

Pedigree Analysis

Tracing the inheritance of traits, abnormalities, and diseases across human generations.

An analysis of traits in several generations of a family, represented as a family tree.

The Biological Constraint



Mendel's Pea Plants

- Controlled artificial crosses
- Large sampling size
- Short lifespans



Human Beings

- Uncontrolled mating
- Small progeny numbers
- Long lifespans spanning decades

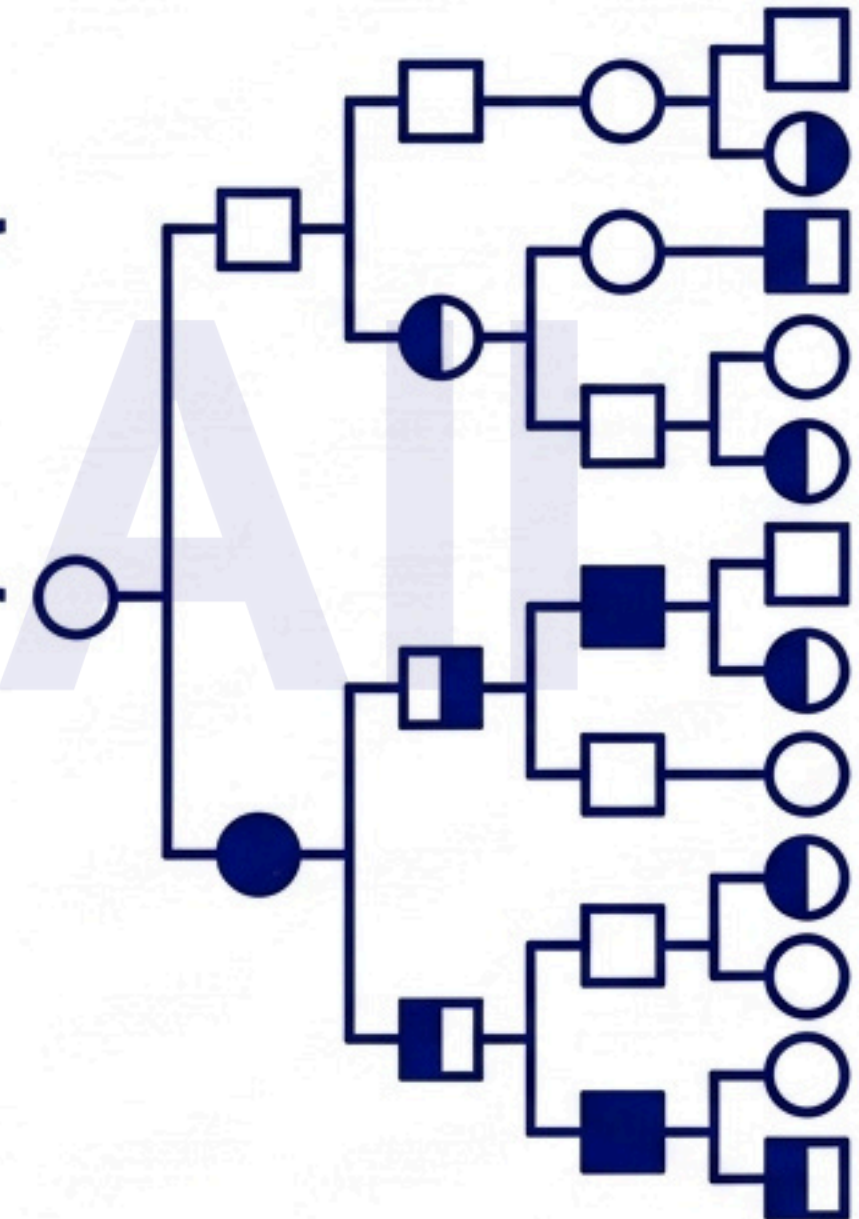
Constraint: Ethical and biological limits make statistical test crosses impossible in humans. We cannot breed humans to test for recessive genes.

The Family Tree Concept

Because controlled crosses are impossible, human genetics requires a retrospective approach. We study the family history to track how a specific trait has been inherited over time.

Past

Pedigree analysis turns family history into a predictive mathematical tool.





