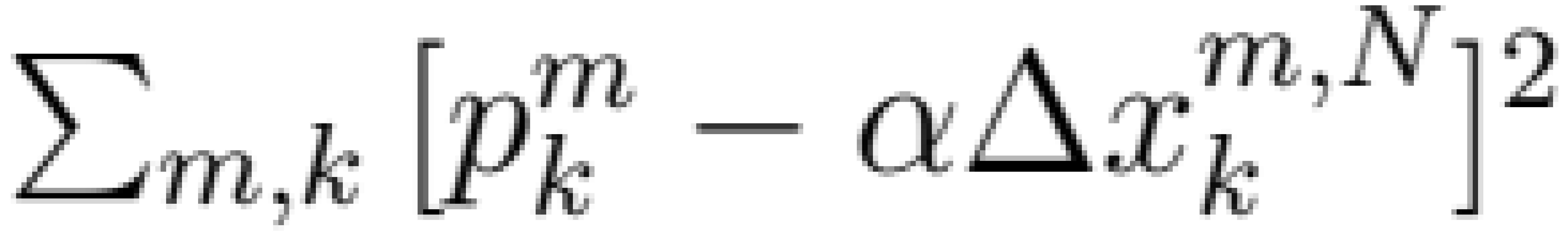




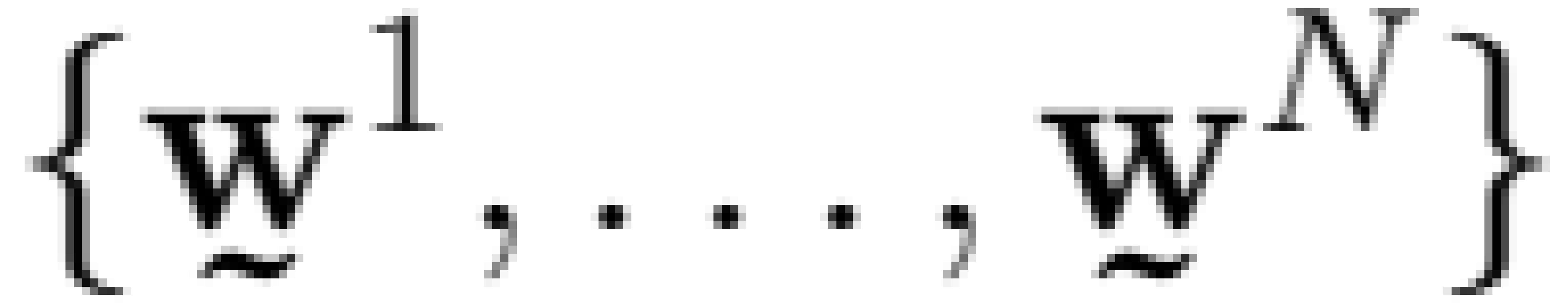
$$\sum_{m,k} \left[p_k^{m,N_1} - c_k^{m,N_1} \right]^2 + \alpha \Delta^d W^{N_1} \Delta^d W^{N_1}$$







$$\operatorname{tr}_m N = \sum_{k=0}^m \left(\sum_{j_1, j_2, \dots, j_m} C_{j_1} C_{j_2} \dots C_{j_m} \right) N^{j_1, j_2, \dots, j_m}$$



$$\sum_{m,k} \left[p_k^{m,N} - \frac{c_k^m}{c_k^n} G_{kij}^{m,n} u_{ij}^n \right]^2 d^m W^1_m$$

