

Murder Mystery (Eliminatory Logic)

There has just been a suspicious death, potentially a murder. Forensics experts are presently performing an autopsy on the body, but the lab results are not yet complete. We have many suspects, but these suspects might have time to flee the area before the lab results are available. It is up to you to determine from the available evidence if the death is a result of homicide. If so, you must determine the most likely murderer before you are charged. Here are the people involved:

The victim, **Ebenezer Tightwad III**. Mr. Tightwad was an extremely wealthy 88-year old man who owned the Tightwad Financial Banking Agency. Tightwad was reasonably healthy for his age, but with a cardiac condition. At all times he has at his side his digitalis medicine in case he has a heart attack. The digitalis could save his life.

The staff of the Tightwad estate includes:

His housekeeper, **Emma Cleancloth**. Cleancloth has been with Mr. Tightwad for 40 years. She is 70 years old, and growing slightly forgetful in her old age. Tightwad's will leaves her \$50,000. She commutes to work each morning.

His butler, **Cecil B. Snobsworth**. Snobsworth, a British immigrant, has been with Mr. Tightwad for 32 years. He commutes to work. Tightwad's will leaves him \$50,000.

His gardener/handyman, **Mack Greenthumb**, Greenthumb, hired in spite of his criminal record, has worked on the Tightwad estate for 10 years. Mr. Tightwad's will leaves Greenthumb \$10,000, provided that Greenthumb is still in his employ at the time of Tightwad's death. Greenthumb commutes to work each morning.

The Tightwad family includes:

Elaine, Tightwad's eldest daughter. She is married to Tom Tracey. She will inherit one-third of his multi-million dollar estate under his will. She appears quite distressed about her father's death.

Tom Tracey, Elaine's husband and Tightwad's son-in-law.

Frances Tightwad, the younger daughter of Tightwad. She will inherit one-third of his multi-million dollar estate under his will.

Theodore "Teddy" Tightwad, his son. Teddy will inherit one-third of his multi-million dollar estate under his will. He openly admits he is "glad the damn geezer finally kicked the bucket."

Finally, there is one last suspect: Tightwad's stockbroker, **F. Jackson DeMille**. DeMille has power of attorney in the Tightwad Financial Banking Agency and connections to pharmaceutical corporations. He has handled all of Tightwad's financial affairs for the past ten years. He is the executor of Tightwad's estate.

These are the facts the local police chief has determined:

All the suspects, except DeMille and Tom Tracey, benefit directly from Tightwad's will when the old man dies.

Tightwad has treated his housekeeper, his butler, and his gardener abominably over the years; he is rude and abusive, pays them irregularly, and has even at times changed his will to cut out their inheritances. He also has strained relations with his son Ted. On the other hand, Tightwad was overprotective and doting of his two daughters.

Tightwad recently suspected his gardener, Greenthumb, of falsifying receipts for repair and gardening supplies, plants, and flowers, extra labor, etc., and pocketing the difference from the cash Tightwad gives him. Yesterday morning, Tightwad gave Greenthumb two weeks notice after Greenthumb damaged the bedroom window latch while trying to clean the window.

Elaine's husband, Tom, has never held a job; the couple lives with Tightwad and on Elaine's large allowance from her father. Tightwad treats Tom abominably, calling him a sponging leech and fortune hunter unworthy of his daughter. Snobsworth overheard Tightwad give Tom an ultimatum in private: get a job or get out, or he will cut the couple's allowance. Tom has tried to hide this information from Elaine.

Frances was once in love with a handsome young photographer, Robert Hartman. Tightwad did not approve of the liaison, and arranged to have Hartman arrested on child pornography charges, crimes that Hartman did not commit. Frances' lover is still in prison. Frances never married and still lives with her father. She has just found out about her father's action two days ago.

Teddy has always wanted to be an artist. Tightwad disapproved and insisted that Ted become a banker, a profession that Ted despises. Ted still lives with Tightwad; he has a studio in the attic and paints as a hobby; his father sneers and scoffs. Ted resents his father's attitude and actions and still regrets his lost career.

DeMille, Tightwad's financial advisor, has had some real reversals in the stock market, putting all his money into Dragonball-Z toys just before the bottom fell out of the market. His personal finances are in ruins. He has also lost a great deal of Tightwad's fortune. He apparently dipped further into Tightwad's money to cover his own losses. Tightwad recently become suspicious and has been threatening to revoke DeMille's power of attorney, change his executor, and demand an accounting for every last cent.

Police have searched Tom's desk and discovered rejection letters from firms where he has applied for a job and banks where he has attempted to borrow money on the security of his wife's future inheritance.

