CARD TRICK
by Stan Munson

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; This is a simple card trick where 21 cards are dealt into 3 columns
; of 7 cards each. The user picks a card and tells the computer which
; column the card is in. After a series of redeals, the computer displays
; the user's card without ever knowing which card it is -- just the column
; that it appears in with each redeal.

; I made 'stagnant' displays of 3 columns
; Start out with invisible cards
; shuffle cards
; Show them, let user pick a column
; make cards invisible, rearrange them, then show them again.
; then magnify the user's card as was done in the orinal progam
; do alert to play again or quit

; REVERSE outputs a word or list in reverse order

TO REVERSE :WORL
      IF EMPTY? :WORL OUTPUT :WORL
      IF WORD? :WORL \
            THEN OUTPUT REVERSE.HELPER :WORL " \
            ELSE OUTPUT REVERSE.HELPER :WORL []
END

TO REVERSE.HELPER :WORL :RESULT
      IF EMPTY? :WORL [OUTPUT :RESULT]
      REVERSE.HELPER BUTFIRST :WORL FPUT FIRST :WORL :RESULT
END

BURY [REVERSE REVERSE.HELPER]

; Output a new word or list with a specific item removed

TO REMOVE.ITEM :N :WL
      IF OR (.LT :N 1) (.GT :N COUNT :WL) [
            (THROW "REMOVE.ITEM WORD "|REMOVE.ITEM needs a number between 1
and | COUNT :WL)
      ]
      OUTPUT REMOVE.ITEM2 :N :WL
END

TO REMOVE.ITEM2 :N :WL
      IF EQUAL? :N 1 [OUTPUT BUTFIRST :WL]
      OUTPUT FPUT FIRST :WL REMOVE.ITEM2 (:N - 1) BUTFIRST :WL
END

BURY [REMOVE.ITEM REMOVE.ITEM2]

; Output a list with elements randomly arranged

;LIBLOAD "REMOVEITEM

TO SHUFFLE :DECK
      LOCAL "X
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      IF EMPTY? :DECK THEN OUTPUT :DECK
      MAKE "X RANDOM COUNT :DECK
      OUTPUT FPUT ITEM :X :DECK SHUFFLE REMOVE.ITEM :X :DECK
END

BURY [SHUFFLE]

TO START.TRICK
      DRAW CLEARTEXT
      MAKE "HAND.SIZE 21
      MAKE "DEAL.DELAY 1000
      MAKE "COLLECT.DELAY 400
      MAKE "MOVE.DELAY 200
      MAKE "MAX.ROUNDS 4
      MAKE "SUITS [C D H S]
      MAKE "RANKS [A 2 3 4 5 6 7 8 9 10 J Q K]
      MAKE "RANK.NAMES [A ACE 2 TWO 3 THREE 4 FOUR 5 FIVE 6 SIX 7 SEVEN 8
EIGHT 9 NINE 10 TEN J JACK Q QUEEN K KING]
      MAKE "SUIT.NAMES [C CLUBS D DIAMONDS H HEARTS S SPADES]
      MAKE "ROWINC 30
      MAKE "COLINC 90
      MAKE "ANCHORXY [-90 138]
      MAKE "DECKXY [-90 -140]
      MAKE "COLUMN1 []
      MAKE "COLUMN2 []
      MAKE "COLUMN3 []
      MAKE "MESSAGE0 "|Prepare to be amazed!|
      MAKE "MESSAGE1 "|Pick a card, any card, then click any where in the
column that contains your card.|
      MAKE "MESSAGE2 "|Click any where in the column that contains your card
now.|
      MAKE "MESSAGE3 "|One more time. Click any where in the column that
contains your card.|
      MAKE "SEQUENCE []
      MAKE "DECK SHUFFLE NEWDECK
      CLEARTEXT CLEARSCREEN HIDETURTLE
      PPROP "LOGO.ENV "LAYOUT "MINIMAL
      FULLSCREEN
      SETBG "FORESTGREEN

; For WebLogo, I have to save the cardback name because it is re-created for
each hand
; so that the cardback is on top of the stack.

      MAKE "SELECTED.CARDBACK WORD "BACK RANDOM 8

      DECLARE "TURTLE "CARDBACK
      ASK "CARDBACK [LOADSHAPE WORD "~HOME/TOOLBOX/CARDS/
:SELECTED.CARDBACK]
      ASK "CARDBACK [PU LOCKSHAPE SETXY :DECKXY ST]

