

**Meeting:** 1003, Atlanta, Georgia, MAA CP X1, MAA General Contributed Paper Session, I

1003-X1-381      **Arne Ledet\*** (aledet@math.ttu.edu), Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX 79409-1042. *The Monge shuffle for a deck with  $2^n$  cards.*

The *Monge shuffle* for a deck of cards is a shuffle where the cards are taken from the deck (held in one hand) one at a time, and placed alternately on the top and bottom of the packet held in the other hand. Compared to the much more famous Faro shuffle, the Monge shuffle seems not to have been studied much. In the special case of a deck with  $2^n$  cards,  $n$  a natural number, it turns out that the two possible Monge shuffles (deck held face-up or face-down) generate a group of permutations isomorphic to a semi-direct product

$$C_2^{2^{\lfloor n/2 \rfloor}} \rtimes C_{n+1},$$

where  $\lfloor n/2 \rfloor$  denotes the largest integer less than or equal to  $n/2$ , and  $C_d$  denotes the cyclic group of order  $d$ . (Received September 13, 2004)