PRENTICE COMPUTER CENTRE

University of Queensland

Technical Manual Number 7

introduction to computer typesetting

(RUNOFF extended to typesetting)

MNT-7

January 1980

This manual has been authorized by
the Director of the Computer Centre.

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Preface

This manual is intended for those who will be preparing copy for publication. The highest quality output, suitable for printing books, journals or manuals can be obtained from this system via a photocomposition machine. Special 'office quality' terminals are suitable for thesis work and other low volume, high quality jobs. Other hard copy terminals and line printers which have standard character sizes and fixed spacing are suitable for form letters, lecture notes and for proof reading. Complex mathematical formulae and line diagrams such as flow charts are not easily handled with the current version of this system, although space can be left for such items to be pasted in at the proof stage. Facilities to aid users with such complex work will be the subject of later developments.

The manual introduces some of the basic procedures and equipment used to compose and edit text and prepare it for reproduction. Readers who have had experience in creating and editing files on the PDP-10 may skip the chapters on using the terminal and using the file system. Others will eventually need the manuals referred to in those chapters though the information in this manual should be sufficient to get you started.

This manual is introductory only, and is not intended as a complete tutorial text describing all the capabilities of RUNOFF or ITPS-10. Other manuals are described below:

1. Using the UQ PDP-10 system — MNT-2
2. EDIT—A line editor for the PDP-10 — MNT-6
3. RUNOFF — MNT-14
4. ITPS-10 Composition Commands Manual (reference copy)
5. Introduction to ITPS-10 In-house Text Processing System (reference copy)

The Prentice Computer Centre gratefully acknowledges the co-operation and assistance of Queensland Newspapers Limited in providing access to and advice about their APS-5 phototypesetters for the development of the phototypesetting facilities described in this manual.

Chapter 1

INTRODUCTION

The text preparation system provided by RUNOFF and ITPS-10 gives a method of preparing high quality text for reproduction. With the ease with which you use a standard typewriter, you should soon be able to sit at a terminal keyboard and edit and format almost any desired copy.

A set of computer programs automatically performs many composition and format services in response to simple commands you type into the copy being prepared. These programs read your copy and perform all the services you requested regarding format, margins, type sizes and styles, hyphenation and justification. The end result is a master copy ready for printing. None of the inserted commands appear in the master copy.

Most importantly, when you are *revising* a document by way of simple corrections to a draft report or thesis or to produce a new edition of a book, you only change the actual bits of text that require changing (e.g., word, sentence or chapter). The computer will reprocess the complete document to quickly produce a new final copy.

You are left free to give your attention to the content and desired final appearance of the text. No knowledge of computer programming is necessary for you to use the system.

These are the steps used to prepare copy at a computer terminal:

1. Using a computer terminal, type the rough draft and insert into the text the typesetting commands for the RUNOFF program to define format and layout. This is performed through the text editor program of your choice. RUNOFF is fully described in the manual MNT-14, which should be used as a reference text in conjunction with this manual.

   Generally 'marked-up' copy refers to manuscript with hand written editorial corrections and instructions for setting. We shall use this term for the author's text with embedded typesetting commands.
2. Put the 'marked-up' text file through the typesetting programs to produce a review draft.
3. Send the review copy to a line printer or terminal.
4. Using a text editor, correct or change the original marked-up text file as indicated by the author.
5. Put the corrected original text file through the typesetting programs as before for a new review copy.
6. Correct any remaining composition command errors or make any requested textual changes.
7. Put the corrected file through the programs for final processing.
8. Send the fully processed text to a photocomposition machine or to a line printer or terminal for printing.
9. Archive the corrected original text file for safe-keeping.

All these steps are performed at the keyboard by typing the text and some easily-learned commands.

1.1 Computer terms

A few basic terms need definition to help understand the working environment.

1.1.1 The monitor

The monitor is a computer program that is the major controlling element of the DECsystem-10 computer system.

The monitor can be regarded as the primary communicator between your requests for services and all the system resources available to satisfy those requests.

You need no knowledge of computer programming to get service from the monitor; it responds to simple commands typed at the terminal keyboard. Of course, there must first be a way of establishing a dialogue between you and the monitor because it insists on getting certain information about you before it lets you use any services. You first introduce yourself to the monitor through a 'handshaking' procedure called LOGIN (explained later) that takes place on your terminal.

1.1.2 Terminals

Terminals are devices with a keyboard like that of a standard typewriter with some additional keys and are connected to the computer system. There are many terminals (more than 200) connected to the Prentice Computer Centre PDP-1090 system. Most of these are used in teaching, research and administration in ways not connected with text processing or typesetting. The monitor keeps track of all the various terminal users and provides service to each as needed. Generally you are not aware of other users because the monitor treats each as though no one else is on the system. This process of multiple and simultaneous use of the computer through terminals is called *timesharing*.

Terminals are of two general types, *video-screen* terminals and *hard-copy* terminals. Either may be used in typesetting work.

Video-screen terminals have a screen that looks like a small television set. Commands to the monitor, plus typesetting commands and text that you type on the keyboard, will appear on the screen. However, what you see on the screen is only a *copy* of what you typed. The monitor sends the copy back to the screen *after* it was transmitted and entered into the computer system. This process is called *echoing*, and is so rapid that you may never be aware of it; it will seem that commands and text are being typed directly on the screen.

Hard-copy terminals closely resemble standard typewriters. The keystrokes are typed on continuous stationery. They are called "hard-copy terminals" because you retain the printed copy of all that took place during the terminal session. Like video screens, everything entered through a hard copy terminal is sent directly to the computer and the monitor echoes it back by printing it on the paper. The monitor communicates with you by printing out messages or requests for information on the same terminal.

1.1.3 Disk file area

A file area is simply space assigned by the monitor to store the text you prepare for publication. This space is located on a magnetic *disk* or *disk pack* on which information is written (recorded) and read (played back). The disks and disk packs are located in the computer room and you never need to actually see them because you access your disk file area entirely through commands typed at the terminal.

Each file (or document or piece of text) stored in your file area is known by a name you give it (see Section 1.1.8). When you request the system to make some changes to a file stored on your disk area, it *reads* the contents of the disk file and *writes* the changed file on another part of the disk. This protects you in case you make a mistake in what you are attempting to do. You still have your original file to fall back on.

1.1.4 Project-programmer number(PPN)

Your disk file area can be thought of as resembling one drawer in a filing cabinet. This file area, like a drawer, has a label to distinguish it from all other file areas. This label is some number (such as 72,140) called a PPN, which means "project-programmer number". This number is assigned to you when you open an account with the Computer Centre.

Thereafter, the monitor will regard this number as your personal PPN and every time you wish to use the terminal the monitor will insist that you first introduce yourself by this number during the *login* procedure. This ensures that you can access your files easily by name, but protects them from other persons unless special arrangements are made with you.

1.1.5 Password

In the interests of security each user of the computer has a secret password known only to himself. A password is up to six alphabetic or numeric characters and is initially given with the PPN when an account is established. It may be changed from time to time when you are logging in.

During the logging in procedure, your password is requested by the monitor. Instead of being echoed on the screen or printer of the terminal as you type it, nothing appears. This helps to keep your password secure and is another precaution the monitor takes to protect your files from outside interference.

1.1.6 Program

A computer program is a set of instructions to the computer and is referred to by name. The programs you will use accept the commands you give at the terminal and perform some action on your files, e.g., DIRECT is a program that lists the names of your files.

1.1.7 Menu system

There is a program called TXTMEN (for text processing menu system) which offers a choice of functions related to text processing. You select a function (menu item) and then respond to prompts designed to guide you through the task.

1.1.8 Filenames

Within your disk area you may keep many files, each identified by a 'filename'. You must assign a new filename every time you create a new file in which you will be storing text.

