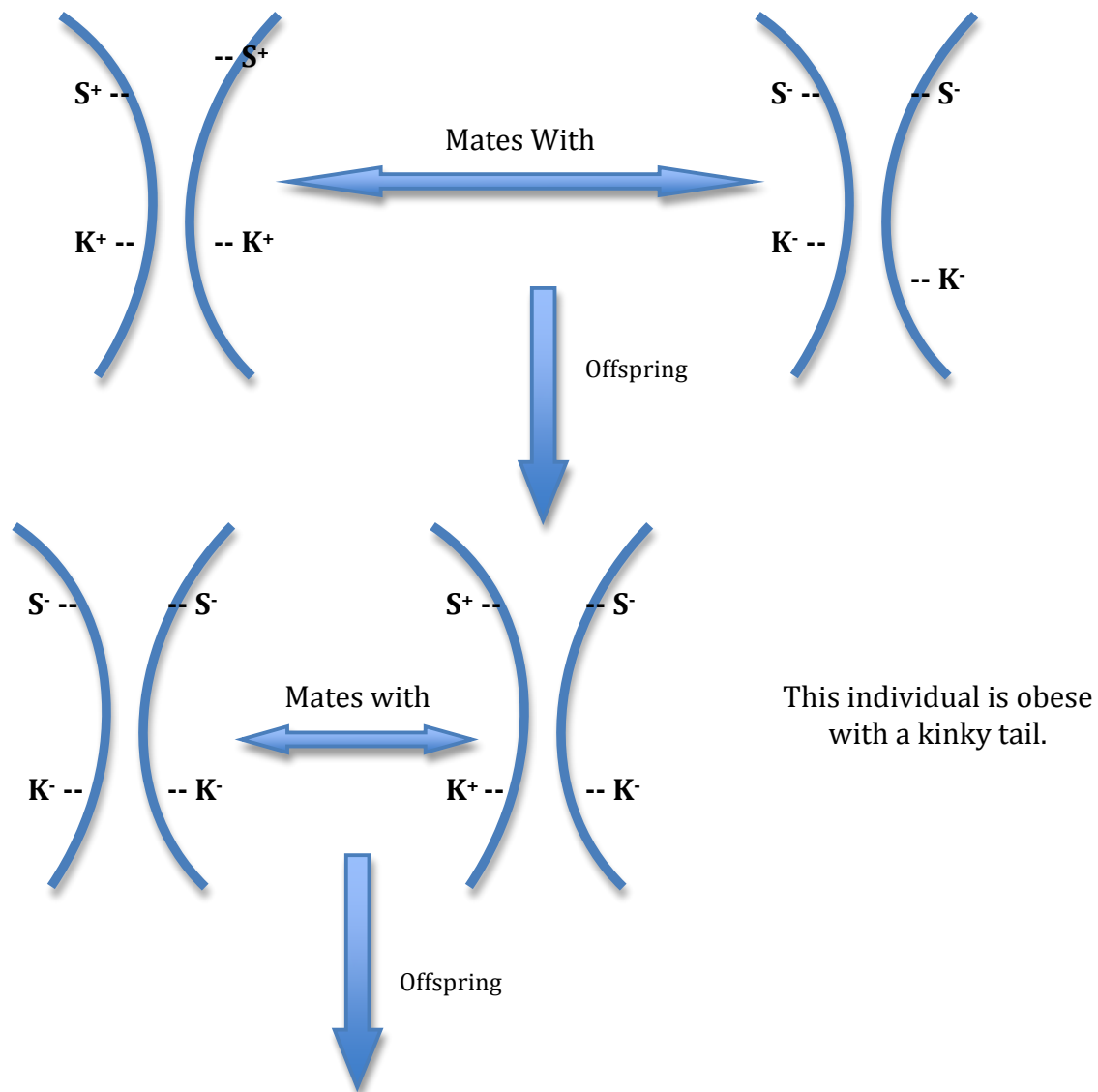


# Sumo Rat Genetics Problem

A researcher is working with a special breed of rat that is morbidly obese. This is caused by the Sumo gene which codes for an error in the Leptin receptor and prevents the animal from feeling satisfied when feeding. In other words, the rat will continue to eat as long as there is food available. The rats also have a distinct characteristic to their tails. They are either straight or kinky (having zig-zags). Two parents, both homozygous for each trait are mated to produce an offspring. These individuals are shown below with both loci and alleles. Their offspring mate with a rat homozygous recessive for both traits (Shown below).



For each trait, which allele is dominant?

Generate a punnet square to predict the possible offspring of this cross.

The actual test results of the scientist showed that 50% of the offspring from the cross were obese with kinky tails and 50% were lean with straight tails. Does this match your prediction? How do you explain this pattern of inheritance?