

Independent assortment

Based on what we know about meiosis...expect **random segregation** of chromosomes

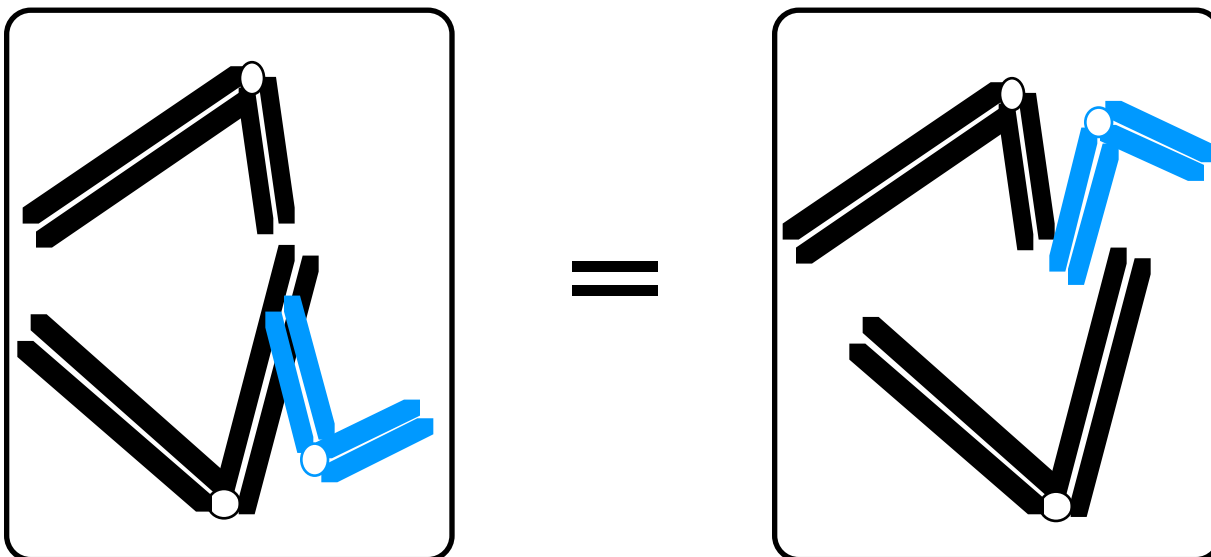
Evidence

Meiosis in grasshopper testes

- ◇ One heteromorphic chromosome pair; one unpaired chromosome



- ◇ As predicted for random segregation:



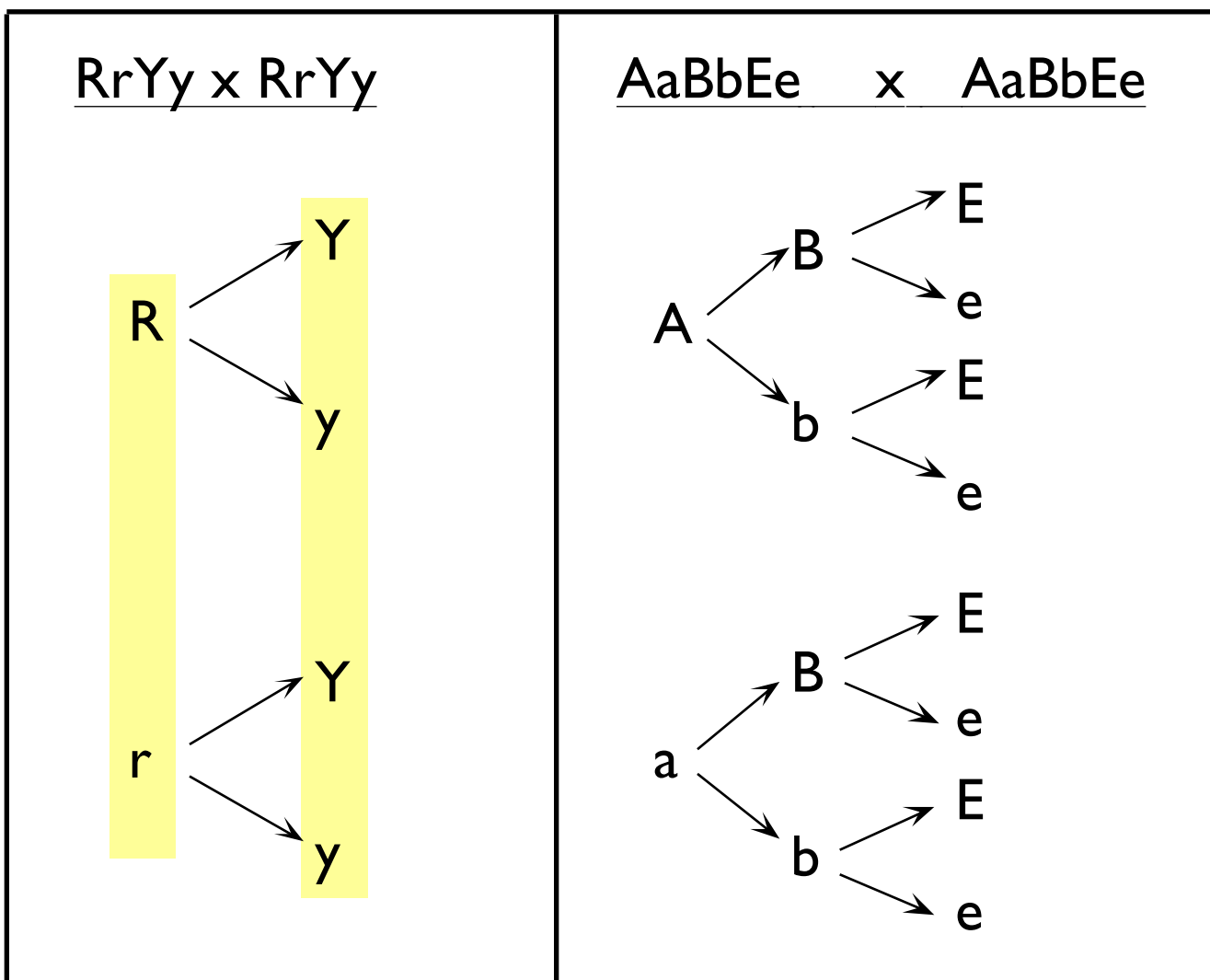
Therefore... expect that **segregation of determinants on different chromosomes** should be **independent of each other**

Mendel's experiments cont'd...



Segregation of alleles of one gene is independent of segregation at another gene — law of **independent assortment**

Branch diagrams – consider one phenotype at a time; overall ratio is product of individual ratios



Predicting the results of crosses...

For any multi-factor cross showing independent assortment –

- ◆ How many gamete classes?
- ◆ How many progeny phenotypes?
- ◆ How many progeny genotypes?

Need:

- ◆ to be able to predict genotype/ phenotypes ratios

- ◆ large sample sizes

- ◆ systematic way of evaluating whether the observed results are really different from the expected results