A filename always has two parts; the filename itself, which has one to six characters, and a second part called the *extension* that is not more than three characters long. The filename and extension must be separated by a period (.), and there must not be any blank spaces in the name. You can use any names you wish for your files; the usual practice is to give them names associated in some way with their contents.
For instance, the names:

LECT01.RNO
or
NAMES.TXT

might mean "notes for lecture 1 in RUNOFF form" and "list of names as text" respectively. Such associations are informative and easy to remember. Refer to the manual MNT-2 if you need a fuller description of forming file names.

Remembering the names of your files is not quite as important as remembering your PPN and password because the monitor keeps a directory of your filenames. It will give you the complete list in response to a simple command, viz., DIRECT.

1.1.9 File contents

The contents of your file area can be several large files or many small files. You can add more material at the end of a file, change the contents of a file, copy the contents into another file, delete a file or files; in fact do anything that can be done with files in a filing cabinet drawer.

It is important to understand the concept of a file because all your text preparation work will be done with files. You will create a new file by designating some new filename to the monitor. You will then type the text, perhaps doing some preliminary editing and inserting commands to specify the format and final appearance of the text. Once this editing has been completed to your satisfaction, you send a copy of the file to one or more of the system programs for further processing through various commands.

Remember that only a copy of the file contents is sent for processing; the original remains in your file in case some correction is required. Corrections are made to an existing file through use of the editing program. You give the edit command with the right filename, a few more commands will put you at the right spot in the source file to make the correction. The only way the contents of the file and the file itself is removed is if you give the monitor a specific command to delete it.

After the text has been processed, you can send the output file to an output device to print a master copy.

1.1.10 Output devices

Output devices are pieces of equipment that print or display text files in various stages of completion. To get a proof copy or the final corrected draft, a video screen terminal is not convenient and a printing output device should be used instead.

When getting final output, the output device will print the completed text exactly according to the format and composition you specified in the commands inserted. The inserted commands will not appear in the final copy. There are a number of different types of output devices available including hard-copy terminals, line printers and photocomposition machines.

1.1.10.1 hard-copy terminals - Hard-copy terminals have been described previously, and the finished text on such devices resembles the output of a standard typewriter. There are special office quality terminals offering variable spacing between letters and words to give improved appearance to text with automatically justified alignment at both margins. The print is restricted to a single size and style of type.

1.1.10.2 line printers - Line printers are the standard printed output devices for computer installations. They print on continuous stationery, typically 132 character positions wide, and have upper and lower case. The character size and line spacing are fixed. Draft copies of documents eventually intended for other media may be printed on a line printer at considerable savings in time and costs.

1.1.10.3 photocomposition machines - Photocomposition machines can photographically duplicate all the typographic abilities found in professionally printed documents such as newspapers, journals or manuals. Whenever you prepare text intended as print quality documentation, the final copy of the document will be produced on such a device.

The master copy is printed on a roll of special photographic paper. This master is called a 'proof' and is the last chance to check for spelling, format or composition errors. If it is free of errors and ready for printing, it is then often referred to as *camera-ready copy*.

Photocomposition machines contain special *fonts* of type. Fonts are collections of alphabetic, numeric, punctuation and special characters in a similar style. The styles of typefaces or fonts in photocomposition machines are those used in professional publications. The typeface styles available through the Prentice Computer Centre are illustrated in Appendix E. Fonts in most frequent use fall within the general categories:

Lightface: this is the typeface used for most of a given text.

Bold: this is a darker version of lightface with more thickness in the letters. It is used to make certain characters or words stand out from the rest of the text. **This is an example of boldface type.**

Italic: this is a slanted version of a typeface. It is generally used to underscore or give added emphasis to words or phrases in text, but is less intrusive than boldface. It is typically used in situations where text would have been underlined on a typewriter. *This is an example of italic type.*

Special Character Fonts: these are special purpose fonts that may contain such items as Greek alphabet characters, mathematical symbols, etc. The University of Queensland shield, for example, is available in one of the special fonts as a pair of characters.

Each font is available in a range of character sizes. The term *point size* defines the height of type in *points*, where a point is 0.35mm. As an example, the point size of this type is 10 point, and the point size of the word **INTRODUCTION** at the beginning of this chapter is 16 point boldface capitals (or "caps"). There is no exact definition of what is meant by 'height of type', so it is best to choose a point size by referring to the point size chart at the end of this manual. It is also a good idea to set a sample in the chosen style before proceeding with a big job.

1.2 Summary of the procedure

The new terminology and procedures to which you have been introduced will soon become more familiar as we go to succeeding chapters. So far, you have been given basic orientation as to *what* takes place when you are preparing copy. In the next chapters you will learn *how* to use the flexibility of the typesetting system and the power of the computer to produce text whose final appearance will give you a sense of accomplishment and satisfaction.

Before we go on to the "how to" chapters, it might be helpful to take another quick look at the general sequence of steps you will perform in getting started:

1. At the beginning of each terminal session, perform the login procedure by typing the LOGIN command, PPN and password. Your PPN and initial password will be assigned to you when you open an account with the Computer Centre.
2. Create a new file, giving it a descriptive filename of your own choosing. (This is done through an editor, which will be explained later.)
3. Enter your rough text into the file by typing it at the keyboard, just as you would on a typewriter. At the same time, type the necessary composition commands within the text. These commands define the desired format and final appearance of the text.
   Considerable thought should be given to type sizes and styles, layout and spacing at this stage.
4. Type a command to print or type a copy of your file so you can be sure you performed correctly all necessary editing and command insertion.
5. Type a command that causes the typesetting system to interpret and process all composition commands inserted in the mark-up. This is a single stage process if RUNOFF alone is used to produce output for a line printer or hard copy terminal with fixed character spacing. For variable spacing on an "office-quality" terminal or for phototypesetting a second stage, justification and hyphenation by a program called JUSTIF, follows immediately.
6. Preview phototypesetter output on a line printer (draft).
7. Type a command to send the prepared text to an output device to get a proof.

Preparing text with the typesetting system involves using a few easily-learned monitor commands, plus learning some RUNOFF and typesetting commands to insert within the text. To make it easier for those who find difficulty with monitor commands, a menu system, TXTMEN, is provided. A menu is displayed and you select an item, such as CREATE for creating a new document, and the prompts will guide you through the procedure. As you gain experience, the use of more advanced techniques of text preparation and file manipulation will become apparent.

Chapter 2

USING THE TERMINAL

2.1 Some symbols explained

Following are some symbols which appear in subsequent examples and need to be explained at this stage.

1. Carriage return <cr> The RETURN key indicates to the monitor or other program that you have reached the end of the command or line. The program responds to the command or accepts the line.
2. Escape <esc> The ALT MODE key or ESCape key is echoed by the monitor as $.
3. Control ↑ This symbol indicates that the following character is typed while the CTRL (control) key is held down.
    1. Control-C ↑C is used before login to get the attention of the monitor. The action of pressing Control-C twice may be used as an emergency stop to terminate a running program.
    2. Control-O ↑O stops further printing of text on the terminal but the program continues to run until the end of the text. A second control-O will resume printing if the end of the text has not yet been reached.
    3. Control-S ↑S halts printing at the terminal. For example, if you are displaying the contents of a file, a control-S will stop the display so you can read it.
    4. Control-Q ↑Q restarts typing from the point at which it was stopped by control-S.
    5. Control-R ↑R retypes a corrected line to show the effects of removing deleted characters.
    6. Control-U ↑U directs the program to ignore the line you are currently typing.
4. Delete <del> DELETE or RUBOUT key causes the character just typed to be deleted.
5. Period (.) The period is displayed by the monitor to indicate that it is ready to accept commands from you. Type a command immediately following the period.
6. Asterisk (*) Asterisk is used by most user programs, e.g., the editor, to indicate that it is ready to accept one of the commands it recognises. Note that you should not type a monitor command for a user program or a user program command for the monitor.
7. Menu> This prompt is displayed by the menu program when you are able to select a menu item. You type your selection immediately following the prompt.