      DECLARE "STATICTEXT "INSTRUCT
      PPROPS "INSTRUCT [
            SIZE [150 80]
            POSITION [30 -140]
;           VISIBLE FALSE
```

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      ]
      PPROP "INSTRUCT "FONT SE BL GPROP "INSTRUCT "FONT 1

      PPROP "INSTRUCT "TEXT :MESSAGE0

      CREATE.CARDS :DECK

      MAKE.HAND
      MAKE "ROUND.NUMBER 1
      PLAY.TRICK
END

; Create the card TURTLE objects

TO CREATE.CARDS :DECK
      FOREACH :DECK [
            DECLARE "TURTLE "?
            ASK "? [PU HT LOCKSHAPE SETXY :DECKXY LOADSHAPE WORD
"|~home/toolbox/cards/| "?]
      ]
END

; Output a complete list of card names

TO NEWDECK
      (LOCAL "DECK "SUIT "RANK)
      MAKE "DECK []
      FOR "SUIT 1 4 [
            FOR "RANK 1 13 [
                  MAKE "DECK LPUT WORD (ITEM :SUIT :SUITS) (ITEM :RANK
:RANKS) :DECK
            ]
      ]
      OUTPUT :DECK
END

TO MAKE.HAND
      MAKE "DECK SHUFFLE :DECK
      MAKE "HAND []
      REPEAT :HAND.SIZE [
            MAKE "HAND LPUT FIRST :DECK :HAND
            MAKE "DECK BUTFIRST :DECK
      ]
      FOREACH :HAND [PPROP "? "VISIBLE "TRUE]
END

TO PLAY.TRICK
      DEAL.HAND
      GET.COLUMN
END

; For WebLogo, the cards have to be 're-created' each time so that the
'z.order' will be correct.
; The newest item is on top which is the reverse of what I need for the card
columns.
```

```
; So, I create the cards in the :HAND keeping them all invisible at the
'deck' location.

TO DEAL.HAND
      FOREACH :HAND [ERASE "?]
      FOREACH :HAND [
            DECLARE "TURTLE "?
            ASK "? [PU HT LOCKSHAPE SETXY :DECKXY LOADSHAPE WORD
"|~home/toolbox/cards/| "?]
      ]

      ERASE "CARDBACK
      DECLARE "TURTLE "CARDBACK
      ASK "CARDBACK [LOADSHAPE WORD "~HOME/TOOLBOX/CARDS/
:SELECTED.CARDBACK]
;     ASK "CARDBACK [LOADSHAPE "|~HOME/TOOLBOX/CARDS/BACK7|] ; Terrapin Logo
back
      ASK "CARDBACK [PU LOCKSHAPE SETXY :DECKXY ST]

      TELL :HAND ST

      MAKE "COLUMN1 []
      MAKE "COLUMN2 []
      MAKE "COLUMN3 []
      (LOCAL "ROW "COL "TOPCARD)
      WAIT :DEAL.DELAY
      FOR "ROW 0 6 [
            FOR "COL 0 2 [
                  MAKE "TOPCARD FIRST :HAND
                  MAKE "HAND BUTFIRST :HAND
                  MAKE WORD "COLUMN (:COL + 1) LPUT :TOPCARD THING WORD
"COLUMN (:COL + 1)
                  WEB.MOVE :TOPCARD LIST :DECKXY NEXTXY "FALSE
            ]
      ]
      FOREACH :COLUMN1 [PPROP "? "RUN [MAKE "SEQUENCE PICK [[COLUMN2 COLUMN1
COLUMN3] [COLUMN3 COLUMN1 COLUMN2]] COLLECT.CARDS]]
      FOREACH :COLUMN2 [PPROP "? "RUN [MAKE "SEQUENCE PICK [[COLUMN1 COLUMN2
COLUMN3] [COLUMN3 COLUMN2 COLUMN1]] COLLECT.CARDS]]
      FOREACH :COLUMN3 [PPROP "? "RUN [MAKE "SEQUENCE PICK [[COLUMN1 COLUMN3
COLUMN2] [COLUMN2 COLUMN3 COLUMN1]] COLLECT.CARDS]]
END

TO NEXTXY
      OUTPUT LIST ((FIRST :ANCHORXY) + (:COLINC * :COL)) ((LAST :ANCHORXY) -
(:ROWINC * :ROW))
END

TO GET.COLUMN
      PPROP "INSTRUCT "TEXT THING WORD "MESSAGE :ROUND.NUMBER
      PPROP "INSTRUCT "VISIBLE "TRUE
END

TO COLLECT.CARDS
      FOREACH (SE :COLUMN1 :COLUMN2 :COLUMN3) [PPROP "? "RUN []]
      PPROP "INSTRUCT "VISIBLE "FALSE
```

```
      REMAKE.HAND
      MAKE "ROUND.NUMBER :ROUND.NUMBER + 1
      IF EQUAL? :ROUND.NUMBER :MAX.ROUNDS THEN END.GAME ELSE PLAY.TRICK
END

TO REMAKE.HAND
      FOREACH :SEQUENCE [
            MAKE "HAND SENTENCE :HAND THING "?
            MOVE.CARDS THING "?
            WAIT :COLLECT.DELAY
      ]
END

TO MOVE.CARDS :COLUMN
      FOREACH REVERSE :COLUMN [
            ASK "? [WEB.MOVE "? (LIST ASK "? [GETXY] :DECKXY) "FALSE]
      ]
END

