MP Neuron Geometric Interpretation

1. In 2D: $ax_1 + bx_2 + d = 0$
   a. $x_2 = -(a/b)x_1 - (d/b)$
   b. $x_2 = mx_1 + c$
   c. Where $m = -a/b$
   d. $c = -d/b$
2. $\hat{y} = (\Sigma^n_{i=1}x_i >= b)$ in 2D can be rewritten as
   a. $x_1 + x_2 - b >= 0$ (decision boundary)
   b. Positive predictions(1) yield a value $>= 0$ and lie above the decision boundary
   c. Negative predictions(0) yield a value < 0 and lie below the decision boundary
3. This is a very restrictive model with respect to the freedom it has due to only one parameter
4. Some downsides to this model
   a. Boolean inputs and outputs
   b. The model is linear
   c. The model has a fixed slope
   d. The model has few possible intercepts(b's)