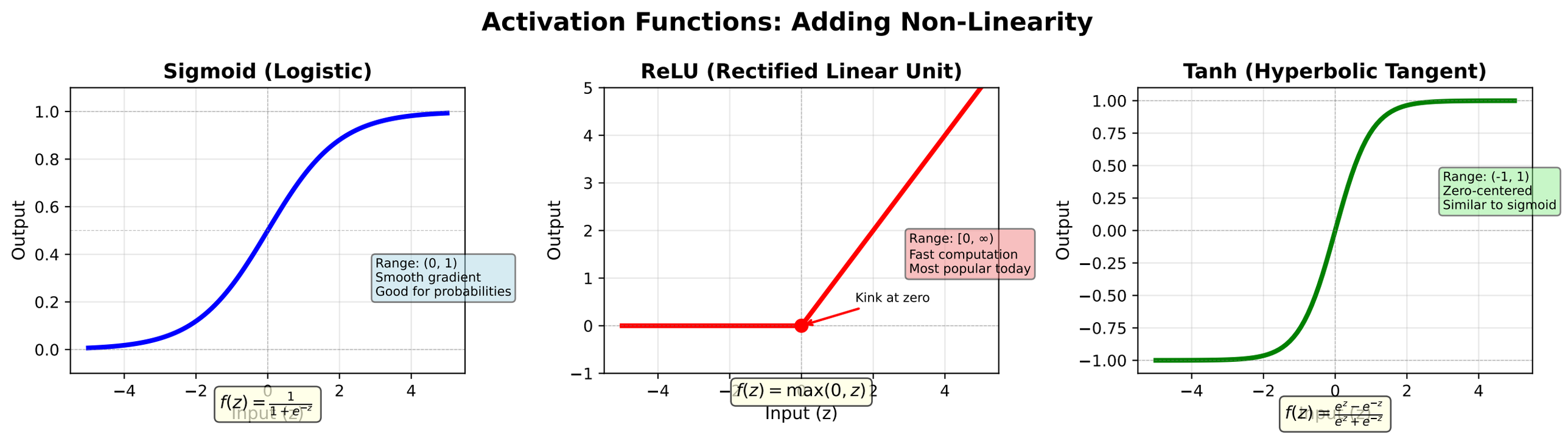
Activation Functions: Adding Non-Linearity
Sigmoid (Logistic)
Output
Input (z)
Range: (0, 1)
Smooth gradient
Good for probabilities
$f(z) = \frac{1}{1+e^{-z}}$
ReLU (Rectified Linear Unit)
Output
Input (z)
Range: [0, ∞)
Fast computation
Most popular today
Kink at zero
$f(z) = \max(0, z)$
Tanh (Hyperbolic Tangent)
Output
Input (z)
Range: (-1, 1)
Zero-centered
Similar to sigmoid
$f(z) = \frac{e^z - e^{-z}}{e^z + e^{-z}}$