$$\mathcal{P}_\Delta(\text{bin}_p(x)) = (\text{val}_p(x) < t_\Delta) \wedge \left(\sum_{i=0}^{\infty} w_i(\Delta) \cdot \phi(a_i) < C_\Delta\right)$$

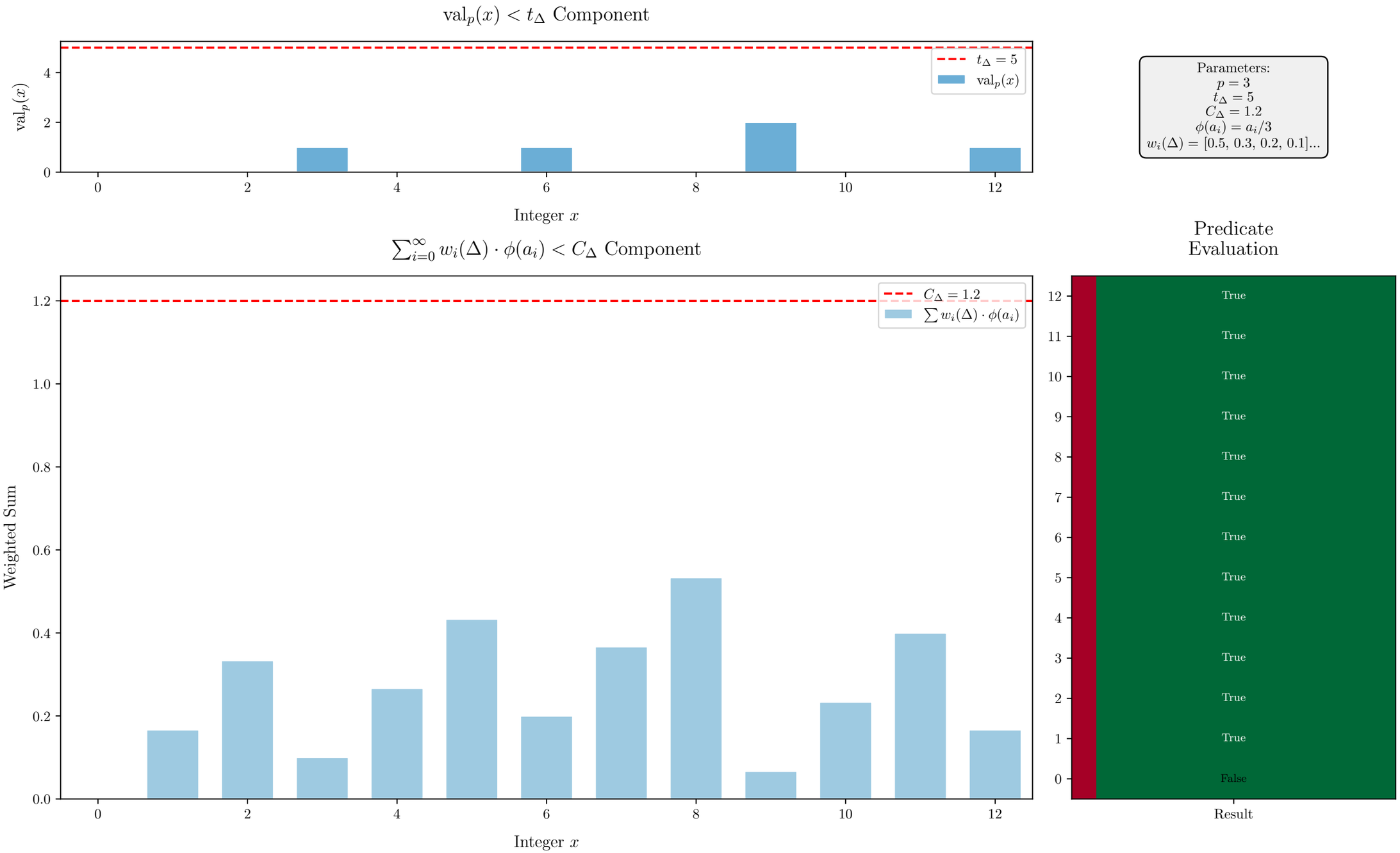

Figure: Visualization of the predicate evaluation for test ideal membership. The top panel shows the p-adic valuation compared to $t_\Delta = 5$. The bottom left panel shows the weighted sum of the transformed digits compared to $C_\Delta = 1.2$. The right panel shows the final evaluation result.