In all the following examples, the parts you type are printed in Univers Light typeface; a darker typeface, Univers Medium, is used to show the computer typeout.

2.2 How to LOGIN

1. Turn on the terminal
2. Type a ↑C by holding the CTRL key down while typing C.
3. When the monitor prints or displays a period (.) to indicate that it is ready to receive commands, type "LOGIN 72,140", but use your own PPN in place of "72,140". Terminate the line with Carriage Return (the RETURN key on the terminal). The monitor will respond with a message as in the example below. You respond to the 'Password' and 'Cost limit' prompts when requested.

```
.LOGIN 72,140<cr>
JOB 33 Prentice KL 603A 17 TTY67 Node 11 Line 73
Password:your password<cr>
A/c balance is $1000.00
[Updated 17:38:02 10-Jan-80]
Cost limit: 50.<cr>
Charge no. 989
Cost limit $50.00
Seq. no. 27500
10:02:08 25-Jan-80 Fri
.
```

where the final period indicates that the monitor has accepted your password and PPN, you are now logged in, you have access to the files in your disk area, and the monitor is waiting for your command. Arrangements can be made so that the menu system follows LOGIN automatically; then the prompt will be "Menu>" and a menu item as described below may be selected.

2.3 How to use the text processing MENU

A menu of commands known as TXTMEN, is provided as an aid to text processing. Each of the functions can also be done by using appropriate monitor commands, but the menu is just a bit simpler to use. To enter the menu type "R TXTMEN" as a monitor command.

```
.R TXTMEN<cr>
                    Text Processing Menu System
                    (Type ? for help)

Menu>
```

The menu system is waiting for a command, type RETURN to see what commands are available.

```
Menu> <cr>

The available functions are:

CREATE      Create a NEW file
EDIT        Edit an OLD file
VIDED       Run the video editor program
RUNOFF      Produce RUNOFF output for the line-printer or terminal
TYPSET      Produce a typeset file for a specified device
DRAFT       Draft a typeset file on the line-printer or terminal
SEND        Send final typeset file to a specified device
DIRECT      List names of stored files
PRINT       Print file on the line-printer
TYPE        Type file on the terminal
DELETE      Delete a specified file from storage
EXIT        Leave the menu system
KJOB        Log off from the computer system
HELP        Type out help information on menu system

Menu>
```

A '?' typed to the 'Menu>' prompt will give a short explanation of the system; 'HELP' will give a much longer one. You select one of the functions from the menu by typing its name followed by RETURN. You may then be asked to supply further details, such as file name. A '?' at this stage will provide further help if needed. Most questions have a standard answer, shown in brackets, which will be assumed if you just type RETURN to the question. This includes such items as file and output device after the first time you mention them. With experience you might try abbreviating the commands and giving the filename on the same line as the command.

2.4 How to correct typing errors

2.4.1 Deleting incorrect characters

If you make a typing error you can immediately correct it at the keyboard *if you have not already pressed the RETURN key*. Press the RUBOUT or DELETE key once for each character back to the first incorrect character and then type the correction and continue as if nothing had happened. If you want to make sure the correction was properly performed, use the ↑R before you press RETURN. The corrected line will then be displayed. Then simply press RETURN and carry on.

2.4.2 Deleting an entire line

If a mistake was made early in a long line, or many mistakes made, it may be easier to delete the entire line and start again. If you have not already pressed RETURN, you can erase the line with control-U. The monitor will print ↑U and you can retype the line.

These error correcting techniques are a form of editing that may be used at any time. The only restriction is that you must perform them before you use the RETURN key. If you have pressed RETURN before noticing the error, you will need to retype the line again if it was, say, a monitor command. If it happened while you were entering text there will be opportunities later to correct it.

2.5 How to log off

When you have reached a convenient point in your work and wish to leave the terminal, you should log off the system. Logging off serves two important functions:

1. Terminates your communication with the monitor so that someone else may use the terminal.
2. Prevents further terminal access to your files so that other users of the terminal may not damage them. Logging off also terminates accounting of your computer use.

If you are using the menu system, the command is "KJOB", otherwise logging off is performed by the monitor command "KJOB".

```
Menu> KJOB<cr>
DSKD:SAMPLE.BAK[,] 5
[5 Blocks Deleted]
Job 33 User JUDY [72,140]
Logged-off TTY67 at 10:32:00 on 25-Jan-80
Cost $0.05 [Excluding spooled I/O & MOUNT charges]
Runtime: 0:00:00, KCS:2, Connect time: 0:30:31
Disk reads:39, Writes:0, Blocks saved:145

.
```

This summary of your activity at the terminal marks the end of your terminal session. Once you have logged off, login must be performed again before you can use the system.

Chapter 3

USING FILES

3.1 File Creation

Creating a new file is performed by first calling in a program called an *editor*. The procedure for creating a file is slightly different for each editor. The only editors described in this manual are QEDIT, the University of Queensland line editor described fully in the manual MNT-6, and VIDED, a video-screen editor described in the file DOC:VIDED.MAN.

Proficiency in using a text editor is essential in learning text processing. This is best achieved by attending one of the Computer Centre introductory courses. Readers using QEDIT should read the QEDIT file creation procedures and skip the VIDED section. If you are using some other editor such as SOS or TECO, consult the relevant manual.

3.1.1 How to create files with QEDIT

Assuming you have logged in and are using the menu, select the menu item, CREATE. You will be asked for the name of the file you are about to create. Decide on a suitable name and enter it.
To create a new file called SAMPLE.RNO,

```
Menu> CREATE<cr>
Create file:SAMPLE.RNO<cr>
[Using log file SAMPLE.LOG]
Input:
```

This is equivalent to the monitor command, "CREATE SAMPLE.RNO/LOG:SAMPLE.LOG". The editor is now in input state and you simply type in the document which is to form the new file. The DELETE and Control-U functions may be used as you type in the text, and you may go back and correct typing errors before you file the new material. When the text has been entered you type an extra <cr> and see an asterisk prompt. At this stage the editor will accept an edit command such as 'TOP', 'NEXT', 'PRINT *' or 'FILE'. Typing the command 'HELP' will give a list of the commands and a brief description of how to use them. To complete the creation of the file, give the command 'FILE'.

```
*FILE<cr>
[EDIFIL Filed: DSKD:SAMPLE.RNO]
[EDICLF Closed log file: SAMPLE.LOG]

Menu>
```

This tells you that the new file SAMPLE.RNO has been created and the menu system is ready to accept a command. If you were using monitor commands you will be returned to monitor mode.

The purpose of the log file is to enable recovery from editing mishaps and system failures. Please refer to the section on recovery techniques in the editor manual MNT-6.

3.1.2 How to create files with VIDED

VIDED is an editor for use with video terminals only. To create a file, give the VIDED command to the menu system.

```
Menu> VIDED<cr>
File name:SAMPLE.RNO<cr>
[VIDED 4B-2]
Input terminal type: vs200, vt52, vt100, Adm3a, (Other) display.
>ADM3A<cr>
```

VIDED asks you what type of terminal you are using. Type one of the terminal types listed. The screen will then go blank and you may type in your file. Typing errors may be corrected by use of the keys which are marked with arrows to move the cursor to the incorrect character. Then use VIDED commands to make the changes. Commands to VIDED must be prefixed by the escape key <esc> which will echo as "&". <esc>H will list the available commands.

When you are satisfied with your editing, exit from VIDED by typing "<esc>E".

3.2 Editing files

The same programs, editors, that are used to create files can be used to make changes to those files. It is the ability to make changes to existing text rather than retyping whole pages that makes using a computer to enter text so economical in time and effort compared with using a typewriter.

To edit using QEDIT, use the menu or monitor command EDIT. The editor types out the first line of your file and gives an asterisk prompt to indicate it is ready to receive an editing command. For instance you can go to the bottom of the file and insert more text at the end. See the editor manual MNT-6 for details of how to use the commands BOTTOM and INSERT to do this.

