1135-05-712 **Shalosh B. Ekhad** and **Doron Zeilberger***, DoronZeil@gmail.com. *Using Symbol-Crunching to find ALL Sucker's Bets (with given deck sizes).*

In 1970, Statistics giant, Bradley Efron, amazed the world by coming up with a set of four dice, let's call them A,B,C,D, whose faces are marked with [0,0,4,4,4,4], [3,3,3,3,3,3],[2,2,2,2,6,6],[1,1,1,5,5,5] respectively, where die A beats die B, die B beats die C, die C beats die D, but, surprise surprise, die D beats die A! This was an amazing demonstration that "being more likely to win" is not a transitive relation. But that was only one example, and of course, instead of dice, we can use decks of cards, where they are called (by Martin Gardner, who popularized this way back in 1970) , "sucker's bets".

Can you find all such examples, with a specified number of decks, and sizes? If you have a computer algebra system (in our case Maple), you sure can! (Received September 13, 2017)