

## The Gooms Effect II

You all know about how Professor Gooms lost a several thousand dollars to Professor Stark. A few days after that happened one of Professor Gooms' students came to him and said "I saw the whole thing, and I figured out how Professor Stark won all the money." He explained how the trick worked, and after arguing about it for several minutes, Professor Gooms finally agreed. He then decided that he would recoup his losses by playing the same trick on someone else. He took his hat and went down to the faculty lounge. As it happens, the faculty lounge has a good supply of matchboxes and different colored beans for playing different games. He chose three identical matchboxes and six beans, three red and three black. As before, he placed two red beans in one box, two black beans in another, and the remaining red and black bean into the third box. He then sat down to wait for a victim.

A short time later, Professor Gooms was pleased to see Professor Klug enter the lounge. He thought to himself, "Professor Klug is really dumb. He'll never catch on to this."

Professor Gooms sat down next to Professor Klug and suggested that they play the guessing game we described before, namely the three boxes are placed in Professor Gooms' hat and the two professors take turns guessing. On each turn the guesser closes his eyes, takes one box from the hat, takes out one bean from the box and closes the box. He then opens his eyes, looks at the bean and guesses the color of the other, unseen bean still in the box. If the guesser is correct he wins a dollar from the other guesser, if he is wrong he pays a dollar to the other guesser. After checking the correctness of his guess, the guesser replaces the bean and the box, so each guesser starts with three boxes and six beans.

Professor Klug thought about this for a while. Then he said "OK let's see. If I choose a box and get a red bean, then I have either the box with the two red beans or the box with the red and the black bean. Therefore the chance that the unseen bean is also red is 50-50."

"Exactly," said Professor Gooms, chuckling.

Astoundingly enough, Professor Gooms *again* began to lose heavily. Again, his total losses came to several thousand dollars. Professor Gooms became so infuriated that Professor Klug got scared and ran out of the room. Professor Gooms grabbed the three boxes out of his hat and threw them in the trash.

It just so happened that the cleaning lady was emptying the wastebaskets just then. She tapped Professor Gooms on the shoulder and pointed to Professor Klug's chair saying "What about that one, Professor? Do you want to throw that one away too?" There on Professor Klug's chair was another matchbox. Professor Gooms picked it up and opened it, finding two black beans.

It turns out that Professor Klug isn't as dumb as he seems, and is even more dishonest than Professor Stark. So, how was Professor Klug able to turn the tables on Professor Gooms?