To invoke VIDED to edit an existing file, you use the same commands as you would to create a file. Your file will be displayed on the screen and you move the cursor to the place where changes are to be made.

3.3 Other file commands

As you gain experience, the number of files in your area will undoubtedly begin to grow. Although an editor is used to create new files, there are several useful monitor commands to aid in the 'housekeeping' process called *file management*. In using these file management commands remember that you must be in monitor mode; that is, the commands are typed after the period (.) is printed or displayed by the monitor to show that it is waiting for a command.

The basic file management commands are described below. These commands and many more are described in detail in the manual MNT-2.

When you are using the text processing menu system most of these file management procedures are available by selecting a menu item when prompted by 'Menu>'.

3.3.1 How to list your filenames

When there are many files in your area, it is not always easy to remember their names or how many there actually are. The monitor or menu DIRECT command can be used to get a list of all the files in your area.

Assume there are four files in your area named NAMES.TXT, SAMPLE.RNO, COP1.RNO and LECT06.TXT. Requesting DIRECT from the menu gives the file names only, unless you qualify it, e.g., "DIRECT SAMPLE" or "DIRECT .RNO".

```
Menu> DIRECT<cr>

NAMES.TXT              DSKD: [72,140]
SAMPLE.RNO
COP1.RNO
LECT06.TXT

 Total of 8 blocks in 4 files on DSKD: [72,140]

Menu>
```

The monitor command gives more information.

```
.DIRECT<cr>

NAMES     TXT     2  <055>  10-Jan-80   DSKD:  [72,140]
SAMPLE    RNO     3  <055>  09-Jan-80
COP1      RNO     2  <055>  10-Jan-80
```

```
LECT06      TXT         1  <055>   10-Jan-80

 Total of 8 blocks in 4 files on DSKD: [72,140]
```

where, on the first line, NAMES is the name of the first file, TXT is the extension, 2 is the number of blocks in the file (blocks are measures of disk space in units of 640 characters), <055> is the file protection code for your file, 10-Jan-80 is the date the file was created or last modified. DSKD means your file area is on disk DSKD, and [72,140] is your project-programmer number (PPN).

3.3.2 How to delete a file from your area

When a file is no longer needed and is simply cluttering up your file area, it can be deleted to regain disk storage space. Use the DELETE command to delete one or more files. Assume you wanted to delete the NAMES.TXT file listed in the previous example. Type

```
Menu> DELETE<cr>
File to delete:NAMES.TXT<cr>
Files deleted:
NAMES.TXT
02 Blocks freed

Menu>
```

This informs you that the file was deleted and its file space reclaimed. The equivalent monitor command is "DELETE NAMES.TXT".

Caution: Until you gain experience, it is recommended that you do *not* delete any files containing actual text preparation jobs unless you are absolutely sure they will never be required again.

3.3.3 How to protect a file against accidental deletion

As soon as you create an important file you should protect it so that DELETE will not delete it.

```
.PROTECT<255> LECT06.TXT<cr>
Files renamed:
LECT06.TXT
.
```

Then before you could delete it you would have to reduce the protection to <055>. The DIRECT command shows the protection codes of files.

3.3.4 How to archive files not immediately required

A procedure is provided for long term storage of files. The files are copied to a disk which is then removed from the system and stored "off-line". There are commands to list the off-line directory and delete off-line files as well as the archive and retrieve commands.
To archive COP1.RNO yet keep a copy readily available on on-line storage:

```
.ARCHIVE/PRESERVE COP1.RNO<cr>
ARCHIV COP1.RNO=COP1.RNO/PRESER
Total of 1 files, 4 blocks processed by ARCHIV.
```

To check the off-line directory for COP1.RNO:

```
.ODIRECT COP1.RNO<cr>
ODIREC TTY:ODIREC.DIR=COP1.RNO

[74,140]
 COP1   RNO     4  <157>   15-NOV-79
Total of 1 files, 4 blocks processed by ODIREC.
```

To retrieve COP1.RNO, leaving a copy off-line:

```
.RETRIEVE COP1.RNO/PRESERVE<cr>
RETRIE COP1.RNO=COP1.RNO/PRESER
COP1.RNO
Total of 1 files, 4 blocks processed by RETRIE.
```

The file can be expected within a few hours, so one should anticipate the need for off-line files.
To delete the off-line copy of COP1.RNO:

```
.ODELETE COP1.RNO<cr>
ODELET COP1.RNO
Total of 1 files, 4 blocks processed by ODELET.
```

3.3.5 How to copy one file into another

You can copy the contents of a one file into a new file by using the COPY command and defining a name for the new file. One reason for this is to modify a file's contents but without altering the original file.

```
.COPY SAMP2.RNO=SAMPLE.RNO<cr>
.
```

Note that the new filename is typed *first*, followed by the = sign and the old SAMPLE.RNO filename is given *last*. The monitor prints a period when the copy has been done and it is ready for a command. A DIRECT command would show the number and names of files after the above operations.

3.3.6 How to read your files

You may wish to see the contents of a file for a number of reasons; to see if further editing is required or to get a hard copy (printed copy) for instance.

The TYPE function is used to print or display the contents of a given file on your terminal. To type out LECT06.TXT,

```
Menu> TYPE<cr>
Type file:LECT06.TXT<cr>
```

The monitor would then begin to print or display the file contents on your terminal. The TYPE function is also available as a monitor command.

3.3.7 How to stop reading a file

The output may be too fast to read, especially on a video terminal, and you may wish to temporarily halt it. You can interrupt the printing by Control-S (see the section on using the terminal at the beginning of Chapter 2).

When you wish to continue the output, Control-Q will resume from the point at which it was halted. You can use Control-S and Control-Q as often as required while reading the file.

The various editors also provide ways of reading files and even have the capability of reading selected portions of files. You do not return to monitor mode to read a file you happen to be editing.

You may wish to read only the first part of a file; to determine its contents for example. You can abort the TYPE command when you have seen enough by using Control-C twice. The monitor responds with a period to indicate that it has terminated the TYPE command and is ready for a new command.

3.3.8 How to print a file

If you are using a video terminal and require hard copy; or if the file is too long to be conveniently typed out on your terminal, you could get a line printer copy by using the PRINT command.
Using the menu system PRINT option:

```
Menu> PRINT<cr>
Print file:SAMPLE.RNO<cr>
```

```
Priority to be used [10]:4<cr>
Number of copies [1]:<cr>
[LPT010:SAMPLE=/Seq:183813/Limit:28, 1 File]

Menu>
```

or using the monitor PRINT command:

```
.PRINT SAMPLE.RNO/PRIORITY:4<cr>
[LPT010:SAMPLE=/Seq:183813/Limit:28, 1 File]
```

The printed output will be available after a short delay at the computer network node your terminal is connected to.

3.3.9 How to rename a file

Occasionally you may wish to change the name of a file for some reason. Renaming is done using the RENAME command. The old name may then be used for some new file. Assume you wish the change the name of LECT06.TXT to L06OLD.TXT. Type

```
.RENAME L06OLD.TXT=LECT06.TXT<cr>
Files renamed:
LECT06.TXT
.
```

the messages indicating the renaming process was completed and the period showing the monitor is ready for a new command.

A DIRECT command would show the file as having the name L06OLD.TXT but since the contents were not changed the creation date remains unchanged. This retention of the original date is potentially useful as a means of later identifying a renamed file.

Chapter 4

HOW TO MARK UP COPY

With this chapter we come to the main task of composing text. This chapter deals with the fundamentals of inserting (typing) special composition commands into copy, and how these commands determine the final appearance and layout of the published text.

Previous chapters described some of the tools available to aid in copy preparation. It was necessary to introduce you to use of the terminal, monitor and files so that you would understand your working environment. But these aids do not themselves perform the tasks of composing text. The composition commands make it possible for you to access the capabilities and techniques of modern typesetting through a computer terminal.

