

## Choices over lotteries

$$A \succ B$$

$$B \succeq A$$

$$A \approx B$$

## Expected Utility Theorem

Let  $w_i$  be possible wealth outcomes &  $f_i$  be their probabilities

There exists a function  $U(w_i)$  such that the lottery with the highest  $E(U(w))$  is preferred

Risk neutral: Highest  $E(w) = \sum_i f_i w_i$

We use it as an asset model

Independence: Suppose  $A \succ B$

A compound lottery

A w/ prob  $h$  & C w/ prob  $1-h$

B w/ prob  $h$  & C w/ prob  $1-h$