

Exaggerations, Factorials and Combinations

By

Bill "The Book" Richardson

Why take prisoners?

Mr. Practical ripping into "The Book" as though he's a big piece of tuna:

Excerpt:

"His calculations are based on picking 2 numbers from 24, like the lotto!, which would not only assume to mate cocks to hens, but cocks to cocks and hens to hens. To simplify the 12 pairs calculation; if he only had 1 cock bird and 12 hens there would be 12 possibilities; with each additional cock another 12 until 12 of each enabled 144 possible combinations."

Well Mr. P, if you've been reading the papers you'll know that here in the States, we just passed some same-sex marriage laws to deal with this sort of problem. I happen to think these laws are going to work out really well for some fanciers as same-sex pairings will likely help them to reduce overcrowding their lofts.

The following article, "Comments on Pigeon Math," was printed in the Australian Racing Pigeon Journal by The Practical Man in reference to the article "Possibilities, Versatility, and Initial Breeding Concepts" by Bill "The Book" Richardson:

"Comments on Pigeon Math," by The Practical Man

"The P.M. would like to make a constructive criticism of the mathematics display by Bill Richardson on p.43 of the February '04 Journal. Guys, please take it in good faith. I know pigeon flyers can exaggerate, but for Bill and his mate Dave Shewmaker to go from 144 possible matings from 12 pairs to nearly half a billion, is stretching it a bit far. Initially he had a slight doubt, but by the time he got to p.77, "We now know that 12 pairs of pigeons presents nearly a half billion pairing possibilities." His calculations are based on picking 2 numbers from 24, like the lotto!, which would not only assume to mate cocks to hens, but cocks to cocks and hens to hens. To simplify the 12 pairs calculation; if he only had 1 cock bird and 12 hens there would be 12 possibilities; with each additional cock another 12 until 12 of each enabled 144 possible combinations. 100 pair would present 10,000 possibilities, whereas his 18 pair would present 324, for which he used 1500 copies to establish his matings – I hope he got it right. Mathematics is a exact science, although politicians can make logic lie and numbers disappear, like in the following example: - 3 guys had to purchase a present for their mates birthday, so all put in \$10 each and found the

perfect gift for \$30. But when they got to the checkout, the girl advised that it was on special for \$25 and asked how they would like their change. Now not wanting to divide \$5 into 3, they said, “give us \$1 each and you keep \$2 as a tip”. Having parted with \$10 each and receiving \$1 back they had effectively spent \$9 each – $3 \times \$9 = \27 plus the \$2 tip equals \$29. The question is, where did the other \$1 go?”

Humor Management

There are countless people out there, and some don't like my sense of humor, wit, or apparently my use of factorials. Therefore, I have developed a method of dealing with the less well-rounded individuals that don't want to spend time with me exploring the universe but, instead, want to cut right to the chase. If you do not like humor, my humor, or you are easily insulted, or possibly just late to catch a plane, skip to the section marked “Here is Dave's Answer.” For the five of you that are left, please feel free to read on.

Kissing the Blarney Stone

There I was sitting there contemplating exactly why hair had started to grow at the lower edge of my ear holes, when up popped an email from Richard Clingan, the editor of the Australian Racing Pigeon Journal. He was writing to inform me that one of his Aussie blokes was getting unruly and out of line. Right off, Richard informed me, “Not to start a fight or anything, but this guy called you an idiot in public, and he said you had big feet.” I answered, “Well, Richard, my wife says that and more every time we pass in the hallway of our house. What else do you got?” “Well again, not to start any trouble that my subscribers might enjoy, but he questioned how well you can count on your fingers.” “Well,” I said, “my wife questions that all the time as well. Just the other day, she held up one finger and said, ‘Count this.’ What else do you got?”

I have never met Richard, but by now I am sure he was frantic and thinking how these Americans are all on anti-depressants, and it takes an awful lot to get them worked up unless there is an oil field involved, so in a last ditch effort, he blurts out, “It isn't a factorial, it's a combination.” I have no idea what the heck he is talking about, but if someone is going around using factorials where they should be using combinations, well, them's fighting words in any country.

Then he says, “Not to cause trouble [I was starting to think I was at an Irish beer tavern], but I will send you a copy of this outrageous article and picture of its author sneering at you with those yellow teeth of his just so you know who you are dealing with.” (I added this last part to make it sound even more ominous and threatening). I said, “Pigeon fancier, ain't he? I know the type. Plaid shirt with a big white circle at about navel level, thick black-rimmed glasses, baggy pants. You've seen one, you've seen them all.”

Application of an Exact Science

This is the point where I was supposed to have a grueling, detailed explanation of combinations and factorials. However, my editor (and part-time lawyer) has advised me that I should show good judgment and use Dave Shewmaker's explanation. As she put it, I should stick to explaining things that are within my realm of understanding. (I am not sure how she meant that.) She is in a very tough mood today, saying things like, "Dave sounds much nicer than you." Who reads nice, I explained, and besides, nice to my editor means concise. What is the point in writing if I have to be nice or concise? Potentially, I suppose I could be concisely nice, but where would that get us? I reminded her that the guy did say I had big feet. Seems she could make an effort at remembering that.

Mr. Nice Meets Mr. Practical

As you may remember (or not), Mr. Practical questioned both me and Dave Shewmaker in his article, "Comments on Pigeon Math," referencing my article, "Possibilities, Versatility, and Initial Breeding Concepts." Now, I can see how Mr. Practical might get me confused with easy prey (my wife insists that there is nothing to confuse), as I am only a third as smart as less than half of the people. But Dave is a slightly different story and, in my case, being just smart enough to understand this, I tossed his name into my article as a precaution against someone like Mr. P coming along. For you military guys, having Dave on your side of any argument of this nature is sort of like killing ants with a howitzer. In fact, if you were to put our brains together and factor out my drag on the average, Dave would still be far smarter than most, and I would be better looking than some, but not by much.

