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CISC 684 Homework #2

1. If $w_0 + \Sigma w_i x_i > 0$ → positive classifier.
Otherwise, negative classifier.

If K variables in a function with n binary features are False, then the class is positive.
Otherwise, the class is negative.

This CAN be described by a linear threshold function.

$$w_0 = \frac{1}{n}(n-k-1)$$
$$w_j = -1/n \quad \text{(for all } j>0\text{)}$$

This will yield a positive classification when at least K values are false.

2. Maximize $\frac{c}{2}(w_1)^2$ for a large C.
For large parameters, the resulting curve is less smooth, or more vertical. For this case, maximizing for a large C would result in a line that is steeper than L_1.

L_2 - NO, because it is flatter than L_1
L_3 - YES, because it is steeper than L_1
L_4 - YES, because it is steeper than L_1