

#3458d; 264.5 and #63246d; 268 and #64961d. The programs have been written to set the printer flag for double-space hardcopy printouts.

As an example, the sender could type in the word-string "DIAMONDS" when prompted by sender program 1. and get an output listing of numbers -- these are always different for each message even when repeated -- in curly brackets somewhat similiar to: { 104 104 136 120 159 109 91 153 }. The curly brackets with the numbers are then typed into the calculator by the receiver when prompted by receiver program 1. to produce a second listing, say something like: { -14 99 -45 120 77 92 73 124 }. When this is typed in by the sender at the prompting of sender program 2., the output will be in the manner of: { 45 22 43 9 55 68 18 1 }. Finally, when this last listing is typed in by the receiver at the prompting of receiver program 2., the output is the deciphered message string "DIAMONDS". Voila!

Table. Programs are listed for a no key cryptosystem using the HP 48SX handheld calculator. At the prompting of sender program 1., the sender types in a message and transmits the resulting encryption to the receiver. At the prompting of receiver program 1., the receiver types in the ciphered message and returns the output. The sender now runs the doubly enciphered message through sender program 2. and transmits the output to the receiver who runs it through receiver program 2. The output is the deciphered message obtained without benefit of a deciphering key or sharing information between the sender and receiver.

#### SENDER PROGRAMS

LOK1

```
<< STD
"Type in your
message string.
```

```
Then press CONT keys."
CLLCD 1 DISP 3 FREEZE
HALT CLLCD
"Putting on 1st lock,
```

```
    please wait...."
2 DISP RAND DUP RDZ
'RANDOM' STO ->STR DUP
SIZE -> message size
  << 1 size
  FOR index message
index index SUB NUM ->
number
  << RAND 100 * IP
number +
  >>
NEXT DEPTH ->LIST -37
SF
>>
>>
```

#### RECEIVER PROGRAMS

LOK2

```
<< STD
"Type in LIST & press
CONT keys.
```

```
Or, if LIST is already
on the stack, just
press CONT keys."
CLLCD 1 DISP 3 FREEZE
HALT CLLCD
"Putting on 2nd lock,
```

```
    please wait....."
2 DISP RAND DUP RDZ
'RANDOM' STO OBJ-> 1 SWAP
START DEPTH ROLL RAND
100 * IP -
NEXT DEPTH ->LIST -37
SF
>>
```

<continued...>

ULOK1

```
<< CLLCD STD -37 SF
"Type in the LIST from
LOK2 & press CONT
keys.
```

```
Or, if already on the
stack, iust press the
CONT keys."
1 DISP 3 FREEZE HALT
CLLCD
"Removing 1st lock,
```

```
    please wait..."
1 DISP RANDOM RDZ OBJ-> 1
SWAP
START DEPTH ROLL RAND
```

```
100 * IP -
NEXT DEPTH ->LIST
>>
```

ULOK2

```
<< CLLCD STD -37 SF
"Type in the LIST from
ULOK1 & press CONT
keys.
```

```
Or, if already on the
stack, iust press the
CONT keys."
1 DISP 3 FREEZE HALT
CLLCD
"Removing 2nd lock,
```

```
    please wait.."
1 DISP RANDOM RDZ OBJ->
" " SWAP 1 SWAP
START DEPTH ROLL RAND
```

```
100 * IP + CHR +
NEXT
>>
```

## FREYA - AN EMACS FOR THE HP95LX

This is to announce the availability of Freyja, an Emacs-type text editor for the HP-95LX. It includes an RPN-calculator and perpetual calendar. It is extensible by changing the source code and recompiling. While it runs on UNIX systems, it is targeted to MS/DOS laptop and palmtop machines.

It is distributed for free under the same terms as the Free Software Foundation's "CopyLeft." Full source is included.

You can obtain a copy in either of two ways:

Diskette: Send the author blank diskettes:

- two, 5 1/4" (360 KB) or
- one, 3 1/2" (either 720 KB or 1.44 MB)

and enough stamps to cover return postage plus a dollar or so (so that I can buy a diskette mailer). Or you can just send me about US\$3.00 in check, stamp whatever and I will furnish the diskette(s) and mailer.

- Craig Finseth  
1343 Lafond  
St Paul MN 55104  
USA  
+1 612 644 4027  
fin@unet.umn.edu