Therefore, should you happen to see Dave's name, it is usually better to "ask questions" than to "question." Otherwise, he is likely to crush statements like "Mathematics is an exact science" into alphabet soup and spoon feed it to you in a "nice" way. Don't feel bad, though, Mr. P; I once asked him a question on genetics involving the Super Pair. I had to go out and get a second hard drive to store the answer, and because I felt guilty for asking, I now sleep very near the computer in hopes of absorbing his explanation through the process of osmosis before I die. (Vice versa is more likely.)

When any fancier starts spouting mathematical jargon, it is the duty of his readers to simply nod their heads knowingly. The minute I see Dave coming, I start nodding my head so furiously that he must think I have a neck condition. I just pray that he doesn't start explaining himself. Not that it really matters because I have no idea what he is saying anyway. I have long since decided that while Dave is available, there is little reason for me to expend energy learning difficult things, which is good because my wife insists that I have little ability to learn difficult things.

Dave wasn't feeling well today, so he was probably only writing some brilliant computer program and doing quantum physics with his left hand and typing this with his right while he was thinking of something really important. Next time I get the chance, however, I will write Dave and ask him what the probability is that Mr. P

would choose him out of all the people in the universe to question. I do have to hand it to you, though, Mr. P, you sure can pick 'em. Just one person's observation!

I am giving Mr. Practical a hard time here (no harm intended), but in reality, he has questioned something that is really of help to us all. First, it made me go figure out why again. Second, it made me give a more detailed description, and third it has brought even more attention to what I was trying to explain in the first place.

Here is Dave's Answer

"Book,

I read the individual's question and here is how I would respond:

Let's start the discussion by answering his riddle first. The answer to his riddle is in fact the key to the answer to his question about the half billion possibilities. The \$1 that appears to be missing appears as such because the wrong question is asked:

His riddle says, "\$27 plus the \$2 tip equals \$29. The question is, where did the other \$1 go?"

The answer is that they didn't spend \$27 plus \$2, they spent \$25 plus \$2 and that in fact does equal \$27.

In the case of your article, you asked the question, "If I have 12 hens and 12 cocks, how many unique ways could I pair them up?" Putting it a different way (but asking the same question), you could ask, "If I have 12 hens and 12 cocks and I want to pair them up for a single round of eggs, how many rounds will I have to go, to have paired them (ie. the group) in all combinations?"

You are correct when you say "nearly half a billion (rounds of eggs)". Specifically the answer is $12 \times 11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$ which equals 479,001,600 [mathematicians call this 12 factorial or 12!]. If you ask the question about 4 hens and 4 cocks, the answer is $4 \times 3 \times 2 \times 1$ which is 24. Using A, B, C and D to represent the four hens and 1, 2, 3 and 4 to represent the four cocks, this is how they would be uniquely paired for each of the 24 rounds:

A1, B2, C3, D4 = round 1
A1, B2, C4, D3 = round 2
A1, B3, C2, D4 = round 3
A1, B3, C4, D2 = round 4
A1, B4, C2, D3 = round 5
A1, B4, C3, D2 = round 6

A2, B1, C3, D4 = round 7
A2, B1, C4, D3 = round 8

A2, B3, C1, D4 = round 9
A2, B3, C4, D1 = round 10
A2, B4, C1, D3 = round 11
A2, B4, C3, D1 = round 12

A3, B2, C1, D4 = round 13
A3, B2, C4, D1 = round 14
A3, B1, C2, D4 = round 15
A3, B1, C4, D2 = round 16
A3, B4, C2, D1 = round 17
A3, B4, C1, D2 = round 18

A4, B2, C3, D1 = round 19
A4, B2, C1, D3 = round 20
A4, B3, C2, D1 = round 21
A4, B3, C1, D2 = round 22
A4, B1, C2, D3 = round 23
A4, B1, C3, D2 = round 24

When he says the answer is 4 squared (or 16), he is actually answering a different question - "If you have 4 hens and 4 cocks, how many different ways can they can be paired (and here is the key) when paired one hen and one cock at a time?"

A1, B1, C1, D1
A2, B2, C2, D2
A3, B3, C3, D3
A4, B4, C4, D4

You will notice in the answer to the first question that a specific pairing (such as A1) actually occurs multiple times.

Just like his riddle, it was a good question and it can cause a person to scratch his head. Book, the point you were making was that you can't live long enough to make all the possible pairings (or even 1% of the possibilities) and so even though there are no guaranteed algorithms in pairing up the breeders, planning your matings (and trying to learn from both your mistakes and your successes) is extremely important!"

Thank you, Dave! I guess that was the point I was trying to make; I really can't remember now. Another thing that can cause people to stop and scratch their heads is lice, but that is a topic for a different time.

Why does a pigeon fancier need to know these "rounds" (I call them groups), as opposed to just knowing the possible mating combinations. When you are planning your breeding, you should be looking at groups to determine the best possible matings. You could just put 12 cocks in one box and 12 hens in another, and start by picking the best cock and best hen to mate, and going on from there. But a good

breeder should look much more carefully at possible groups of mating. You need to make the best choices overall, not just the best choice for any given pigeon. To do this, you have to look at groups. No one with 12 cocks and 12 hens is going to write out half a billion groups, but you should be writing out quite a few, and, at the least, you should be aware of why groups are important.

Until next time!

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