4.1 What is text composition

In some ways preparing copy for photocomposition or printing is similar to standard typewriting. There are also differences. We will use the typewriter as a frame of reference.

Every time you prepare a letter, memo or report on a typewriter, you make a number of text composition decisions:

1. Setting the right and left margins.
   In computerised text preparation the paper size and margins are set by commands inserted into the text.
2. Deciding whether to use single or several columns. If a multiple column format is used you set the tab stops.
   In computerised text preparation tab columns are defined by inserted commands, and the process is faster and more accurate than is possible on a typewriter.
3. Deciding whether to use single line spacing and setting the spacing mechanism accordingly. Then the roller may be moved manually when more or less space is needed.
   In computerised text preparation, this process is both easier and more versatile. Line spacing is called vertical spacing or *leading* (pronounced "ledding"), which is a printing term.
4. Deciding whether to indent for new paragraphs and how many spaces are to be used for indenting by using a tab stop.
   In computerised text preparation a command inserted in the text does this. Generally paragraph indents are much smaller in typeset material.
5. Deciding to break off a sentence or hyphenate a single word before hitting the carriage return. The resulting appearance of the right hand side of the whole text is generally uneven; that is the lines are not vertically aligned as they are on the left margin.
   In computerised text preparation, the break-off point for ending a line is *automatically* determined by the system. It uses the margin commands previously inserted. The printing term for an uneven right margin is *ragged right*. In the typesetting system all text is automatically right justified and words automatically hyphenated. If for some reason you want ragged right, you must insert a command into the text for this.
6. Deciding whether to give extra space between paragraphs by hitting carriage return twice.
   In computerised text preparation, there is a command for this; in fact hitting the carriage return will not give a new line in the final output. A composition command is required to indicate a paragraph break, unless a technique known as *autoparagraphing* is used. In most publications there is no extra space between paragraphs, though there is around many headings.
7. Deciding how to give added emphasis to a word phrase or heading; for instance by underlining it or using all capitals.

In computerised text preparation, there are commands to give emphasis in various ways depending on the capabilities of the output device. Underlining or bold face can be obtained on hard copy terminals or printers; photocomposition machines allow different sizes and styles as well as density of type.

8. Centring headings and vertically aligning text as in tables.
   In photocomposition, the unequal character widths make it impossible to count characters and use spaces for layout as a typist often does. Headings are easily centred using a composition command; tab stops are used for tables.

9. Making changes to text such as correcting errors in typing, punctuation or spelling, or inserting, moving or changing lines of text as indicated by the author.
   In computerised text preparation, this process is called *editing* and is performed by the text editor. Only the characters, words or sentences in error are changed, leaving the remainder of the text untouched.

On a typewriter these tasks are performed while hardly being aware of the decision-making process. Within a short time this will also be true when using basic composition commands.

4.2 How to use composition commands

This section introduces very briefly the basic concepts of text composition. Full details of most composition commands and how to use them are given in the RUNOFF manual MNT-14. You should use that manual for all composition work. Section 4.3 below describes some additional commands specifically for typesetting. So that composition commands may be distinguished from normal text, they are typed at the left margin and preceded by a period. An exception to this is that several commands may be typed on one line by terminating each with a semi-colon. The commands may be typed in upper or lower case at your convenience.

Here is an example of some text with composition commands included.

```
.PS 64,70
.LM 10;.RM 60
.CENTRE ;PREFACE
.S 2
Applied mathematics is largely concerned with the design and
analysis of explicit procedures for calculating the values
of various functions. Such . . .
```

The meaning of these commands will become clear as you read on.

4.2.1 Some preliminary commands

4.2.1.1 page size - To describe the desired output page size, use the command ".PS n,m" where n is the length in picas and m is the width in tenths of inches. The unit of a pica is chosen for vertical measures because the line spacing on most line printers and hard copy terminals is one pica (six to the inch). These devices commonly print ten characters to the inch, so that is the horizontal measure. With phototypeset output the line spacing is about the same for the main text, but the character spacing varies widely as the point size chart at the end of this manual shows. This manual was set to a page size of 64 picas long and 7 inches wide, so ".PS 64,70" was used.

The widest line printer and DIABLO paper is 132 columns (13.2 inches) wide; APS phototypesetting paper is 11.6 inches (70 picas) wide.

4.2.1.2 setting the margins - ".LM 10;.RM 60" would set the left margin at one inch, and the right margin at 6 inches, leaving a column width of 5 inches for printing, since those numbers are in tenths of inches. Notice that in this example we have used the commands for left margin and right margin setting on one line separated by a semicolon as mentioned above.

For example:

```
.LM 10;.RM 60
The spirit of radicalism is destructive and aimless:
it is not loving, it has no ulterior and divine ends; but is
destructive only out of hatred and selfishness.
On the other hand, the conservative party, composed of the most
moderate, able, and cultivated part of the community, is timid,
and merely defensive of property.
.LM 3;.RM 70
```

produces:

> The spirit of radicalism is destructive and aimless: it is not loving, it has no ulterior and divine ends; but is destructive only out of hatred and selfishness. On the other hand, the conservative party, composed of the most moderate, able, and cultivated part of the community, is timid, and merely defensive of property.

4.2.1.3 determining paragraphing conventions - Whenever there is a paragraph break some decisions are necessary; how far to indent the new paragraph, how much space to allow between paragraphs and whether to go to a new page before starting a new paragraph. These parameters are set for the first paragraph and remain (unless altered) for the rest of the document.

The command ".P 5,1,4" would indent the first word of the paragraph by 5 tenths of an inch, leave 1 blank line between paragraphs and start a new page if there was not room for the blank line and three other lines on the page. Subsequent paragraphs are indicated by ".P", unless the paragraph parameters need to be altered.

An easier way of indicating where paragraph breaks are to occur is to simply indent the first line of a new paragraph one or two spaces. This method is known as *autoparagraphing* and requires an ".AP" command in the preliminary setup. The indent, skip and test page parameters associated with the paragraph command may be specified also with the AP command, e.g., ".AP 3,0,3".

4.2.1.4 line spacing and size of type - If the output device has fixed line spacing the choice is between single and multiple line spacing, the default being single spacing. For double spacing use ".SP 2".

Photocomposition machines are much more versatile. The default size and spacing (pointsize and leading) is 10 on 12, that is the characters are 10 points in size with a line spacing of 12 points (1 pica). For an exerpt or footnote you might use the POINT SIZE command described in Section 4.3 to give a smaller type with little white space.
For example:

```
.LM 15;.RM 55
.PO 8,8
LITERATURE is the written expression of those who believe they
have something to say that is worth recording and reading by
others. It has occupied the mind of men and women
to an extent greater than all the other arts summed together.
.PO 10,12
.LM 3;.RM 70
```

will give:

> LITERATURE is the written expression of those who believe they have something to say that is worth recording and reading by others. It has occupied the mind of men and women to an extent greater than all the other arts summed together.

There is usually one or two points difference between the point size and the line spacing (leading), especially if the lines are long.

4.2.2 Some other basic commands

4.2.2.1 BREAK and PARAGRAPH - The system relieves you of decisions about filling lines and breaking words for hyphenation. However it is necessary to indicate where you wish to force a line break or a paragraph break. ".BR" forces a line break. ".P" causes a paragraph break using the same indentation and spacing as earlier paragraphs and makes the same test of whether to go to a new page first.

4.2.2.2 FILL and NO FILL - Sometimes lines should not be filled, as in lines of poetry, a series of equations, or program examples. ".NO FILL" or ".NF" suspends the usual filling, resulting in a ragged right margin, until ".F" turns it on again. While 'no fill' is in effect, carriage return is sufficient to cause a line break. The same effect would be achieved by putting ".BR" at the beginning of each line.

4.2.2.3 SKIP, BLANK and FIGURE - To leave blank lines where that will improve the layout, several means are available. ".S 5" will leave space for five lines at the current line spacing. ".B 5" will leave five picas of space regardless of the line spacing. If, however this spacing causes a page to fill, no more space will be left at the top of the next page.

