

CURIOUS SPELLER

BY MARTIN GARDNER

Here is an amazing coincidence with cards that was discovered by Colm Mulcahy, an Associate Professor of Mathematics at Spelman College in Atlanta, Georgia. It is a great trick to teach a child. He or she can learn it quickly, yet still be mystified when performing it for a friend.

Start by placing six cards with values Ace through Six, the suits are irrelevant, face up on the table in the form of a pyramid (Photo 1).

Assemble the cards by picking them up along the diagonals shown by the arrows. The Six goes on the Three, then both cards go on the Ace. Those three cards now go on the Five, then on the Two, and finally on the Four.

Turn the packet face down. The order of the cards from the top should be Four - Two - Five - Ace - Three - Six. Believe it or not, the cards are now set for spelling each card in order, from Ace through Six.

Spell A - C - E, moving one card for each letter from the top of the packet to the bottom, then turn over the next card. It will be the Ace. Place it aside. Spell T - W - O in the same manner and turn over the next card to

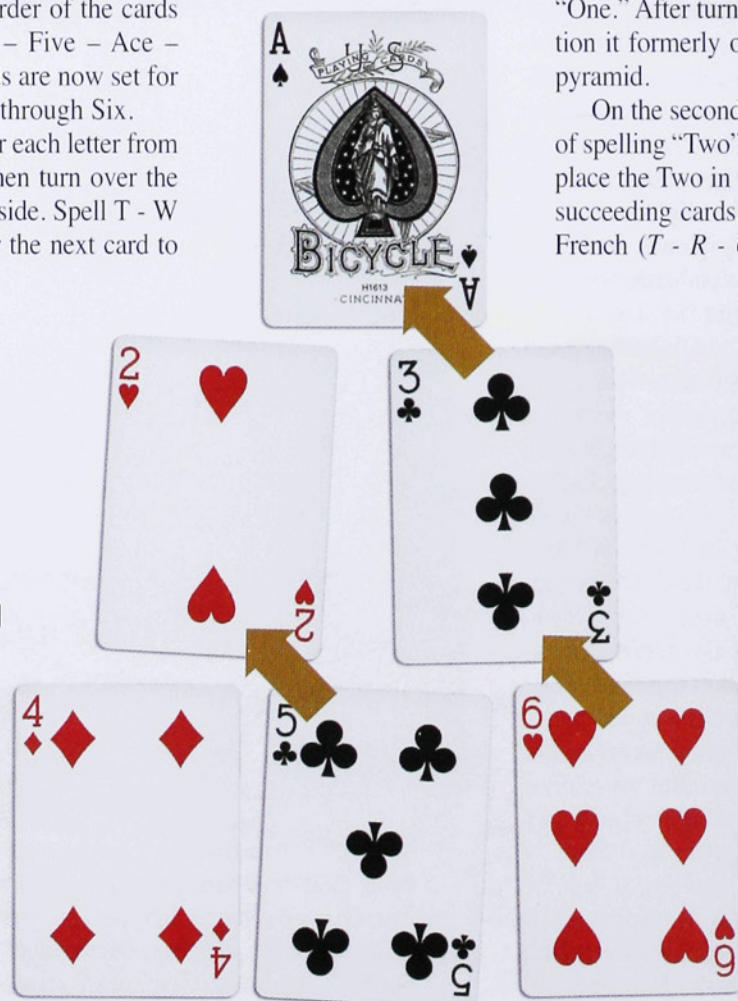
reveal the Two. Continue with the Three, Four and Five. Move the face-down Six from hand to hand as you spell S-I-X.

