CS-49: Game Theory

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Problem 2.

You are offered the chance to collect $\$x$ tax-free if the toss of a fair coin comes up "heads"; if it comes up tails you get nothing. Or, instead, you can have $\$y$ tax-free outright.

Consider the six cases $x \in \{10, 100, 1000, 10000, 100000, 1000000\}$.

In each case, what value of y would make it the toughest possible decision for you?

x	y	$\%$	Reason
10	100	1000	Low winnings, play for fun (unless offered more money outright).
100	100	100	Payoff is still low. Play for fun unless offered more money outright.
$1,000$	500	50	Higher potential win justifies taking bigger risk.
$10,000$	$1,000$	10	Higher potential win justifies taking bigger risk.
$100,000$	$50,000$	50	Higher potential win ustifies taking bigger risk.
$1,000,000$	$300,000$	30	Higher potential win justifies taking bigger risk.

TABLE 1. Potential Payoff vs. Outright Money.