To leave space for a figure to be inserted later, SKIP and BLANK would not be useful, instead FIGURE is better. ".FIG 10" leaves ten picas blank. If there is not space at the bottom of a page, ten picas of space is left at the top of the next.

4.2.2.4 underlining and font changes - To give emphasis to words or phrases and make them stand out typists use upper case or underlining. Any character immediately preceded by an ampersand (&) will be underlined. To underline a word or phrase, underlining can be locked on by up-arrow ampersand(↑&) and disengaged by backslash-ampersand (\ &). Spaces within underlined text are not normally underlined. When typesetting we can also use a darker font (boldface), or a different size or style of font. To switch to bold type, use the command ".BBO" or ".BEGIN BOLD", and revert to normal type with a ".EBO" command. More conveniently for less than one line, ".BOLD text" can be used. Italics is handled in exactly the same way, using the commands ".BIT" or ".BEGIN ITALICS" and ".EIT" or simply ".ITALIC text". Line printers and terminals cannot produce slanted type, so underlining is automatically substituted for italics when output is requested for these devices. Conversly text which would be underlined if sent to a line printer, is set in italics when output is directed to a phototypesetter.

Where a different type style is required, either for emphasis or for the main text, a ".FONT n" command may be used. A complete list of fonts with a sample of each is shown in Appendix E. A ".FONT" command with no number specified will revert to the standard font for the output device.
For example:

```
.font 730
This line is Bell Gothic Light type
.bold with some Bell Gothic Bold
as an illustration.
.font
```

produces:

This line is Bell Gothic Light type **with some Bell Gothic Bold** as an illustration.

4.2.2.5 CENTRE - Headings are frequently placed centrally on the line. This is conveniently done by using the centre command. ".CENTRE;text" will centre the text in the current page width. Centring to one side can be done by specifying another width.
For example:

```
.CENTRE 35;PLATE 204
```

will give:

PLATE 204

4.2.2.6 chapter and appendix headings - To begin a new chapter with the chapter number and title centred on the top of a new page, a ".CH title" command is used. The chapter title will be printed also at the top of each page. The chapter number, which is automatically incremented, is used as part of the page number and section numbers for the chapter. Page numbers are of the form 1-2, 1-3 etc. and section numbers (described below) are 1.1, 1.2 for .HL1; and 1.1.1, 1.1.2 for .HL2, etc. Chapter numbers normally start with

'1' and increment with each chapter. Chapters may be printed from separate files by using a ".NUMBER CHAPTER n;.CH title" construct.

Appendices are handled in the same way as chapters. ".AX title" starts an appendix with the title specified, and page numbers in the form A-1, A-2 etc. Appendix 'numbers' start with 'A' unless ".NUMBER APPENDIX x" is used.

This chapter begins with the commands:

```
.PS 64,70;.LM 3;.AP 3,0,3;.NO NUMBER
.NUMBER CHAPTER 4;.CH HOW TO MARK UP COPY
.NUMBER
```

4.2.2.7 section headers - In documents where numbered sections are appropriate, these may be provided very conveniently. Text may be broken into sections within chapters and into sub-sections and sub-sub-sections to five levels. Each is provided with a number and header by a ".HL n header" command. The numbers are handled automatically, which enables sections to be added or rearranged at a later date. If this feature is not desired, one may overide the numbering system with the command ".NUMBER LEVEL n,m,...". Thus ".NUMBER LEVEL 5,3,2;.HL 3 header" will give '5.3.2 header'.

4.2.2.8 lists - Lists of items, where each item or *element* may be one line or several, are handled by a set of three commands. The first of these, LIST, moves the left margin to the right 3 picas (0.5 inches or 12 mm) in readiness for the list. Then ".LE" precedes each element of the list. The third command, END LIST, is needed to reset the margins. Lists may be nested, that is a sub-list following a list element with further indentation. List items are numbered sequentially, beginning at each LIST command and continuing with the previous sequence after the end of a sub-list.

4.2.2.9 tables and tabulation - Terminals have tab stops every eight character positions as a function of the monitor. RUNOFF allows a more flexible system where tabs may be set at tenth inch (7.2 point) spaces.

One method of arranging tables is to use this feature with no filling. ".NF;.TS 20,35" sets no filling of lines and sets tab stops at 2 and 3.5 inches (the units are tenths of inches). Then using the <tab> key before each column data gives the effect of left justified text in each column.

For example:

```
.NF;TS 20,35
<tab>10<tab>321
<tab>4321<tab>2
<tab>9<tab>4321
.F
```

will produce:

10	321
4321	2
9	4321

4.2.2.10 handling difficult cases - In some cases RUNOFF commands are either not powerful enough to allow all the subtle variations that are possible in typesetting, or certain combinations do not give the desired result. In these cases the TYPESET command, described in Section 4.3, can be used to enter JUSTIF composition commands directly. Appendix D contains a complete list of the JUSTIF composition commands with a brief description of each. Until you are experienced in typesetting, it would be best to avoid these commands if possible.

For example:

```
.TYPESET "[F820]Figure [F840]12/C[F230]"
```

produces:

Figure 12

giving a change of font within text which is centred.

Other effects, such as right justification, centring between the tab positions, and centring on the tab can also be achieved.
For example:

```
.NF;TS 20,35
.TYPESET "10/W 321/W/L"
.TYPESET "4321/W 2/W/L"
.TYPESET "9/W 4321/W/L"
.F
```

will produce:

```
      10          321
    4321            2
       9         4321
```

4.3 Formal description of RUNOFF commands for typesetting

There are a few commands specifically for typesetting that are not described in the RUNOFF manual, MNT-14.

4.3.1 Font selection

FONT n , FO n
The font is set up originally depending on the output device. For APS phototypeset output the default font is Font 230, Times New Roman. Any font valid for the output device may be selected an any time, and since FONT does not cause a line break, it is possible to change font within a line.

4.3.2 Point size of type

POINT SIZE m,n , PO m,n
This command changes the character size and line spacing on phototypesetter output. It has no effect with other output devices. The arguments, m and n, specify the type size and line spacing in points. When given within a footnote, the type size is effected for the rest of that footnote and all subsequent footnotes, otherwise only the main text is affected. The type size used in headings, including page numbers and titles, is handled independently.

4.3.3 Bold type

BOLD text , BO text
BEGIN BOLD , BBO
END BOLD , EBO
Where a line or part of a line is to be set in bold type, the command "BOLD text" will set the specified text in the bold variation of the current font. If there is no bold version of the current font, a "Font not available" message will be given. This command does not cause a word break, so the line above and the text should end with a space if word breaks are required. Where more than one line is effected and where a centre command is involved, BEGIN BOLD and END BOLD should bracket the text.

4.3.4 Italic type

ITALIC text , IT text
BEGIN ITALIC , BIT
END ITALIC , EIT
The technique described in the manual, MNT-14, for underlining, vis., using up-arrow ampersand to begin underlining and back-slash ampersand to end it, will produce italicised text instead, if the output is produced for a device capable of italics type. These commands which parallel the bold commands, provide a more consistent alternative.

As with BOLD, ITALIC is used for up to one line, and BEGIN ITALIC and END ITALIC bracket italicised lines. If there is no italic version of the current font, a "Font not available" message will be produced.

4.3.5 Using JUSTIF composition commands

TYPESET text
Sometimes one needs access to the more powerful set of commands that JUSTIF is capable of handling. See Appendix D for a list of these commands. The argument for the TYPESET command is one of:

1. a command enclosed in brackets, e.g., [YW]
2. a single character command preceded by a slash, e.g., /J
3. a Pi case character preceded by a plus, e.g., +O
4. any combination of text and commands enclosed in quotes, e.g., "[F820]Figure [F840]12/C[F230]" The terminal keyboard character, double quote, is used here.

The TYPESET command and its text argument are ignored if RUNOFF is not producing typeset output.

