PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.

NEWSLETTER

N-275   26-July-82

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Authorized by the Director of the Computer Centre

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1.0 20TH ANNIVERSARY OF THE CENTRE

As a result of the initiative of Emeritus Professor S.A. Prentice, a Computer Centre was established in the University and officially opened by Sir Douglas Fraser on 1 August 1962.

The first computer was a General Electric GE-225 which was retired after 15 years service in 1977. In 1968, our second computer, a Digital Equipment Corporation PDP1055 (KA) system was installed. It is still in service but is scheduled for retirement in December 1983. A PDP1090 (KL) system was installed in 1978 and a Digital Equipment Corporation VAX 11/780 was installed in 1981. A second PDP1090 has been ordered for installation in September 1982.

The Centre now provides service to almost all departments of the University of Queensland and Griffith University as well as the Queensland Tertiary Admissions Centre. There are around 3500 registered users and over 500 terminals of various types connected to the Centre. In addition to the sale of central computer time, the Centre provides other support services such as hardware, software and applicationns support for departmental computer systems, training of University staff and post-graduate students and assistance to departments in procurement of equipment.

Over the past twenty years, there has been a continuous growth in demand which has averaged 25% per annum. This has presented challenges to the staff of the Centre and at times, frustration to our users. In recent times, particularly, staff and equipment resources have not been at the levels to provide the grade of service which we would like to see. We are grateful for the support and consideration shown by our users, some of whom have been associated with the Centre since its inception.

In the past twenty years, there have been rapid changes in the technology, in the type of users, and in the computing applications. The next twenty years will be no less volatile. A plateau in the growth of computing technology is still a long way off. The potential users of University computing facilities now being educated in high schools will provide greater demands on computing facilities. There will be a challenge, not only to the Prentice Computer Centre but also to the total University community in meeting the future expectations of our students and of our researchers.

Director
extension 2189

2.0 CLUSTAN 2.1

CLUSTAN is a cluster analysis package that will accept input from SPSS SAVE files. It has a wide variety of applications in such areas as Arts, Science, Social Science and Engineering.

We have been advised that there is available a supplement to the CLUSTAN User Manual. This supplement reflects Release 2.1 which has not yet been received. The full manual (with the supplement) is available for reference from the Program Library.

> Leonie Roberts
> extension 3943

3.0 SPSS GRAPHICS

SPSS Graphics allows you to produce from SPSS data files high quality graphs on a range of graphic devices including the CALCOMP plotter. This package was described in more detail in the previous newsletter (N-274). A manual "SPSS UPDATE 7-9" is also available, however the version of PIECHART received by the Centre is slightly different to the version reflected in the manual. The difference is the syntax for the PLOT and FORMAT subcommands which are documented on pages 127 and 128 of the above manual. The following is reproduced from "KEYWORDS" (the SPSS newsletter):

Specifying Selectors

This syntax replaces the (EACH) keyword specification in the BY part of the PLOT = subcommand for procedure PIECHART. SPSS produces a warning that the syntax has changed if you use the (EACH) keyword.

Each variable named in the variable and control parts of the PLOT subcommand can be followed by parentheses enclosing a selector which consists of a relational operator and a value or list of values, as in BY STORE(EQ 1). Relational operators are LT, LE, EQ, NE, GE, and GT. If you omit the relational operator, EQ is assumed. EQ and NE can be followed by a list of numbers where (EQ 1,2,3) means equal to 1, 2, or 3, and (NE 1,2,3) means any value other than 1, 2, or 3. All other relational operators are followed by a single value. If a case satisfies the condition, it is used in constructing the pie chart specified. For example, to limit a pie chart to values 1 through 3 of variable JOBGRADE, specify

PIECHART   PLOT=JOBGRADE(1,2,3)

If variable JOBGRADE has integer values 1 through 4, specifications JOBGRADE(LT 4), JOBGRADE(LE 3), JOBGRADE(NE 4), and JOBGRADE(EQ 1,2,3) yeild the same results as the example above.

You can manipulate the values of the control variable in the same manner. The command

PIECHART   PLOT=JOBGRADE BY DIVISION(2,3,4)

produces three pie charts of variable JOBGRADE, one each for values 2, 3, and 4 of variable DIVISION. If you want a single pie chart of JOBGRADE limited to these values of DIVISION, specify keyword COMBINE on the FORMAT subcommand. The command

PIECHART   PLOT=JOBGRADE BY DIVISION(2,3,4)/FORMAT=COMBINE

produces one piechart limited to cases with values 2,3, or 4 for variable DIVISION.

The FORMAT Subcommand
for PIECHART

Add the following keyword to your list of specifications for the format subcommand in PIECHART.

COMBINE   Combine values specified in the selector for BY
          variables on the PLOT subcommand. One pie chart
          is created for all values specified rather than
          a separate pie chart for each value.