; for weblogo, if you don't want to play again, just THROW "TOPLEVEL

TO END.GAME
      FOREACH :HAND [PPROP "? "RUN []]
      (LOCAL "SECRET "ANSWER)
      MAKE "SECRET ITEM 11 :HAND
      MAKE "DECK SHUFFLE SENTENCE :DECK :HAND
      MAKE "HAND []
      WHILE [NOT EQUAL? ASK :SECRET [GETXY] :DECKXY] []
      ASK :SECRET [SETXY [0 40] SETTSIZE 2.5]
      WAIT 4000
      MAKE "ANSWER (ALERT "|Want to play again?| "YES "NO)
      ASK :SECRET [SETXY :DECKXY SETTSIZE 1]
      IF EQUAL? :ANSWER "YES [
            MAKE "ROUND.NUMBER 1
            MAKE "SELECTED.CARDBACK WORD "BACK RANDOM 8
            MAKE.HAND
            PLAY.TRICK
      ][
            52PICKUP
            THROW "TOPLEVEL
      ]
END

; Translate card name to text message

TO CARD.TEXT :CARD
      OUTPUT LOWERCASE (WORD RANK.NAME :CARD "| of | SUIT.NAME :CARD)
END

TO CARD.RANK :CARD
      OUTPUT BUTFIRST :CARD
END

TO CARD.SUIT :CARD
      OUTPUT FIRST :CARD
END
```

```
TO SUIT.NAME :CARD
     OUTPUT FIRST BUTFIRST FROMMEMBER CARD.SUIT :CARD :SUIT.NAMES
END

TO RANK.NAME :CARD
     OUTPUT FIRST BUTFIRST FROMMEMBER CARD.RANK :CARD :RANK.NAMES
END

; Another simple game?

TO 52PICKUP
     (LOCAL "X "Y "CARD.WIDTH.ADJ "CARD.HEIGHT.ADJ)
     MAKE "CARD.WIDTH.ADJ INT .5 * FIRST GPROP "CARDBACK "SIZE
     MAKE "CARD.HEIGHT.ADJ INT .5 * LAST GPROP "CARDBACK "SIZE
     RERANDOM ((ITEM 1 TIME) * 3600) + ((ITEM 2 TIME) * 60) + (ITEM 3 TIME)
     ASK "CARDBACK [HT]
     FOREACH :DECK [
          ASK "? [
               ST
               MAKE "X ((RANDOM FIRST BOUNDS) - :CARD.WIDTH.ADJ) * (PICK
[1 -1])
               MAKE "Y ((RANDOM LAST BOUNDS) - :CARD.HEIGHT.ADJ) * (PICK
[1 -1])
               SETXY LIST :X :Y
               UNLOCKSHAPE SETH RANDOM 360
          ]
     ]
END

; Another simple game?

;TO WHERE'S.WALDO?
;     IF EMPTY? :DECK [
;          CLEARTEXT
;          PRINT "|Well done!|
;          STOP
;     ]
;     CLEARTEXT
;     RERANDOM ((ITEM 1 TIME) * 3600) + ((ITEM 2 TIME) * 60) + (ITEM 3 TIME)
;     MAKE "WALDO PICK :DECK
;     MAKE "DECK BUTMEMBER :WALDO :DECK
;     PRINT (WORD "|Where's the | CARD.TEXT :WALDO "?)
;     PRINT "|Press Enter to find another card.|
;     IGNORE RC
;     WHERE'S.WALDO?
;END

;ALIAS "WHERE'S.WALDO? "WW

; Fill in the Pn lines with your own information to describe your project.
; Use :LF to get a line break; use :PP to force a blank line to mark
paragraphs.
; Combine all of your Pn lines into one "string" with WORD.

TO ABOUT
```

```
      (LOCAL "LF "PP "SAMPLE.TEXT "P1 "P2 "P3 "P4 "P5 "P6 "P7 "P8 "P9 "P10)
      MAKE "LF CHAR 10
      MAKE "PP WORD :LF :LF
      MAKE "P1 `As long as you honestly identify the column that contains
your card, `
      MAKE "P2 `this trick will never fail to find your card. Hard to
believe? `
      MAKE "P3 `A hint for trying to figure out how it works is to carefully
watch `
      MAKE "P4 `how the cards are collected for each redeal. `
      MAKE "P5 `Another hint: The trick requires an odd number of cards
divisible by `
      MAKE "P6 `three. Try it with 9 cards yourself, then 15 cards. This
program `
      MAKE "P7 `uses 21 cards which makes the trick quite impressive. `

      MAKE "SAMPLE.TEXT (WORD :P1 :P2 :PP :P3 :P4 :PP :P5 :P6 :P7)
      IGNORE ALERT :SAMPLE.TEXT
END

TO WEB.MOVE :OBJECT :PATH :FOREVER?
      (LINEAR.MOVE :OBJECT FIRST :PATH LAST :PATH 10 5)
END

TO LINEAR.MOVE :OBJECT :A :B :N [:DELAY 50] 4
      ASK :OBJECT [SETXY :A SETH TOWARDS :B]
      LOCAL "INC
      ASK :OBJECT [MAKE "INC INT ((DISTANCE :B) / :N)]
      REPEAT :N [ASK :OBJECT [FD :INC WAIT :DELAY]]
      ASK :OBJECT [SETXY :B]
END

TO MAIN
START.TRICK
END

MAIN
```