Impact of Class Imbalance on Loss Calculation

Examples	Predicted Probabilities	Loss
P_1: Normal	0.5	0.3
P_2: Normal	0.5	0.3
P_3: Normal	0.5	0.3
P_4: Mass	0.5	0.3
P_5: Normal	0.5	0.3
P_6: Normal	0.5	0.3
P_7: Mass	0.5	0.3
P_8: Normal	0.5	0.3

$L_{1,2,3,5,6,8} = -\log(1-0.5) = 0.3$ $\quad L_{4,7} = -\log(0.5) = 0.3$

Examples		Loss
P_1: Normal		0.3
P_2: Normal		0.3
P_3: Normal	Total loss from mass	0.3
P_4: Mass	$= 0.3 \times 2 = (0.6)$ → imbalance	0.3
P_5: Normal		0.3
P_6: Normal	Total loss from normal	0.3
P_7: Mass	$= 0.3 \times 6 = (0.18)$ → imbalance	0.3
P_8: Normal		0.3