Leonie Roberts
extension 3943

4.0 LIBRARY NEWS

OCP - a program for LITERARY & LINGUISTIC RESEARCH

The Oxford Concordance Program, known as OCP, is a general purpose computer program which makes concordances and word lists from texts in a variety of languages and alphabets. It can be used for many text analysis applications including the investigation of style, vocabulary distribution, grammatical forms, rhyme schemes, text editing, and language acquisition and teaching. OCP has been designed so as to be very easy to use for those who have had no previous experience of computing. The simpler kinds of analysis require only

very few instructions to the computer. However, the more complex features of OCP should, we hope, meet most of the requirements of those who are more experienced in text analysis computing.

The user is required to supply the text and the commands - or actions, to be performed on this text, OCP then will produce the required report.

The commands and their meaning can be found in the "Oxford Concordance Program Users Manual" which is available from the Centre. This manual also provides extensive samples and case studies, some of which are:

Typing Errors in Complete Text of Coleridge
Conditional Clauses in Classical Arabic
Indexes of Oxyrhynchus Papyri (Greek)
Dictionary slips from a Latin text
Analysis of Scansion of Latin Hexameters
Lists of variables in a Fortran program
Authorship Study of Shakespeare's Henry VIII

The typing of texts into the system for analyses could be a tedious task, in which case potential users should consult a Text Archives service which maintains and distributes copies of text in machine readable form for academic research. The following will produce a simple concordance. The user's response is underlined.

```
.R UTI:OCP
File for commands?:COMAND
File for input text?:INPUT.DAT
FILE FOR RESULTS or DUMP?:OUTPUT.DAT
```

The file COMAND contains:

```
*ACTION
DO CONCORDANCE
*GO
```

The text file INPUT.DAT contains:

```
REMEMBER ME WHEN I AM GONE AWAY,
GONE FAR AWAY INTO THE SILENT LAND
WHEN YOU CAN NO MORE HOLD ME BY THE HAND
NOR I HALF TURN TO GO YET TURNING STAY
REMEMBER ME WHEN NO MORE DAY BY DAY
YOU TELL ME OF OUR FUTURE THAT YOU PLANNED
ONLY REMEMBER ME; YOU UNDERSTAND
IT WILL BE LATE TO COUNSEL THEN OR PRAY.
YET IF YOU SHOULD FORGET ME FOR A WHILE
AND AFTERWARDS REMEMBER, DO NOT GRIEVE:
FOR IF THE DARKNESS AND CORRUPTION LEAVE
A VESTIGE OF THE THOUGHTS THAT I ONCE HAD,
BETTER BY FAR YOU SHOULD FORGET AND SMILE
```

THAT YOU SHOULD REMEMBER AND BE SAD

A sample page of the output file OUTPUT.DAT contains:

```
  1                                              A  2

  9      YET IF YOU SHOULD FORGET ME FOR A WHILE
 12                                          A VESTIGE OF THE THOUGHTS THAT I ONCE HAD

                                             AFTERWARDS  1

 10                                      AND AFTERWARDS REMEMBER, DO NOT GRIEVE

                                             AM  1

  1                          REMEMBER ME WHEN I AM GONE AWAY

                                             AND  4

 10                                          AND AFTERWARDS REMEMBER, DO NOT GRIEVE
 11                         FOR IF THE DARKNESS AND CORRUPTION LEAVE
 13          BETTER BY FAR YOU SHOULD FORGET AND SMILE
 14            THAT THAT YOU SHOULD REMEMBER AND BE SAD

                                             AWAY  2

  1         REMEMBER ME WHEN I AM GONE AWAY
  2                            GONE FAR AWAY INTO THE SILENT LAND

                                             BE  2

  8                                  IT WILL BE LATE TO COUNSEL THEN OR PRAY
 14       THAT THAT YOU SHOULD REMEMBER AND BE SAD

                                             BETTER  1

 13                                          BETTER BY FAR YOU SHOULD FORGET AND SMILE

                                             BY  3

  3         WHEN YOU CAN NO MORE HOLD ME BY THE HAND
  5         REMEMBER ME WHEN NO MORE DAY BY DAY
 13                                  BETTER BY FAR YOU SHOULD FORGET AND SMILE

                                             CAN  1

  3                              WHEN YOU CAN NO MORE HOLD ME BY THE HAND

                                             CORRUPTION  1
```

Leonie Roberts
extension 3943

5.0 NAG - DESCRIPTION OF OUTSTANDING ERRORS

The following errors are applicable only to the version of NAG on the KL. Users who cannot use NAG on the VAX and are restricted by these errors should contact me.

Routine   Description of Error

D02GBF uses undefined elements of array Y if called with NP .GE. 4 .