When police searched Teddy's studio, they found a loaded gun with an illegal silencer hidden behind his art supplies. Teddy has no permit for it, but he admits the gun is his.

Mr. Tightwad customarily had a cup of cocoa late at night in bed. His daughter Frances always brought it to him at 10:00 pm. However, the night of the murder, Frances had gone to the symphony and had not been home to bring him the cocoa at the regular time.

These are the preliminary facts found by forensics evidence:

The housekeeper found Tightwad dead in his bed at 8:30 in the morning. No sign of struggle or physical violence remains.

The bedroom has two potential entrances—the bedroom door and a window leading out to the garden area. The coroner reports that Tightwad died between midnight and 3:00 AM.

Tightwad's door was locked from the inside. Only the housekeeper had an extra key to that room. No sign of forced entry remains.

Tom and Ted, who had been the last to say goodnight to him, saw him alive in his study at 10:00 PM the evening before.

Tightwad's digitalis pills were in the medicine cabinet in the adjoining bathroom. According to Snobsworth, Tightwad customarily kept it on his nightstand, within his reach. The bottle of digitalis was analyzed, and the lab discovered that approximately half the capsules had been altered; whoever tampered with them had replaced them with sugar pills that looked identical. A pharmaceutical company owned by one of DeMille's clients manufactures the pills.

There was a cup and saucer on the nightstand next to Tightwad's bed. The cup contained the dregs of hot cocoa. When the cocoa dregs were analyzed, the forensics squad found it to contain potent tranquilizers available from local drugstores. The medical experts say the original strength had to be enough to kill a horse, and it would certainly kill a person one hour or so after consumption.

No one admits to bringing Mr. Tightwad the cocoa. The cup of cocoa has been wiped clean of fingerprints.

Mack Greenthumb's fingerprints were on the window latch on the outside of the bedroom. Mrs. Cleancloth's fingerprints were on the digitalis bottle.

Mrs. Cleancloth's fingerprints were also found on the external bedroom doorknob; they were superimposed over Tom's and Tightwad's. Tightwad's fingerprints are all over the internal bedroom doorknob. Tom's fingerprints are on the phone and the chair in the study.

These are the preliminary facts found by the District Attorney:

None of the neighbors heard any loud noises, but the nearest ones live several hundred meters away from the estate, which might account for that silence.

It was Mrs. Cleancloth's responsibility to get the digitalis prescription refilled regularly and put one bottle in Tightwad's study and one in his room next to his bed.

Mrs. Cleancloth normally kept the extra key to the master bedroom hanging on a hook in the kitchen, where only the other staff (Greenthumb and Snobsworth) knew about it and could get it. However, she sometimes forgot and kept the key in her apron pocket when she went home each night.

Elaine states that Tom came to bed late the evening of the murder. She says she remembers awakening at about 2:30 in the morning when Tom climbed into bed. She says he was with her the remainder of the night. Tom confirms she was there.

Ted has recently dropped hints around the bank that he might quit and go to Paris to study art.

Tom claims he heard Frances having a terrible fight with her father before she left for the symphony, but he could not hear what the fight was about. She then rushed off to a Beethoven symphony in tears. The Beethoven symphony that Frances went to lasted from 9:00 to 12:30. No one remembers if Frances was there the entire time or not, or what time she left. Frances claims the fight she had with her father was not serious, and she did not arrive home until 2:00 AM because she drove around for a while after the symphony, then came home.

One of DeMille's best clients owns a drug pharmaceutical company.

Tightwad made a notation on his calendar in the study stating that he had an appointment with DeMille the evening before he died. There is also a note on Tightwad's desk, in his own handwriting, which is a reminder to call the District Attorney's office and the Securities and Exchange Commission the next morning.

Phone records show that someone called 1-900-HOT-BABE from the house at 11:45 PM. The call lasted until 2:21 AM. At first no one admitted making the call, but under pressure Tom states that he was the one on the phone during this interval, calling from the study and keeping a watch on his wife's bedroom door to make sure she didn't wake up and catch him. Elaine would have to pass by him to exit the bedroom.

Each night, the outside doors to the house were locked at 11:00 PM and the staff sent home. Then Tightwad would release his vicious guard-dogs onto the grounds. There is an electrified fence around the estate. No outsider had access to the area, and the untampered videotapes from security cameras outside the estate show that no outsiders were on the Tightwad estate. Only the listed suspects who were residents on the Tightwad estate would be in the mansion during the night of his death.

What are the inductive arguments you can make to find the cause of death and the killer? What deductive ones? What eliminatory ones? Who had means, motive, and opportunity?