

# NASA TECH BRIEF

## *Lewis Research Center*



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

### Computation of Group Table Alphanumeric Display

#### **The problem:**

To simplify the task of inputting the group tables used for proving theorems and algorithms of finite groups.

#### **The solution:**

An existing computer program modified to provide machine computation of the table, using only the group elements as the input data. The program is written for second generation computers.

#### **How it's done:**

The program uses, but does not depend on, the fact that every finite group  $G$  of order  $n$  is isomorphic to some subgroup (element)  $T_j$  of the symmetric group  $S_n$ . The program can print a table for any possible combination of element subsets of  $G$ . After the program finds the elements  $T_j$ , those elements in the subsets of  $G$  whose table is desired are entered in cycle notation input data. The symbol for each element, as it is to appear in the table, is also en-

tered. The table is then computed and printed using these symbols.

#### **Notes:**

1. This program is written in FORTRAN IV for use on the IBM-7094 computer, and can easily be adapted to other second generation computers.
2. Requests for further information may be directed to:

COSMIC  
112 Barrow Hall  
University of Georgia  
Athens, Georgia 30601  
Reference: B71-10373

#### **Patent status:**

No patent action is contemplated by NASA.

Source: G. Allen and D. D. Evans  
Lewis Research Center  
(LEW-11346)

Category 09