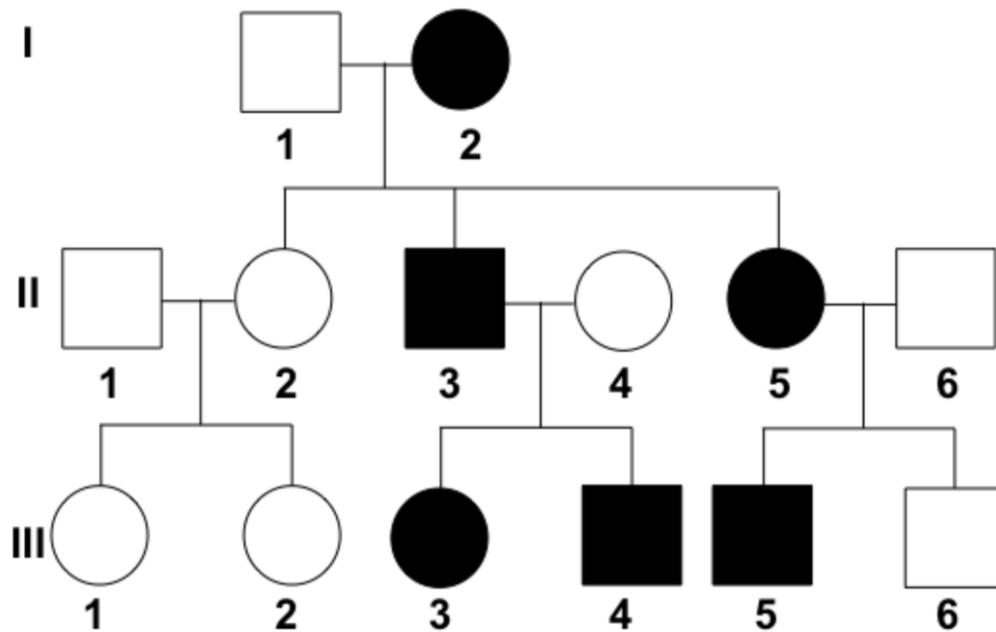


Group 2: Lauren Bartolome, Chanho Kwak, Marissa Morris, Yvonne Tagoe, Nashline
Cyrillien

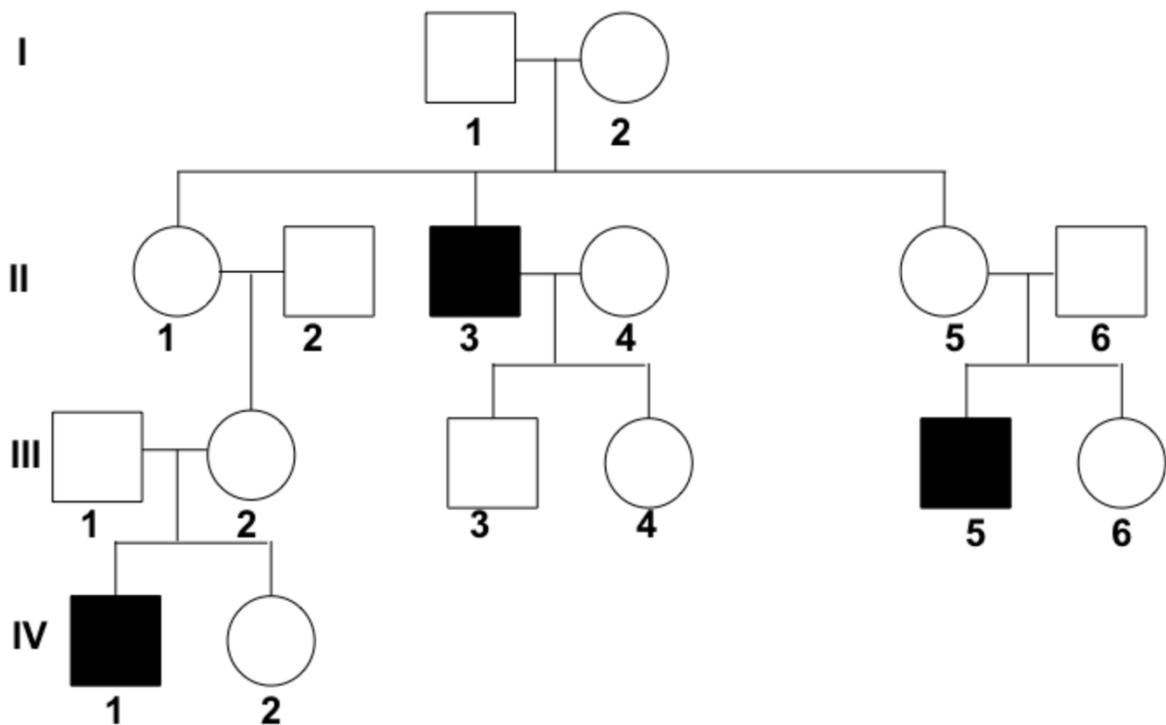
Indicate which of the following phenomena (A-H) is at work.