You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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Key Highlights

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- » Get Clear Explanations, Not Just Marks
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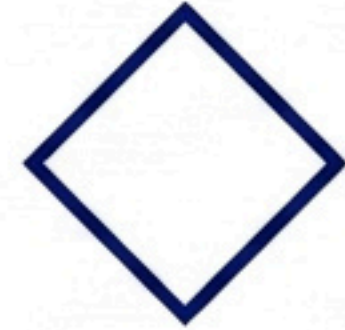
Recreating the Pedigree Alphabet



Male



Female



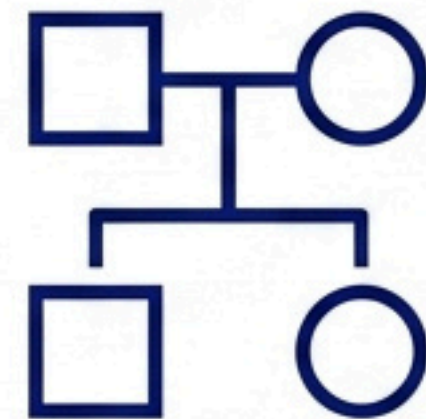
Sex Unspecified



Mating



Consanguineous
Mating



Offspring

Decoding Status: Affected vs. Unaffected

Affected Individuals



The trait, abnormality, or disease is actively expressed in the phenotype.

Unaffected Individuals



The trait is not expressed. They appear phenotypically normal.

Red Mistake Card

Warning:

Unaffected individuals can still be hidden carriers of recessive traits.

