



Sex-linked inheritance

Genetics 371B Lecture 6

5 Oct. 1999

Sex determination

	 Female	 Male
Fruit fly		
Humans		
Birds		

Possibilities

Y ⇨ male

XX ⇨ female

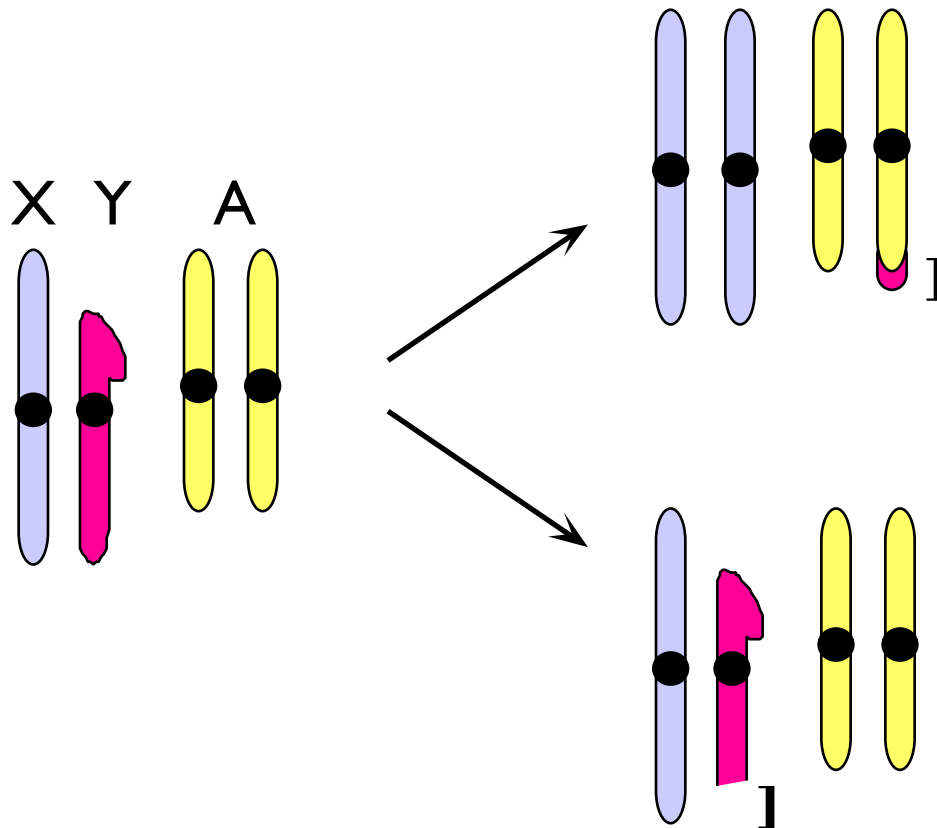
In humans, the **presence of a Y chromosome** makes a male:

Klinefelter syndrome: XXY

Turner syndrome: XO

How does the Y chromosome cause male-ness?

“TDF” (testis-determining factor) aka SRY gene on the Y chromosome...