E02ACF array bound error when M1 = 1 .

E04JAF uses undefined variable if on entry all X(I) are on or outside
          their bounds.

E04JBF uses undefined variable if on entry all X(I) are on or outside
          their bounds.

E04KAF uses undefined variable if on entry all X(I) are on or outside
          their bounds.

E04KBF uses undefined variable if on entry all X(I) are on or outside
          their bounds.

G08ADF integer overflow may occur when computing n1 * n2 .

                                        Leonie Roberts
                                        extension 3943

6.0 UPDATED SOFTWARE ON THE VAX

6.1 SPSS - VAX

Version 9.1 has been installed on the VAX. Help is available by typing HELP SPSS. Additionally there is a booklet available, "Using the SPSS Batch System, Release 9.1 on the DIGITAL VAX". Users interested in obtaining a copy should contact me. The following is a description of the new features in Version 9.1.

MANOVA is a generalized multivariate analysis of variance and covariance program which will perform univariate and multivariate linear estimation and tests of hypotheses for any crossed and/or nested design with or without covariates. Another way of stating the capabilities of this procedure is to say that it does everything done by the SPSS ANOVA procedure but also handles the less straightforward models such as nested designs and repeated measures. It also handles the multivariate case. MANOVA is a very complex and powerful procedure and it is therefore advised that the user both understand

the MANOVA statistics and have some familiarity with the SPSS Batch System.

The BOX JENKINS procedure allows the user to analyze time series and to generate forecasts. The key to understanding this procedure is to recognize that it performs three separate processes. First, it "identifies" the model. That is, it produces statistics which permit model estimation. After a model has been selected, BOX JENKINS "estimates". That is, it reports parameter estimates for the selection model. Finally, the procedure "forecasts".

The NEW REGRESSION procedure is intended to replace the REGRESSION procedure which has been in SPSS since 1968. The new procedure features new variable selection techniques: forced removal, backward elimination, and stepwise selection. It also provides regression through the origin as an option, more useful criteria for the entry and removal of variables, and more flexible output. The associated residuals facility features a number of additional measures and new plots.

The Graphics Option is not available on the VAX.

6.2 New Version Of NAG On The VAX

A new version (Mark 9) of NAG has been installed on the VAX only.

The new routines are:

CO5NBF	Finds a zero of a system of N nonlinear functions in N variables by a modification of the Powell hybrid method. Derivatives are not required.
CO5NCF	Comprehensive version of CO5NBF.
CO5PBF	Similar to CO5NBF. The user must provide the Jacobian.
CO5PCF	Comprehensive version of CO5NBF.
CO52AF	Checks the Jacobian for CO5PBF & CO5PCF.
EO1RAF	Provides an interpolating rational function for a set of data.
EO1RBF	Evaluates rational functions of the form produced by EO1RAF.
G13AAF	A new Chapter - Time Series Analysis.
G13ABF	Provides facilities for investigating and modelling the
G13ACF	statistics structure of series of observations collected
G13ADF	at equally spaced points in time. The models may then be
G13AEF	used to forcast the series.
G13AFF	
G13AGF	
G13AHF	
XO2AFF	Returns the value of the largest positive permitted argument for EXP (or DEXP).
XO2AHF	Returns the value of the largest positive permitted argument for SIN & COS (or DSIN & DCOS).

Withdrawn Routines

The following 20 routines have been withdrawn from the NAG FORTRAN Library at Mark 9. Warning of their withdrawal was given in a previous newsletter (N-264). D02AGF has not been withdrawn.

Routine Withdrawn	Recommended replacement
C05AAF	C05ADF
C05ABF	C05ADF
C05ACF	C05ADF
C06AAF	C06ECF
C06ABF	C06EAF
D01ACF	D01BDF
D01AGF	D01AJF
D02ADF	D02HAF or D02GAF
D02AFF	D02TGF
E01ADF	E01BAF
F01BHF	F02WAF or F02WCF
F01BJF	F01BWF
F01BKF	F02WDF
F01BMF	F01LBF
F02BMF	F01BWF + F02BFF
F03ALF	F01LBF
F04AUF	F04JGF
F04AVF	F04LDF
G01ACF	G04AEF
H01AEF	H01BAF or H01ADF

C05NAF is scheduled for withdrawal from the next version of NAG. The recommended replacement is C05NBF or C05NCF.

To access the NAG Library on the VAX:

1. include the appropriate call statement in your program

2. $LINK program, SYS$STA:NAG/L

Potential users should be aware that the NAG Library on the VAX is a double precision implementation and should refer back to N-264 for details. The NAG manuals in the Batch Station do not reflect the latest version. The up-to-date manuals are available from the writer of this article.

Leonie Roberts
extension 3943

7.0 SPACE REQUIREMENTS FOR MANOVA ON THE KL-10

With most procedures, SPSS determines and allocates memory requirements in advance; with MANOVA, memory is allocated dynamically.

