

Mystery at the Termond Estate

Count Ralph and his wife Marie, owners of the Termond Estate, were a considerably wealthy elderly couple. Ralph died suddenly, when he was struck by lightning in his metal rowboat while fishing in Termond Lake. His body was never recovered. All Count Ralph's children and grandchildren (who happen to be at the estate at the time for a Father's Day celebration), eagerly awaited the reading of Count Ralph's will, since they all knew that the will would provide each blood relative with an equal share of his estate wealth.

When the lawyer arrived, he noticed that a sum of money had been stolen from Count Ralph's safe. The sum missing was equal to one person's portion of the estate value. In addition, a small amount of fresh blood was found on the inside of the safe door, presumably belonging to the thief. As this news was being announced by the lawyer, the maid rushed into the room and revealed that she had walked into Count Ralph's study and observed the thief quickly slipping out of the patio doors. The thief wore a mask so she was unable to see his or her face, but she did catch a glimpse of the thief's arm and noticed it was freckled.

Police Detective Morse was called to the Termond Estate. Upon his arrival, he immediately ordered blood typing tests on everyone, and on the blood smear on the safe (found to be type A-). He also noted whether each person had freckles. After studying the data, Morse called all of the relatives together and announced that he had discovered the identity of the thief. One of the children or grandchildren was not really a blood relative, and the theft of the money was to ensure a share in the inheritance.

Morse's Data Table:

Name	Blood Type	Freckles	Parents/ Relationship
Ralph	?	No	N/A
Marie	AB-	No	N/A
Marcia	O-	No	Married to Peter
Peter	AB-	Yes	Ralph & Marie
Margaret	A+	No	Ralph & Marie
David	B+	No	Married to Margaret
Richard	AB-	No	Ralph & Marie
Olivia	A-	Yes	Married to Richard
Stephen	B+	No	Ralph & Marie
Janette	A-	No	Marcia & Peter
Brian	B-	Yes	Marcia & Peter
Ted	B-	No	Marcia & Peter
Mark	AB-	No	Margaret & David
Ellen	A-	Yes	Margaret & David
Mike	AB-	No	Richard & Olivia
Alan	A+	Yes	Richard & Olivia
Lorne	A-	No	Richard & Olivia
Maid	AB+	No	N/A

Questions:

1. Draw this family's pedigree to help you discover the guilty party.
2. Who was the thief? Explain how Morse was able to identify the thief.
3. What was the motive for stealing the money? (*i.e.*, who was not the blood relative)?
4. How are pedigrees used by genetic counselors?