- ◆ Analyzing pedigrees

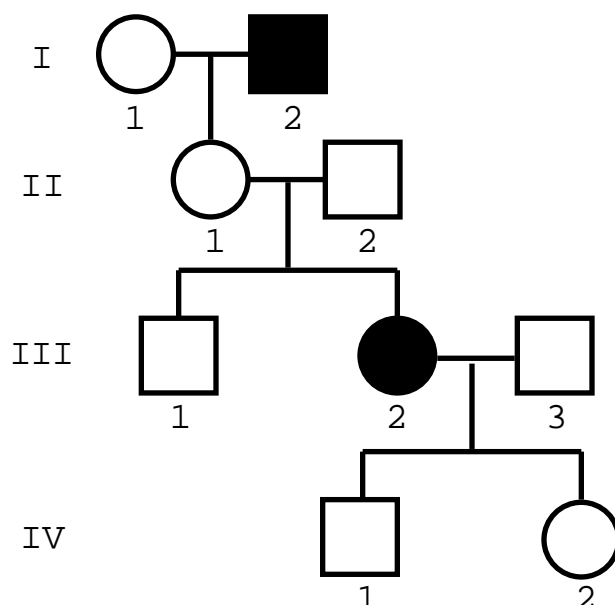
- ◇ The process

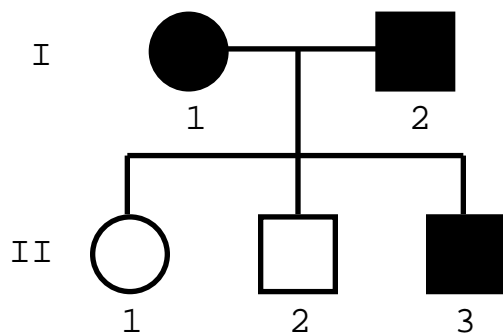
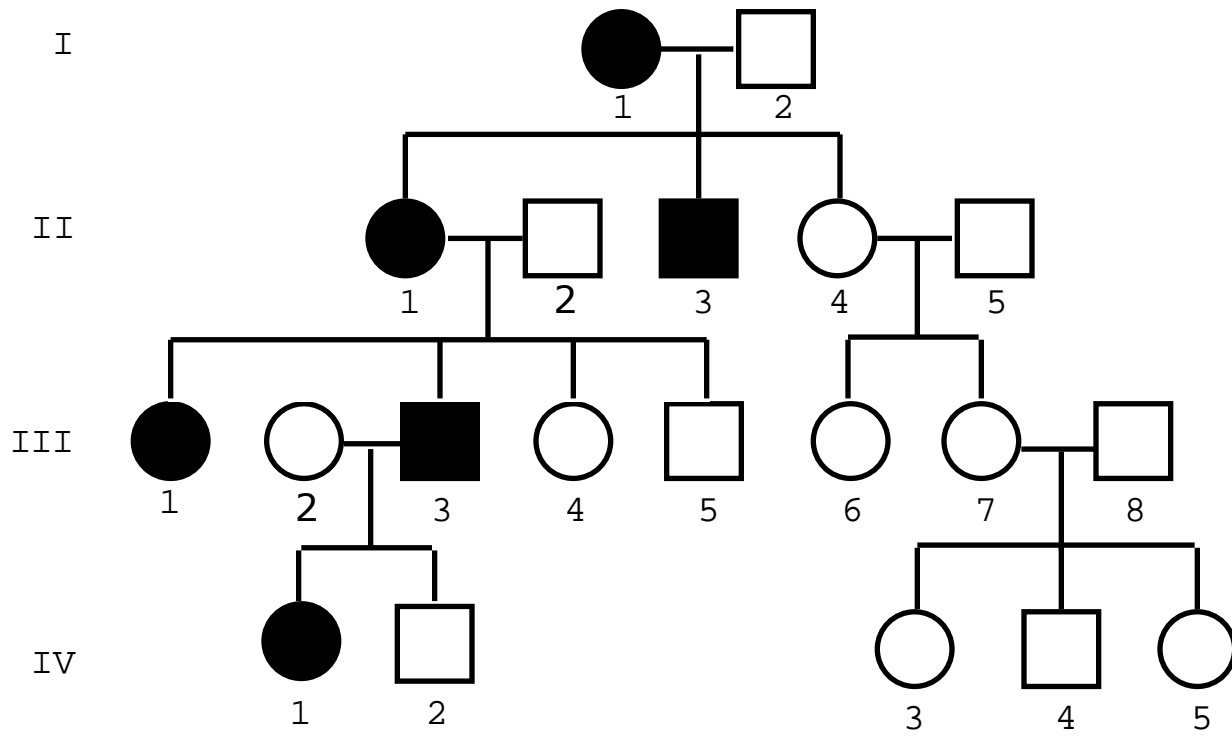
- ◇ An assumption:

- ◇ The result

- ◆ **Examples**

For each of the following pedigrees, can you decide whether the trait is dominant or recessive?



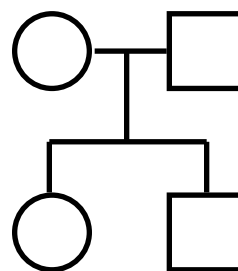
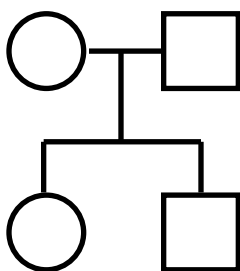
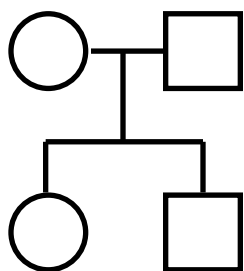


Is this a recessive trait?