One consequence is that the workspace requirement reported either by an EDIT run or by a real run which aborts due to insufficient space is rarely the true figure - normally it underestimates the requirement.

A recent SPSS Newsletter offers the following advice - "One conservative rule of thumb is to multiply the printed value by 4 to obtain a working estimate".

[We have a record one case where a factor of 20 was more appropriate!]

Where a very large amount of workspace is required, a transfer of the job to the VAX is well worth considering.

Leonie Roberts
extension 3943

8.0 INFORMATION CONCERNING COURSES

Below is listed the proposed schedule of courses for the remainder of 1982:

Please note that for second semester courses, the times of afternoon sessions have been changed, with an earlier (1pm) start.

August

RUNOFF	: August 2-6 5 half-days 1-4.30pm each day
Introduction to PDP-10	: August 9-10 2 full days 9-12am + 1-4pm each day
1022	: August 16-20 5 half days 1-4pm each day
Elementary BASIC Programming	: August 30 - September 3 5 half days 1-4.30pm each day

September

Introduction to PDP-10	: September 20-21 2 full days 9-12am + 1-4pm each day
SPSS	: September 22-24 3 full days 9-12am + 1-4pm each day
Plotting/Graphics	: September 27-29 3 half days 9-12am each day

October

VAX Conversion Course	: October 1 1 full day 9-12am + 1-4pm
Introduction to PDP-10	: October 4-5 2 full days 9-12am + 1-4pm each day
RUNOFF	: October 6-8 3 full days 9-12am + 1-4pm each day

November

Introduction to PDP-10	: November 8-9 2 full days 9-12am + 1-4pm each day
VAX Conversion Course	: November 10 1 full day 9-12am + 1-4pm
Introduction to PDP-10	: November 11-12 2 full days 9-12am + 1-4pm each day
RUNOFF	: November 15-19 5 half days 9am-12.30pm each day
1022	: November 15-19 5 half days 1-4pm each day
SPSS	: November 22-26 5 half days 9am-12.30pm each day
VG	: November 22-26 5 half days 1-4pm each day
Elementary FORTRAN Programming	: November 29 - December 3 5 full days 9-12am + 1-4pm each day
Introduction to PDP-10	: December 6-7 2 full days 9-12am + 1-4pm each day
Elementary BASIC Programming	: December 8-10 3 full days 9-12am + 1-4pm each day.

General Notes

1. The course "Introduction to PDP-10" is intended for new users and those with no previous experience with the DEC-10 system. Users without this experience **must** attend this course before enrolling in any other course.

2. All courses are free of charge to staff and post-graduate students of both University of Queensland and Griffith University. All other users must pay the appropriate fee, viz:

VAX Conversion Course	: $20.00
Plotting/Graphics	: $30.00
Introduction to PDP-10	: $40.00
1022, VG	: $50.00
RUNOFF, BASIC, SPSS	: $60.00
FORTRAN	: $100.00

3. All courses listed above will be held in the **Client Room, Hawken Building, St Lucia.**

4. To ensure sufficient practical experience is obtained, enrolments at all courses are limited. If **enrolled for a course, which you are unable to attend, please advise us as soon as possible so that your place may be taken by someone on a waiting list.** When insufficient enrolments are received for any course, that course may be cancelled by the Centre.

5. Enrolments for all courses may be made by phoning extension 3018.

Barry Maher
extension 3021

9.0 DEPARTMENTAL EQUIPMENT FOR SALE

Clinical Sciences - contact Rick Mack 525561 x74

   1 x 16Kw (MS11) Mos Memory boards for PDP11
   1 x 32Kw (MSV11-CD) Mos Memory board for PDP11
   RK05-J Disk Drive

Surveying - contact Dr G. Dowedeit x3013

   4K of memory for PDP8

Central Library - contact Simon McMillan x3805

    PDP-11 Modules

        2 x 16Kw Mos Unibus Memory Modules (M7848) for PDP11
        1 x Parity Module (M7850) for PDP11

Anatomy - contact Roger Mann x3859 Rm 208

       2 x 32Kw 16 bit (MSV11-DD) Mod. M8044D Memory Boards @ $275 each.

Social & Preventive Medicine, Herston - contact Jan Alexander
      527377 ext. 21

      2 x 16Kw Mos Unibus Memory Modules (MS11-JP) for PDP11
      1 x 32Kw   "   "   "   "   (NS11)   "   "
      1 x Memory Parity Controller (M7850)

    If you have modules and peripherals which are no longer required but may be of use to other departments or may be saleable outside please advise us by MAIL to ENGIN or MAINT or contact Maralyn Kenley on extension 3938.

                                  Graham Rees
                                  extension 3288

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