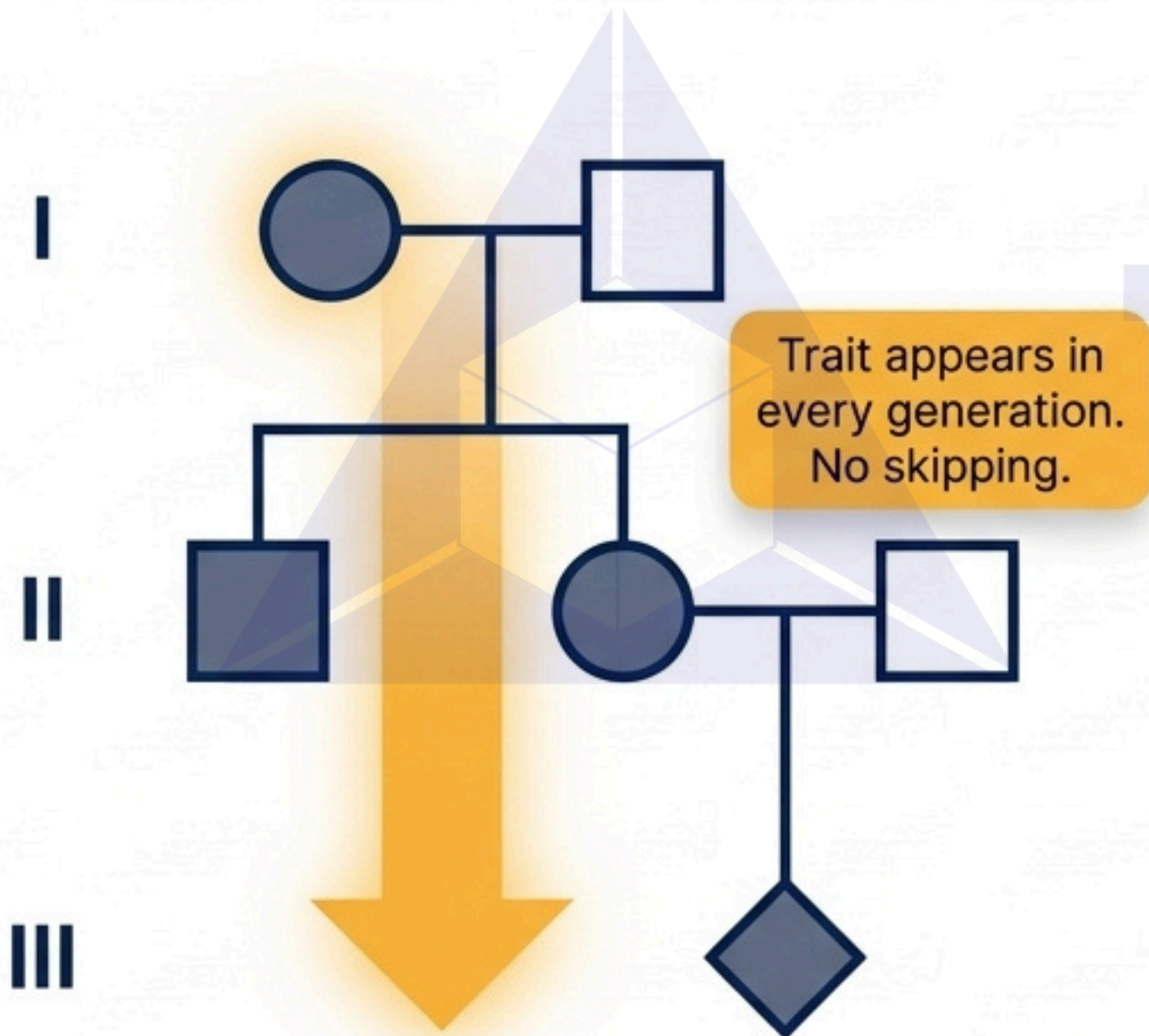
Amber Quick-Tip Card



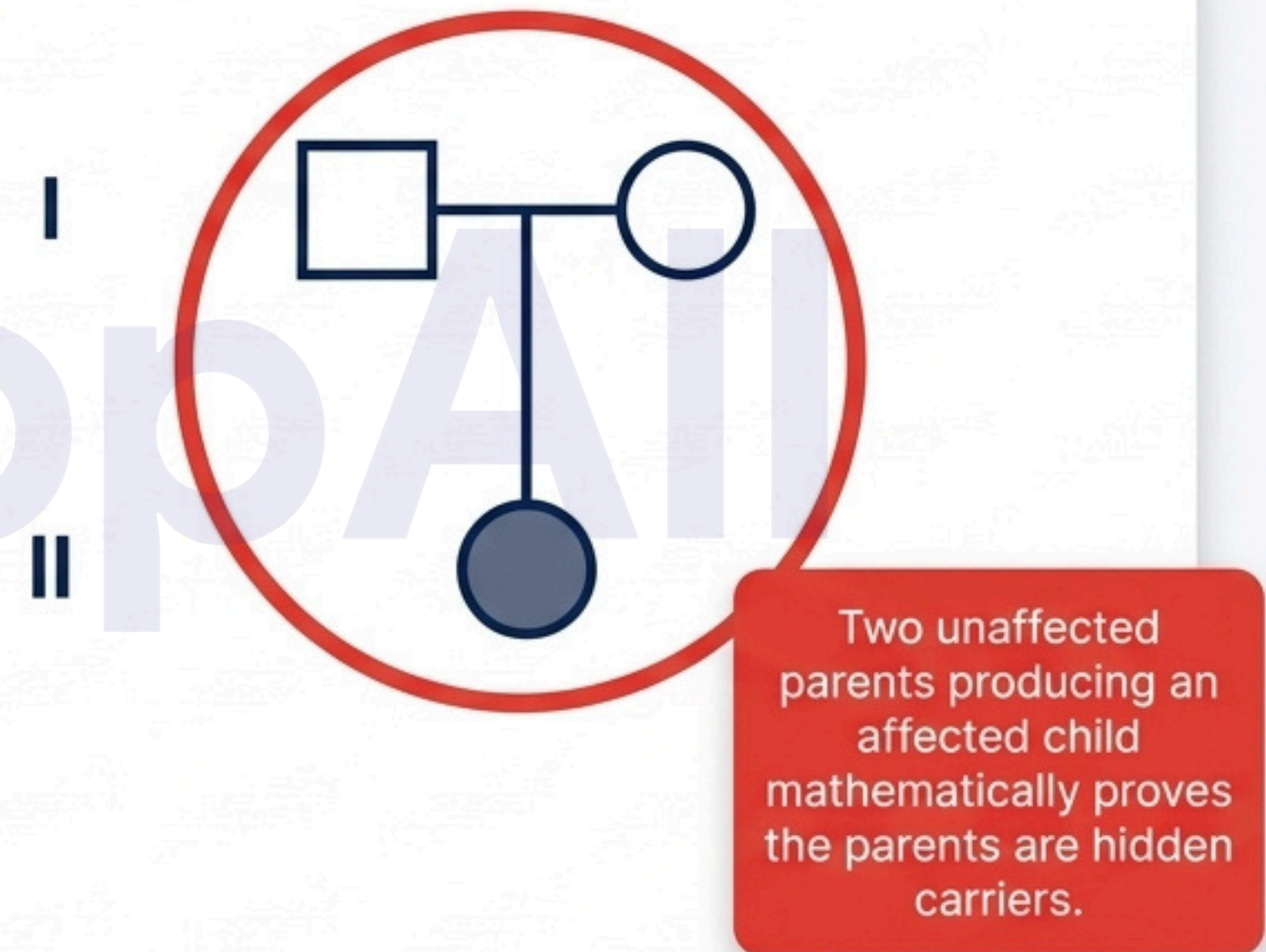
A heterozygous carrier shows no outward disease but has a 50% chance of passing the mutant allele.

Trait Tracking Across Generations

Example: Myotonic Dystrophy



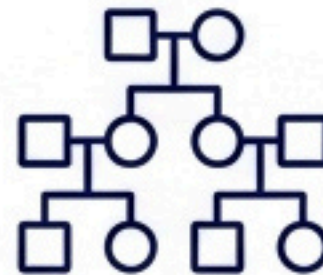
Example: Sickle-Cell Anaemia



Pedigree helps trace inheritance patterns in humans.



1. Acknowledge Constraints



2. Map the Symbols



3. Deduce the Genotype



You've Learned the Theory.

Now Let's Test It.

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Practice the moment you finish studying
Jump in while the concept is still fresh in your head

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