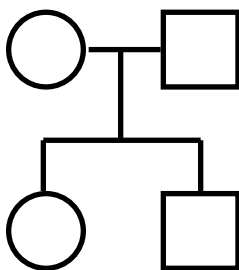
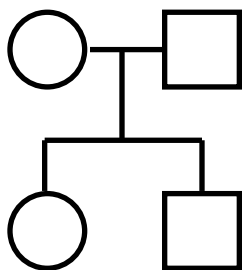
Sex-linked traits

- ◆ X-linked recessive

Consider these pedigrees (to be filled in)



- ◆ X-linked dominant



- ◆ What would you predict for a Y-linked trait?

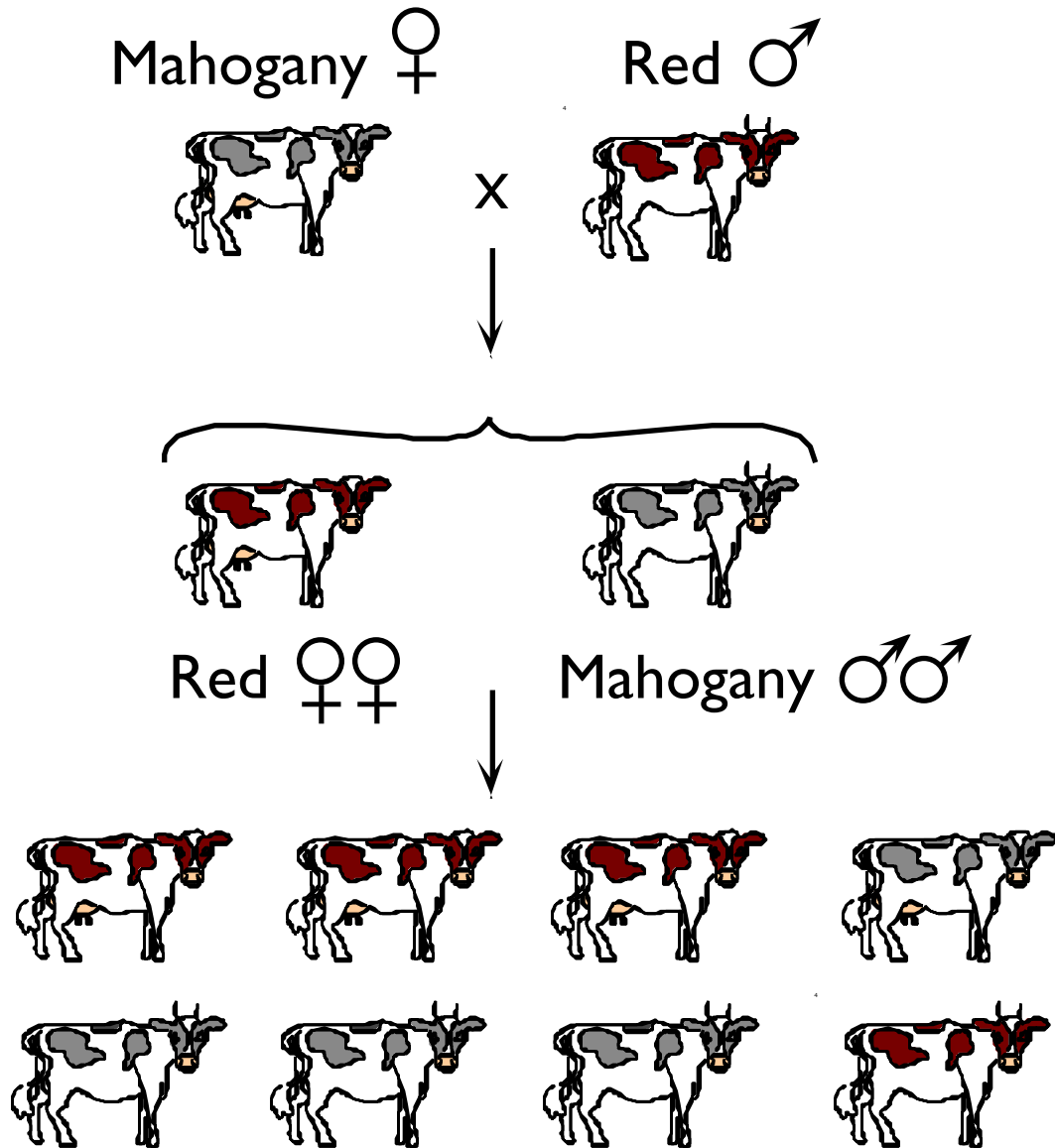
Sex-limited inheritance

e.g., hen-feathering in chicken



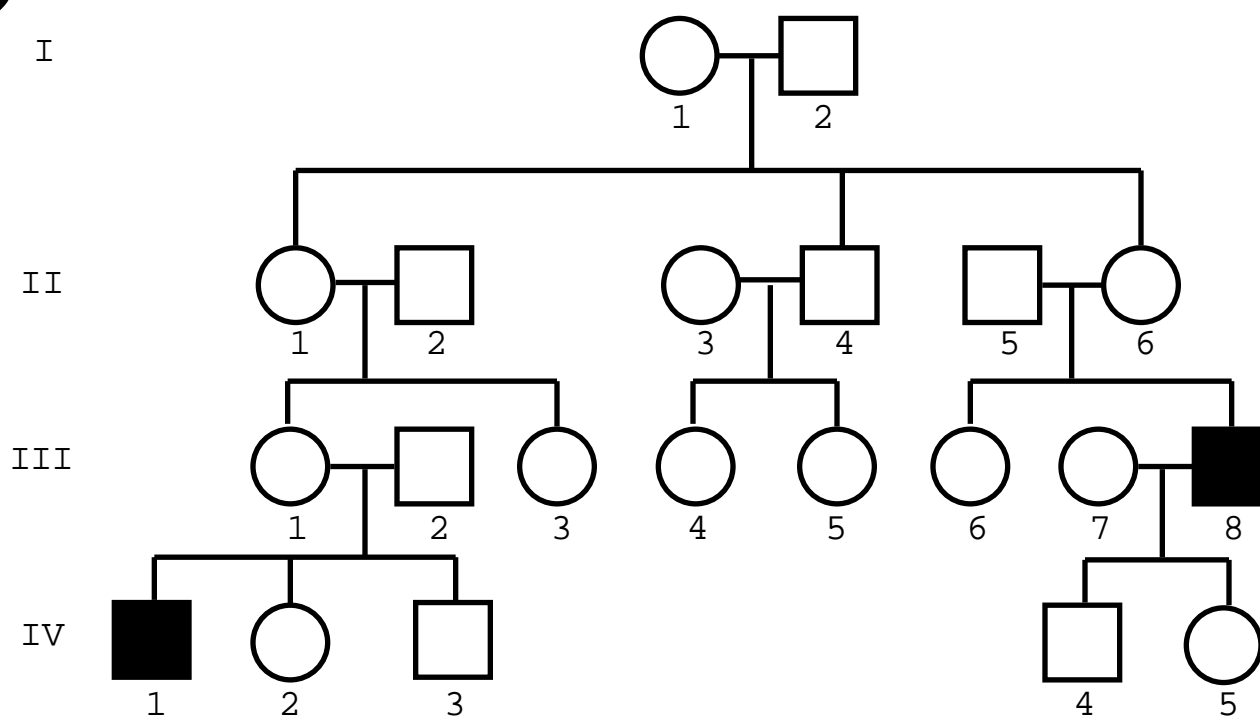
	Hen-feathered?	
Genotype	♀	♂
HH		
Hh		
hh		

