

A Fairy Tale BY DENNIS E. SHASHA

In a mythical land, fairies visit children at night and leave them pearls. But each fairy is attracted only to a particular color. Suppose, for example, that a fairy named Liane is attracted to the color aqua. While making her nightly visitations, she will leave a pearl on a child's bedside table for each aqua star she sees above the child's head. If a fairy named Ariana, who is attracted to crimson, flies with Liane and sees a child with a crimson star, she will leave a pearl on the child's table. So a child having both crimson and aqua stars would receive two pearls. Your task is to find out which fairy is attracted to which color.

Here is what you know:

1. The fairies' names are Juliana, Katiana, Oliviana, Anya and Heather.
2. The colors are silver, sage, gold, rose, turquoise, ivory, violet, emerald and earth.
3. At least one fairy likes turquoise and one likes earth.
4. The children are Augustine, Jonathan and Theo.
5. Augustine has rose, turquoise and violet stars

above his head. Jonathan has sage, violet and ivory. Theo has sage, violet and emerald.

Here is what happens:

The first night Anya, Heather and Juliana fly in and leave one pearl for Augustine, one for Jonathan and two for Theo.

The second night Anya, Heather and Oliviana fly in and leave no pearls for Augustine, but two for Jonathan and two for Theo.

The third night Anya, Heather and Katiana fly in and leave no pearls for Augustine, but one for Jonathan and two for Theo.

The fourth night Juliana, Katiana and Oliviana fly in and leave one pearl for Augustine, one for Jonathan and none for Theo.

The fifth and last night Anya, Juliana and Oliviana fly in and leave one pearl for Augustine, two for Jonathan and one for Theo. SA

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Answer to Last Month's Puzzle

Alice can win the game no matter how Bob arranges the cards bearing numbers greater than four. Let x stand for each of Bob's cards. Alice arranges the remaining cards at the bottom of the deck to create the order $x, x, x, x, x, x, x, 4, 4, 3, 3, 2, 2, 1, 1$, in which the final 1 represents the ace of spades. Alice will win any game using this order.

Alice can also force a win if Bob arranges seven of the cards in the order 5, 1, 2, 6, 7, 3, 3. She simply inserts the remaining cards (indicated by brackets) to create the order [7], [6], [4], [2], 5, 1, 2, 6, [5], [4], 7, 3, 3, [1]. But I know of no proof showing that Alice can win in general, no matter how Bob orders seven cards.

Web Solution:

For a peek at the answer to this month's problem, visit www.sciam.com