4.4 Accessing special characters

The character set of a computer terminal keyboard does not contain all the characters available in even the normal fonts. Also there are some characters on the keyboard and others not on the keyboard that are available only in special fonts (Pi fonts).

The characters @, <, >, {, }, and ↑ from font 740 are selected automatically by the system when these are required, since they are not available in normal fonts. The characters backslash, hash and tilde are not available in any font, so a space (em space) is substituted for them.

For quotation marks, terminals usually have a non-aligned double quote character as well as opening and closing single quotes, the second of which is also used for apostrophe. The single quotes give ‘ and ’ when typeset; for “ and ” you simply use two of each. We do not use the double quote character as a rule, except to enclose arguments of the TYPESET command, but if present it will give ‘.

4.4.1 Pi case characters in normal fonts

Characters which do not occur on the keyboard are referred to as Pi case characters, and must be referenced by a combination of characters and then only in a TYPESET command.
For example:

```
.TYPESET "+B and +S may be used to mark list items. "
```

gives

• and ★ may be used to mark list items.

Access table for Pi case characters

	Fractions		**Spaces**
/1	(⅛)	/M	em space (as wide as the point size)
/2	(¼)	/N	en space (0.50 em)
/3	(⅜)	/I	thin space (0.25 em)
/4	(½)	/F	fixed space (0.33 em)
/5	(⅝)	/G	figure space (as wide as a digit)
/6	(¾)	/O	one unit space (0.05 em)
/7	(⅞)	/:	thin plus space (0.28 em)
/8	(⅓)	/;	en plus space (0.56 em)
/9	(⅔)		**Rules**
	Specials	+0	en dash (–)
+L	pound (£)	—	em dash (—)
+C	cent (¢)		**Fillers (in Reiter Reverse font)**
+B	bullet (•)	+M	em filler (▮)
+O	degree (°)	+N	en filler (▮)
+S	star (★)	+I	thin filler (▮)

4.4.2 Accessing Pi fonts

Three Pi fonts are described below. Other fonts containing more mathematical and logic symbols including the Greek alphabet will be available at some future time. Characters in the Pi fonts are accessed by selecting the font and referencing the characters as listed below.
For example:

```
Copyright
.FONT 740
C
.FONT
1980 by the Prentice Computer Centre
```

gives

Copyright © 1980 by the Prentice Computer Centre

4.4.2.1 Pi font - font 740, shown below in 15 point type, is available in the full range of point sizes from 6 to 96 point, except for the chess symbols which can be printed up to 28 point only.

Access table for Font 740

A	∓	a	♥	*	☆	+A	♖	N	NRC	n	‡	/[	☾	+N	♕
B	±	b	♠	/+	+	+B	♖	O	○	o	□	/]	☽	+O	♛
C	©	c	♦	↑	↑	+C	♜	P	☎	p				+P	♛
D	⟵	d	♣	-	−	+D	♜	Q	√	q	‾	0	⓿	+Q	♔
E	⟶	e	♡	//	/	+E	♘	R	®	r				+R	♔
F	↓	f	♤	/=	=	+F	♘	S	§	s	✂	2	❷	+S	♚
G		g	♢	/@	@	+G	♞	T	Ⓣ	t	✔	3	☛	+T	♚
		h	♧	/<	<	+H	♞	U	✚	u	☒	4	☛	+U	♙
I	◁	i	◀	/>	>	+I	♗	V	✚	v	☑	5	☞	+V	♙
J	▷	j	▶	{	{	+J	♗					6	☜	+W	♟
K	▽	k	▼	}	}	+K	♝	X	×	x		7	❼	+X	♟
L	△	l	▲	(	☾	+L	♝	Y	÷	y				+Y	
M	Ⓜ	m	†	)	☽	+M	♕	Z	∞	z		9	❾	+Z	▨

4.4.2.2 Logo font 600 - the logo font currently has only one logo of interest, i.e., the University of Queensland shield. It is accessed as the two characters U and Q. Others may be added from time to time.

4.4.2.3 Border Rules font 850 - There are sixty characters suitable for border rules, any of which may be used alone or repeated for special effects.

A to Z gives: ♡♥◇◆♧♣♤♠⌧✖☆★○●◎◉⊗⊛⊖◐◒◯●□■▣

a to z gives:

and 12345678 gives: △▲▽▼②⑦⑨⓪

4.4.3 Character sets of each font

This list shows the characters available in each font. See also Appendix E.

Font 400 Line Printer

ABCDEFGHIJKLMNOPQRSTUVWXYZ abccefghijklmnopqrstuvwxyz
1234567890 `'" $ & :;., ?! % () [] <> +-* \/ @ _ ~ ¦

Font 220 Diablo

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 `'" $ & :;., ?! % () [] <> +-* \/ @ _ ~ ¦

Font 230 Times New Roman

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 231 *Times New Roman Italics*

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
*1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]*

Font 232 **Times New Roman Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 620 ***Times Roman Bold Italics***

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 240 **Bodoni Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 241 ***Bodoni Bold Italics***

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 630 Newton Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 640 Newton Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 641 *Newton Medium Italics*

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
*1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]*

Font 642 **Newton Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 650 Newton Bold Condensed

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 660 ***Newton Bold Italics***

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 670 **Techno Extra Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
1234567890 ‘ ’ $ ¢ & : . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 680 **Techno Extra Bold Condensed**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 700 Univers Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 710 Univers Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 712 **Univers Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 720 **Univers Extra Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 730 Bell Gothic Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 732 Bell Gothic Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 690 **News Gothic Bold Condensed**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 780 Techno Book

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ + .. . –

Font 782 **Techno Book Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ + .. . –

Font 800 **News Gothic Bold**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 810 **Gothic Extra Condensed**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 820 **Gothic No. 13**

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ⅛ ⅜ ⅝ ⅞ ¼ ½ ¾ ⅓ ⅔ = + | ★ • £ ■ ° [ ]

Font 840 Reiter Reverse

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

1234567890 ‘ ’ $ ¢ & : ; . , ? ! % * ( ) / - – — ■ | |

Chapter 5

HOW TO GET OUTPUT

We have seen how to log in and create a file containing composition (RUNOFF) commands. This file should be checked for typographical and other errors and edited if necessary before proceeding further. A copy can be printed quite cheaply on a line printer. Be most careful in checking that the composition commands are correct.

Next you may need a copy, uncluttered by composition commands, for the author to check for content and errors in the text. The RUNOFF function of the menu will produce a quite readably formatted listing, though not closely related to the final format. This is equivalent to running RUNOFF without the /TYPESET switch.

Now this .RNO file with its known errors removed, needs to be processed by the programs that will read the inserted commands and execute them. This process is handled within the text processing menu by (i) TYPSET which produces a typeset file (.LST file), and then (ii) DRAFT or SEND.

DRAFT is used for files created for the APS phototypesetter, in order to make a draft which shows how lines will be split and words hyphenated. Some attempt is made to show horizontal and vertical spacing within the limits of the printer. Text to be typeset in bold type is shown by overprinting; italics is indicated by underlining.

SEND is the menu option used when a satisfactory draft has been approved by the author, to send the final typeset file to the APS phototypesetter or DIABLO printer.

The processes handled by the menu selections, TYPSET, DRAFT and SEND can be performed by the monitor command sequences shown below if desired.

