Curtsinger, J.W. University of Minnesota, St. Paul, USNA. Dot-matrix printer characters for geneticists.

This note describes procedures for redefining nine seldom used micro-computer keys as math symbols or as other symbols often needed for experimental reports. The procedure involves sending information to dot-matrix printer RAM via a simple BASIC program. The program contains DATA statements which encode the new dot patterns. After running the BASIC program, the printer will use the newly defined symbols instead of default symbols until the information in printer RAM is lost (either by turning off the printer or by sending a master reset code). The signal to print the new symbols can be sent to the printer from any source, including word processing programs. Monitor output will not be modified.

The following procedures apply to the Epson FX-80 printer and Microsoft BASIC-80 (CP/M-85). The DATA statements can be used with other programmable printers, but other BASIC statements may differ. The first step is to activate printer RAM by setting the DIP switch 1-4 to OFF (inside the printer; this should be the factory-set position). Next, enter and save "MATHFONT"; do not enter the comments on the DATA statements:

```
100     REM      MATHFONT
110     REM  THIS SECTION REDEFINES #, $, %, AND &
120     LPRINT CHR$(27)":"CHR$(0)CHR$(0)CHR$(0); 'Download font to RAM
130     LPRINT CHR$(27)"%"CHR$(1)CHR$(0); 'Activate RAM
140     LPRINT CHR$(27)"&"CHR$(0)"#&; ' Redefine # through &
150     FOR Y=1 TO 4:LPRINT CHR$(139); 'Attribute byte
160     FOR X=1 TO 11: READ C: LPRINT CHR$(C);: NEXT X
170     NEXT Y
180     REM THIS SECTION REDEFINES @, \, ¦, `, AND !
190     FOR Y=1 TO 5
200     IF Y=1 THEN LPRINT CHR$(27)"&"CHR$(0)"@@"; ' Redefine @
210     IF Y=2 THEN LPRINT CHR$(27)"&"CHR$(0)"\\"; ' Redefine \
220     IF Y=3 THEN LPRINT CHR$(27)"&"CHR$(0)"¦¦";
230     IF Y=4 THEN LPRINT CHR$(27)"&"CHR$(0)"``";
240     IF Y=5 THEN LPRINT CHR$(27)"&"CHR$(0)"!!";
250     LPRINT CHR$(139);                'Attribute byte
260     FOR X=1 TO 11:READ C:LPRINT CHR$(C);:NEXT X
270     NEXT Y
1000    DATA 129,66,129,36,129,24,129,0,129,0,0 'Define summation sign
1010    DATA 2,4,10,16,34,16,10,4,2,0,0         'Define delta
1020    DATA 1,0,1,2,60,64,128,0,128,0,0        'Define integral sign
1030    DATA 24,4,32,4,32,8,16,40,68,0,0        'Define alpha
1040    DATA 84,0,84,0,84,0,84,0,84,0,0         'Define "defined as" sign
1050    DATA 4,16,2,40,1,68,0,130,0,0,0         'Define less than or equal to
1060    DATA 130,0,68,1,40,2,16,4,0,0,0         'Define greater than or equal to
1070    DATA 128,0,128,0,128,0,128,0,128,0,0    'Define overline bar
1080    DATA 0,0,0,0,242,0,0,0,0,0,0            'Define exclamation
```

After running "MATHFONT" with printer on, eight keys will be redefined:

STANDARD:	!	@	#	$	%	&	`	¦	\
MATHFONT:	!	≡	Σ	Δ	∫	α	‾	≥	≤

For experimental reports, substitute the following DATA statements, again omitting the comments, and save a second program called "EXPFONT":

```
1000    DATA 56,4,64,4,64,184,0,128,0,128,0     'Define lower case sigma
1010    DATA 36,0,84,0,254,0,84,0,72,0,0        'Define dollar sign
1020    DATA 192,2,196,8,16,32,70,128,6,0,0     'Define percent sign
1030    DATA 24,4,32,4,32,8,16,40,68,0,0        'Define alpha
1040    DATA 63,64,16,68,16,68,40,0,0,0,0       'Define beta
1050    DATA 127,0,8,4,0,8,120,0,0,0,0          'Define mu
1060    DATA 24,0,36,0,164,24,192,0,224,0,0     'Define male sign
1070    DATA 0,0,64,160,0,160,64,0,0,0,0        'Define degree sign
1080    DATA 50,0,72,7,72,0,50,0,0,0,0          'Define female sign
```