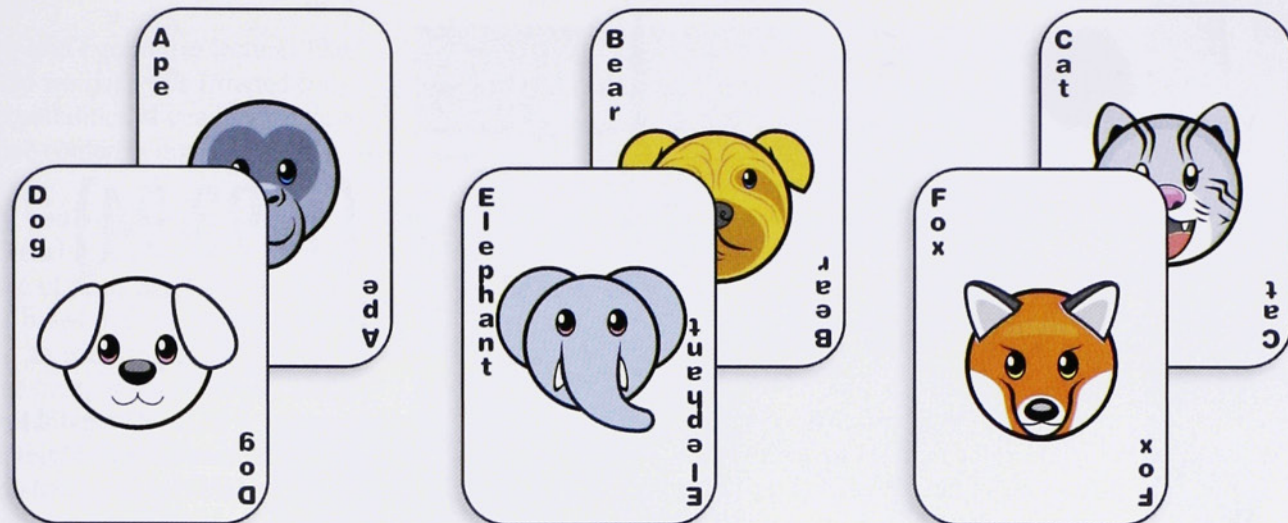
Richard Hatch suggests the following presentation: Talk about the Tower of Babel and the associated creation of languages, then suggest that had the ancients constructed a pyramid, rather than a tower, they might not have encountered the problems they did in reconstructing the edifice. Demonstrate by laying out the six cards in the pyramid pattern, and as you pick them up in the order described, you explain, "This represents the initial destruction of the pyramid."

For the first card, point out that all languages have ambiguities, so give the spectator the choice of spelling either "Ace" or "One." After turning over the Ace, replace it at the position it formerly occupied on the table at the top of the pyramid.

On the second card, the spectator is given the choice of spelling "Two" in English or Spanish (*D - O - S*), then place the Two in its previous position, and so on for the succeeding cards. For "Three" the choice is English or French (*T - R - O - I - S*). For "Four" it's English or

Photo 1





German (*V - I - E - R*); “Five” is English or Italian (*C - I - N - Q - U - E*); and for “Six” the spectator can spell it in any language in the world, the result will be the same.

The pyramid has been reconstructed despite the prevalence of languages. The less forced the language options seem, the more amusing this is. There are many options, for example, “Five” could be spelled in English or Italian, as above, but also in German (*F - U - N - F*) or French (*C - I - N - Q*), but not Spanish (*C - I - N - C - O*). It is also possible, on the final two cards, to give the spectator the choice of spelling either “Five” or “Six,” with the spelled card being uppermost at the conclusion, the implication being that whatever card you spelled, in any order, would have been there.

Are there similar coincidences involving cards with pictures of things that have initials in alphabetical order from “A” through “F”? I spent several pleasant hours discovering the following set of animals: ape, bear, cat, dog, elephant, and fox.

Imagine six cards with pictures of the six animals, their names let-

tered across the top. Arrange them on the table in pairs of overlapping cards as shown in Photo 2. Note that the names, left to right, are in alphabetical order. Slide A and D together, then put them on the middle pair and square them. Finally slide C and F together and put them on the other four cards. Turn the pack over. Top down, the cards should be in B - E - A - D - C - F order.

The packet is now set for spelling each animal, taking them in alphabetical order. In this case, after each spelling, turn over the *last* card spelled. When the speller reaches the final two cards, you can adopt Hatch’s suggestion by allowing a choice between elephant and fox. ❖

Colm Mulcahy writes a column devoted to mathematical card tricks on the Mathematical Association of America’s “MAA Online” web site. Go to www.maa.org/columns/colm where you will not only find some wondrous mathematical tricks, but also a wonderful October 2006 interview with Martin Gardner.