

Counting Tricks: Two Mysteries to Try

ଗଣନାର ଯାଦୁ: ଦୁଇଟି ଖେଳ

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ସାରାଂଶ. ଏହି ଲେଖାରେ, ଆମେ ଗଣନା ଉପରେ ଆଧାରିତ ଦୁଇଟି କାର୍ଡ ଟ୍ରିକ୍ ଉପସ୍ଥାପନ କରୁଛୁ। ପ୍ରଥମଟିରେ, ଜଣେ ଦର୍ଶକ ଏକ ଆଇସକ୍ରିମ୍ ସ୍ବାଦ ବାଛନ୍ତି, ଏବଂ ଯାଦୁକର ବାରମ୍ବାର କାର୍ଡ ଡିଲ୍ କରନ୍ତି ଏବଂ ତା'ର ନାମ ଉଚ୍ଚାରଣ କରନ୍ତି। ଏପରି ତିନୋଟି "ସ୍କୁପ୍" ପରେ, ଯାଦୁକର ଆରମ୍ଭରେ ଗୁପ୍ତ ଭାବରେ ଉଲ୍ଲେଖ କରିଥିବା ଏକ କାର୍ଡ ଶୀର୍ଷକୁ ଉଠିଯାଏ। ଦ୍ୱିତୀୟ ଟ୍ରିକ୍ରେ, ଦର୍ଶକ କାର୍ଡ ଦୁଇଟି ପାଇଲ୍ରେ ବିଭକ୍ତ ହୋଇଥାଏ, ଏବଂ ଦର୍ଶକ ମୁକ୍ତ ଭାବରେ ନିର୍ଦ୍ଧାରିତ ସଂଖ୍ୟକ ସ୍ବାପ୍ରେ ଉପର କାର୍ଡଗୁଡ଼ିକୁ ତଳକୁ ଘୁଞ୍ଚାନ୍ତି। ଏହି ପସନ୍ଦ ସତ୍ତ୍ୱେ, ଦୁଇଟି ପାଇଲ୍ରେ ଉପର କାର୍ଡଗୁଡ଼ିକ ବାରମ୍ବାର ମେଳ ଖାଉଥିବା ଯୋଗେ ଭାବରେ ବାହାରକୁ ଆସେ। ଆପଣ କ'ଣ ଜାଣିପାରୁଛନ୍ତି ଯେ ଏହି ଟ୍ରିକ୍ଗୁଡ଼ିକ କ'ଣ ଚଳାଉଛନ୍ତି?

For the tricks in this issue, you get to make your audience feel like *they* are the magicians. Tell them to manipulate the cards --- in the first trick a cool prediction works out, and in the second one, a neat patterns emerges.

The Three-Scoop Miracle

Aalaya the magician hands a small packet of cards to a spectator and asks them to shuffle it thoroughly. The packet should be about a quarter of the deck; a packet of twelve to fifteen cards is a comfortable size for this effect. Now she asks the spectator:

What is your favourite flavor of ice-cream?

Suppose the spectator says *chocolate*. Aalaya spells the word aloud, dealing one card from the top of the packet to the table for each letter: C-H-O-C-O-L-A-T-E.

The dealt cards form the first "scoop" of ice cream. She picks up that little dealt pile and drops the rest of the packet on top as the "topping." She repeats the same action twice more. Each time, she spells the same flavour, deals one card for each letter, picks up the dealt cards as a scoop, and places the rest on top.

After three scoops, Aalaya turns to the spectator and says:

You did all the shuffling and all the counting. Would you like to finish the magic too by turning the top card into the King of Hearts?

The spectator turns over the top card, and it turns out to be the King of Hearts.

Problem 1

Perform this trick yourself, but before you deal the cards out for the first time, take note of the card at the bottom of the deck. What do you observe?

Problem 2

Try this with the flavours *vanilla*, *chocolate*, and *strawberry*. What do you notice about the relationship between the length of the word and the size of the packet? Why might three scoops be the magic number?

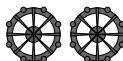
The Partner-Pair Miracle

For the second trick, Aalaya needs a set of ten cards that can be paired up into five pairs naturally, for example:

A♣, 2♣, 3♣, 4♣, 5♣, A♦, 2♦, 3♦, 4♦, 5♦.

Aalaya places the ten-card packet face down. A spectator cuts the packet as many times as they like. Once they are satisfied, Aalaya takes the top five cards and deals them one at a time into a face-down pile. The remaining five cards form a second pile, also face-down.

The spectator now controls the action. Aalaya explains that a *swap* means taking the top card of either pile and moving it to the bottom of that same pile.



At the beginning, with five cards in each pile, the spectator makes four swaps in total. They may put all four swaps on the left pile, all four on the right pile, or split them in any way they like. For example, they may do two swaps on the left and two on the right, or one on the left and three on the right. Aalaya does not decide the split.

After the four swaps are done (in any way that the spectator chose to do them), Aalaya removes the top card of each pile and sets them aside as a pair.

Now there are four cards left in each pile. The spectator makes three swaps in total, again split however they like. Aalaya removes the top card of each pile and sets them aside again.

Then, with three cards remaining, the spectator makes two swaps in total. The next top cards are again set aside. Next, with two cards remaining, the spectator makes one swap: either in the left pile or the right. The next top cards are set aside once more. Finally, each pile has one card left: pair these up as well.

Now, after all this swapping and pairing, we have the ten cards divided into five face-down pairs. It's time for the big reveal: turn over the cards in each pair. They will all turn out to match, every single time!

The striking feature is that the spectator seems to have a choice at every stage. They choose the cuts at the beginning, and then they choose how the swaps are split between the two piles. Yet every pair still appears exactly when it should.

Problem 3

This is a self-working trick with a guaranteed outcome, no matter what the spectator does, although it does require the cards to be in a specific initial order. Can you figure out what that order should be? Can you generalize this to N cards?

Please feel free to email your ideas to the author at the email below. The next article in this series will unpack the mechanism behind these two effects and show how to build new counting tricks from the same ideas.

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