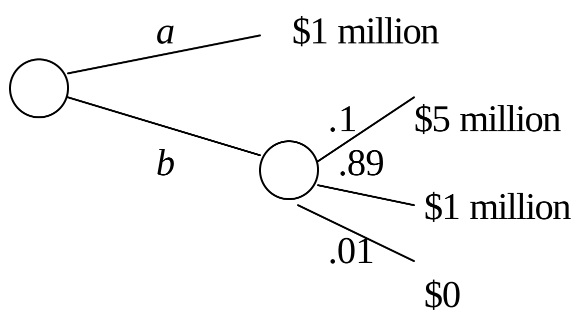
Allais Paradox

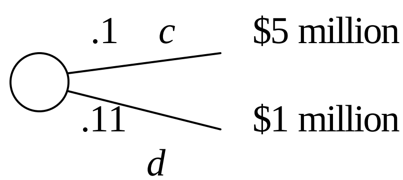
Situation A:

Choose between \$1 million for sure and a lottery: .1 for \$5 million, .89 for \$1 million, .01 for nothing.



Situation B:

In situation B, you choose between \$5 million with .1 probability, or \$1 million with .11 probability:



Problem:

Many people would choose *a* and *c*. Yet these preferences violate decision theory, since

$$u(a) - u(b) = u(\$1M) - .1u(\$5M) - .89u(\$1M) - .01u(\$0)$$
$$= .11u(\$1M) - .1u(\$5M) - .01u(\$0)$$

and

$$u(d) - u(c) = .11u(\$1M) + .89u(\$0) - .1u(\$5M) - .9u(\$0)$$
$$= .11u(\$1M) - .1u(\$5M) - .01u(\$0)$$

so you should either choose *a* and *d*, or *b* and *c*.

Ellsberg Paradox

- Urn contains 90 balls
- 30 yellow
- 60 are either blue or red
- The proportion p of red balls could be anywhere from 0 to 100%

A ball will be drawn and we will make a bet on its colour.

Situation A:

Bet yellow or red. Payoff $100 if right, $0 if wrong.

Situation B:

Bet (red or blue) or (yellow or blue). Payoff $100 if right, $0 if wrong.

Tables:

		Y	R	B
A	Bet yellow	$100	0	0
	Bet red	0	$100	0

		Y	R	B
B	Bet red or blue	0	$100	$100
	Bet yellow or blue	$100	0	$100

Problem: Many people bet "yellow" in situation A but "red or blue" in situation B. Yet these preferences violate decision theory.