Handshakes *(Cont 'd from previous page)*

Everytime a side of a polygon is drawn the location of the point is saved by using the procedure SAVEPT. SAVEPT keeps adding the new coordinate pairs to a list called POINTS.

```
TO POLYGON :NUMOFPTS :LENGTH
REPEAT :NUMOFPTS [FD :LENGTH RT
    360/ :NUMOFPTS SAVEPT]
END

TO SAVEPT
MAKE "POINTS LPUT XCOR :POINTS
MAKE "POINTS LPUT YCOR :POINTS
END
```

When we call CON :POINTS 2 in CONNECT, 2 is used because we are starting with the y coordinate which is the second item on the list.

```
TO CON :POINTS :START :REST
IF :C = :START SUM STOP
CON1 FIRST :POINTS FIRST BF :POINTS BF BF
:POINTS
CON BF BF :POINTS :START + 2 :REST
END
```

Let's examine the recursive call in CON. This line calls itself and starts the procedure over again but lops off the first 2 coordinates on the list. It also advances the count of the number of coordinates by 2. When :START equals :C, this means we have used all the coordinates on the list and we are ready to finish. Now let's look at the procedure that actually draws the lines.

```
TO CON1 :XOPOINTS :YOPOINTS :REST
IF :REST = [ ] STOP
MAKE "TOTAL :TOTAL + 1
SETXY :XOPOINTS :YOPOINTS PD
SETXY FIRST :REST FIRST BF :REST
CON1 :XOPOINTS :YOPOINTS BF BF :REST
END
```

When we draw the lines we go from (XO, YO) to the next 2 coordinates on the list and then we call CON1 again advancing 2 more coordinates on the list. This is the reason we BF BF :REST. When (XO,YO) has been connected to all the coordinates, the program returns to CON and picks a new (XO,YO) and when we have exhausted all of those points all that is left to do is to count the number of lines.

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Problem of the Month:

Quarts Problem Revisted - Logo Style *by Ihor Charischak*

In his famous book, *How to Solve It*, George Polya poses the following problem: How can you bring up from the river exactly six quarts of water when you have only two containers, a four quart pail and a nine quart pail, to measure with? In order to solve the problem it would be helpful to have some pails and water to work with. But that would be inconvenient and messy, so I decided to do the next best thing which was to create a computer simulation of the experiment using LogoWriter. Not only was I able to establish a good "laboratory", but by introducing the Logo programming environment, I discovered some interesting new ways to look at the problem. Here are the procedures I used.

CON position height draws a container in position A or B with the given height. For example, CON A 4 CON B 9 will draw figure 1.

FIL container fills container A or B

EMPTY container empties container A or B

POUR container1 container2 pours liquid from one container into the other.

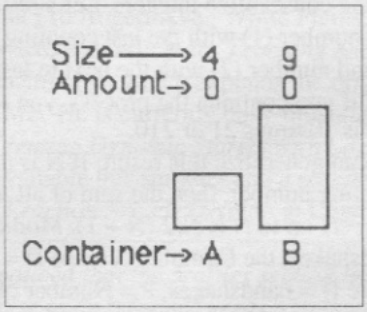

Figure 1