- A. Lethal alleles
 - B. Multiple alleles
 - C. Epistasis
 - D. Incomplete penetrance
 - E. Variable expressivity
 - F. Pleiotropy
 - G. A phenocopy
 - H. Genetic heterogeneity
 - I. Codominance
- a. A woman with severe neurofibromatosis type 1 has brown spots on her skin and several large tumors beneath her skin. A genetic test shows that her son has the disease-causing autosomal dominant allele, but he has no symptoms.
Answer: D Incomplete Penetrance
- b. A man and woman have six children. They also had two stillbirths - fetuses that stopped developing shortly before birth.
Answer: A Lethal Allele
- c. Mutations in a gene that encodes a muscle protein called titin cause 22 percent of cases of inherited dilated cardiomyopathy, a form of heart disease. Other single genes cause the other cases.
Answer: Variable expressivity
- d. A woman with dark brown skin uses a bleaching cream that darkens her finger tips and ears, making her look like she has the inherited disease alkaptonuria.
Answer: G Phenocopy
- e. In labrador retrievers, the B allele confers black coat color and the b allele brown coat color. The E gene controls the expression of the B gene. If a dog inherits the E allele, the coat is golden no matter what the B genotype is. A dog of genotype ee expresses the B phenotype.
Answer: C Epistasis
- f. Two parents are heterozygous for genes that cause albinism, but each gene specifies a different enzyme in the biochemical pathway for skin pigment synthesis. Their children thus do not face a 25 percent risk of having albinism.
Answer : H Genetic heterogeneity
- g. Cystic fibrosis Transmembrane Conductance Regulator (CFTR) gene is expressed in many different tissues.
Answer: F Pleiotropy
- h. An offspring of a chicken grows up to exhibit white and black feathers. The parents are black-feathered chicken and white-feathered chicken.
Answer: I Codominance



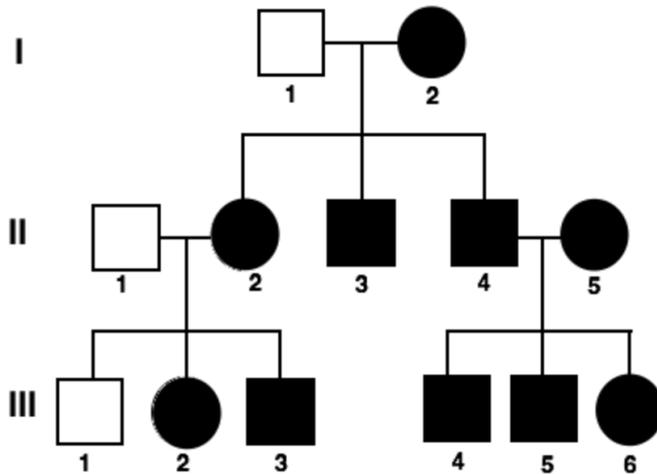
i.

1. Which inheritance patterns does the above pedigree show? **Ans :Autosomal Dominant**



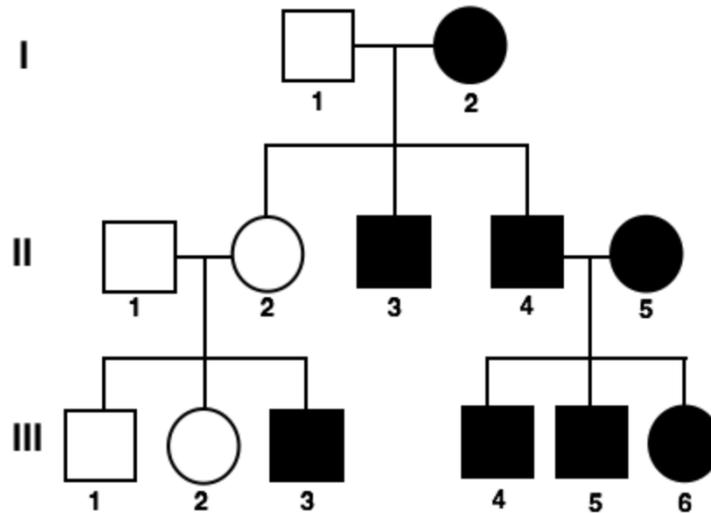
2. Which inheritance patterns does the above pedigree show? **Ans X-linked Recessive**

The pedigree below tracks the presence of dimples through a family's generation. Having dimples is an autosomal dominant trait.



3. Which of the following individuals is correctly matched with its genotype?
- A. II-3 → dd
 - B. II-2 → DD
 - C. III-2 → Dd
 - D. I-1 → Dd

The pedigree below tracks Duchenne Muscular Dystrophy (DMD) through several generations. DMD is an X-linked recessive trait.



If individuals I-1 and I-2 had another son, what is the chance that he would have DMD?

4.

- a. 0%
- b. 25%
- c. 50%
- d. 100%

- Since Individual I-2 is affected, she's able to pass on a recessive DMD allele to her sons. As a result, all of her sons will have DMD.