Sex-influenced inheritance

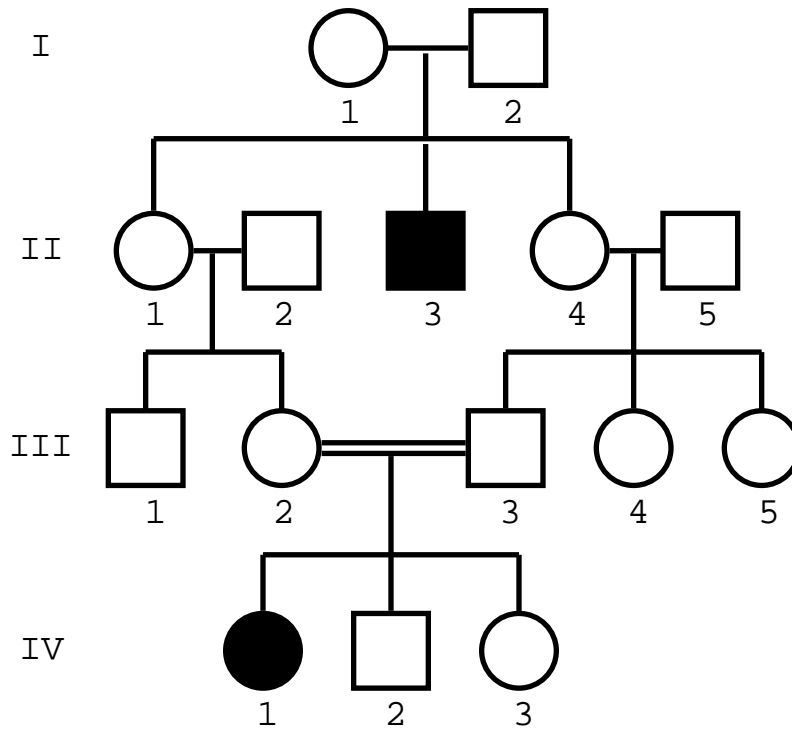


For each of the following pedigrees, which modes of inheritance can you eliminate, and why? (Assume complete expressivity and penetrance; also assume that the trait is rare and that unless indicated otherwise, there is no inbreeding.)

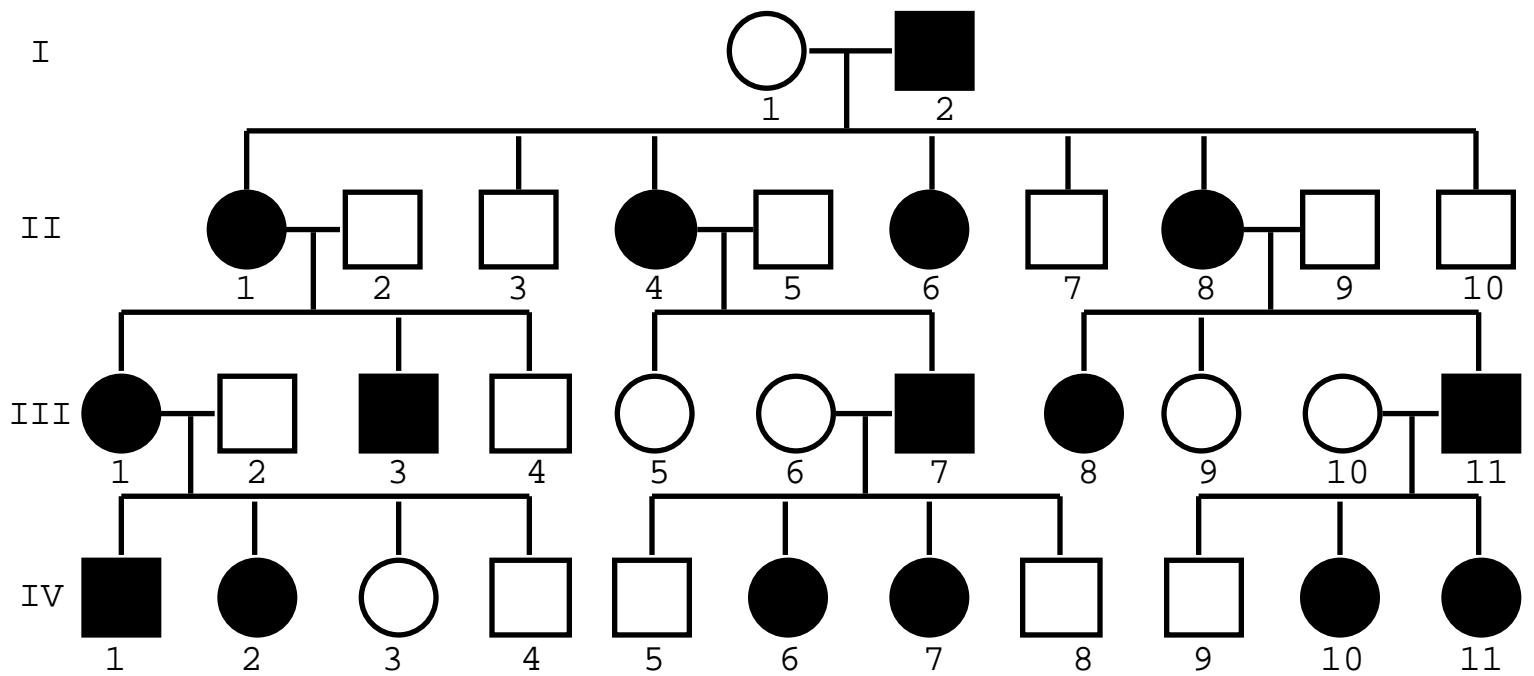
(A)



(B)



(C)



(D)