After running "EXPFONT" with the printer on, seven keys will be redefined from the standard font:

STANDARD:	!	@	#	$	%	&	`	¦	\
EXPFONT:	♀	β	σ	$	%	α	°	♂	μ

DATA statements can be chosen so that any nine of the 14 non-standard characters defined here are available simultaneously. Key redefinition does not interefere with other signals from BASIC that control print pitch or quality.

Duttagupta, A.K., M. Das (Mutsuddi) and D. Mutsuddi. University of Calcutta, India. The maintenance of the sensitive Drosophila stocks in laboratory culture.

Perhaps all the Drosophila workers in the tropical countries, like India would agree with us that the transhipment of different Drosophila species/strains to such places is a quite difficult job. In India, the mild winter in our place, which stays from middle of November to early February, is only suitable for receiving stocks in healthy condition. Even within this period, the stocks very often arrive either dead or with a few larvae and pupae on decomposed culture medium, often infected with fungi. Furthermore, due to mite infection and elevated temperature during the transhipment, the newly arrived flies do not give enough progeny. For these reasons, we had to find out some means to overcome the problems.

Sensitive stocks like **D.miranda** are difficult to maintain. Due to its high sensitivity to temperature (it prefers temperature below 18°C), the maintenance of the stock was initially almost a failure. The flies, at that time, used to lay very few eggs on the standard Drosophila culture medium which invariably developed scums; with poor hatching of the larvae, most of the eggs were destroyed before hatching. We overcame this by adopting the following method:

1. The flies were first allowed to breed on a vial containing pasted banana. A few pieces of filter papers (with nepazine) were inserted leaving some portion outside the food. The flies were observed to lay eggs more in number. The eggs hatched successfully and the larvae were rather healthy.
2. At pupation (meanwhile the banana gradually became decomposed) the pupae were brought outside the vial and washed carefully in Drosophila Ringer (pH 7.2) to remove the decomposed food.
3. The pupae were dried on filter paper.
4. The empty vials were taken and their inner walls were smeared (with brush) with Drosophila culture medium to make the wall sticky. The pupae were applied to stick there by placing their ventral sides facing to the wall of the vials.
5. The newly emerged flies were transferred to the fresh culture medium.

By following the same method, we were also successful in removing the mites from Drosophila stocks. The pupae were brought outside the mite-infected culture medium and were washed in Ringer carefully and the above described process was followed to make mite-free stocks.

Hey, J. and D. Houle. University of New York, Stony Brook, USNA. Rearing **Drosophila athabasca.**

Drosophila athabasca is a complex of three semispecies (Miller & Westphal 1967), all of which are difficult to rear in the laboratory. We have developed a media and rearing protocol that works well for these flies and allows their use as a convenient experimental organism. The basic food recipe is a simple modification of the standard Drosophila media and consists of the following: 2900 ml of water; 116 gr of corn meal; 116 gr of dead brewer's yeast; 80 ml of molasses; 80 ml of light corn syrup; 24 gr of agar; 15 gr of peptone (SIGMA catalog no. P-7750); 15 gr of casein (SIGMA catalog no. C-0376); and 35 ml of 10% Tegosept in 95% ethanol. Whenever wild caught flies are used, we also add 0.6 gr of streptomycin sulphate and 0.2 gr of penicillin.

The ingredients could probably be combined in a variety of ways, though we prefer the following procedure: bring 2200 ml of water to a boil; mix the agar with 200 ml of water and quickly add it to the boiling water; bring the mixture to a boil while stirring; remove from heat and add the corn syrup and molasses; combine the remaining water with all of the remaining solid ingredients by stirring in a blender at high speed for several minutes; add this slurry to the water/agar/sugar mixture and stir to homogeneity;