5.1 How to print a copy showing composition commands

A line printer copy of your input file will allow you to see that composition commands were entered correctly. Some spelling and typographical errors may be corrected from this copy, but the presence of composition commands can be confusing to the uninitiated.
Using the menu system PRINT option:

```
Menu> PRINT<cr>
Print file:SAMPLE.RNO<cr>
Priority to be used [10]:4<cr>
Number of copies [1]:<cr>
[LPT010:SAMPLE=/Seq:183813/Limit:28, 1 File]

Menu>
```

or using the monitor PRINT command:

```
.PRINT SAMPLE.RNO/PRIORITY:4<cr>
[LPT010:SAMPLE=/Seq:183813/Limit:28, 1 File]
```

5.2 How to print a copy for checking the text

It is most economical to finalise the text of a document before finalising the format. Typing effort can be saved if even the first rough draft of a manuscript is entered on a computer terminal rather than a typewriter. The following procedure will produce a line printer listing for the author to check.
Using the menu system:

```
Menu> RUNOFF<cr>
Output to terminal or lineprinter [L]:<cr>
File for RUNOFF draft[SAMPLE.RNO]:<cr>
```

```
RUNOFF: SAMPLE  3 pages

Menu>
```

or using monitor commands:

```
.R RUNOFF<cr>
*SAMPLE.RNO<cr>
SAMPLE 3 pages
*↑C
.PRINT SAMPLE.MEM/DISPOSE:DELETE/PRIORITY:4<cr>
[LPT010:SAMPLE=/Seq:183813/Limit:28, 1 File]
```

5.3 How to typeset a RUNOFF file

There are a number of steps involved in this process. Firstly RUNOFF commands are interpreted by the RUNOFF program and an intermediate file, the .TYP file, containing the text and commands for JUSTIF is written. JUSTIF runs automatically, announcing its name and version and giving a 'starting' and a 'done' message. The result is a .LST file suitable for one of the output devices as specified in the /TYPESET switch. The switch values are: /TYPESET:APS for the APS-5 phototypesetter, /TYPESET:DIABLO for output to a DIABLO "office quality" printer, or /TYPESET:LPT for typeset output on a line printer. Subsequent handling of the .LST file depends on the device for which it was created.
To typeset a RUNOFF file and produce a .LST file (as is done by the menu selection TYPSET):

```
Menu> TYPSET<cr>
Typeset device for output:APS<cr>
File to typeset[SAMPLE]:<cr>

RUNOFF: SAMPLE  3 pages
[JUSTIF Version 301(50400)-2

[JNHQUE - JUSTIFYING FILE DSK:SAMPLE.TYP]
[JNHFIN - SAMPLE DONE]

Exit

Menu>
```

Using monitor commands:

```
.R RUNOFF<cr>

*SAMPLE.RNO/TYPESET:APS<cr>
SAMPLE  3 pages
[JUSTIF Version 301(50400)-2]

[JNHQUE - JUSTIFYING FILE DSK:SAMPLE.TYP]
[JNHFIN - SAMPLE DONE]

Exit
.
```

For DIABLO and line printer output, this .LST file may now be sent to the output device as described in Section 5.3.2. For phototypeset jobs, a draft copy may be printed on a line printer first.

5.3.1 How to get a draft copy

SAMPLE.LST is the final output file ready to be sent to the phototypesetter. Because of the time and cost involved in phototypesetting, it is often advisable to produce a draft of output destined for the

phototypesetter on a line printer or hard copy terminal. For this reason the DRAFT menu selection or the PRELP program is available. This program interprets the .LST file created for the APS device and creates a .DRF (draft) file which can be printed on a line printer or typed on a terminal. The switches /FORTRAN or /FILE:FORTRAN are needed because the file is a product of a Fortran program.
To create a draft file and print or type it (the menu option is DRAFT):

```
Menu> DRAFT<cr>
File for typeset draft[SAMPLE.LST]:<cr>

[PRELP - Drafting file SAMPLE.LST]
[Will use 371 picas (1570mm) or 6 A4 pages of bromide paper]
[PRELP - Drafting done]
Output to terminal or line printer [L]:<cr>
Priority for printing [10]:<cr>
Number of copies [1]:<cr>
Do you wish to preserve the draft [NO]:<cr>
[LPT01:SAMPLE=/Seq:183813/Limit:29, 1 File]

Menu>
```

Using monitor commands:

```
.R TPS:PRELP<cr>

INPUT FILENAME FOR INTERPRETATION : SAMPLE.LST<cr>
[Will use 371 picas (1570mm) or 6 A4 pages of bromide paper]

END OF EXECUTION
CPU TIME: 2.68  ELAPSED TIME: 16.10
Exit

.PRINT SAMPLE.DRF/FILE:FORTRAN/DISPOSE:DELETE<cr>
[LPT01:SAMPLE=/Seq:183813/Limit:29, 1 File]
```

[or .TYPE SAMPLE.DRF/FORTRAN<cr>]

When you are sure the .LST file is correct, you send it to the output device (APS).

5.3.2 How to send a typeset file to the output device

For persons using the menu system, the SEND option is provided for this purpose; otherwise there are different commands for each device.

```
Menu> SEND
File to send[SAMPLE.LST]:<cr>
Send to typeset device:APS<cr>
Priority to be used[10]:<cr>
Number of copies[1]:<cr>

[LPT017:SAMPLE=/Seq:233797/Limit:14, 1 File]

Menu>
```

5.3.2.1 device LPT - to print a file typeset for device LPT, i.e., after RUNOFF, given the switch /TYPESET:LPT has created a .LST file.
For output to a line printer use the PRINT monitor command or menu item:

```
.PRINT SAMPLE.LST<cr>
[LPT01:SAMPLE=/Seq:233797/Limit:14, 1 File]
```

or for output to your terminal, use TYPE:

```
.TYPE SAMPLE.LST<cr>

— sample text —
```

5.3.2.2 device DIABLO - to print a file typeset for the DIABLO printer, i.e., after /TYPESET:DIABLO was specified to RUNOFF.
The .LST file is queued for printing on the DIABLO printer by:

```
.DO DIABLO SAMPLE.LST<cr>

.
[LPT201:SAMPLE=/Seq:233797/Limit:6, 1 File]

.
```

5.3.2.3 device APS - to queue a .LST file for the APS phototypesetter after setting it for device APS:

```
.DO TYPESET SAMPLE.LST/NOHEAD<cr>
.
[LPT017:SAMPLE=/Seq:183813/Limit:14, 1 File]
```

Notice that DO TYPESET has the same form as the PRINT command, described in the manual MNT-2 and the DECsystem-10 Operating System Commands Manual. Several files may be queued at one time and any of the switches except /FORMS may be used.

The output which has been queued will be processed by programs under control of the computer operators and the output returned to you in due course. The monitor command "PRINT /LIST", may be used to list the various output queues. See the manual MNT-2 for details.

Chapter 6

GLOSSARY OF TYPESETTING AND COMPUTER TERMS

alphanumerics. The set of characters comprising the letters of the alphabet (A—Z) and the numerals (0—9).

argument. The value, either numeric or textual, needed by a command or switch. Where it is omitted, a default value is often substituted.

ascender. The part of such characters as *d*, *f* and *k* that extends above the x-height, or top of the letter *x*.

base line. The level of the bottoms of the capital letters.

boldface. A darker and thicker version of type. **This is boldface type.**

camera-ready copy. Output from a photocomposition machine, line printer or hard-copy terminal that is ready to be sent to some device employing a camera to record the image, such as a photo-offset printer or office photocopier.

command. An instruction given by a user directly or included in a file, to cause the computer to do a specified operation. Some commands require a value or argument.

composition. The process of fitting text into organised and generally pleasing shapes. In typesetting this is done by line breaking, hyphenation, controllable indents, typefaces and type sizes, and commands to control the placement of characters relative to each other.

composition commands. RUNOFF or JUSTIF commands inserted into text to control final appearance and format of the printable version. RUNOFF commands are distinguished from the text by a period in the first column of a line. JUSTIF commands are inserted in the .TYP file for the JUSTIF program and are distinguished by enclosure in square brackets([]) or by a preceding slash(/).

control commands. Either monitor commands or user program commands typed at the terminal to cause some service to be performed by the system or by some user program. System commands are typed in following a period output by the monitor. Generally, user program commands are typed in following an asterisk or other prompt output by the user program. QEDIT prompts with an asterisk when it is ready to accept edit commands. System commands and user program commands are never inserted into text being prepared. Only composition commands should be typed into a text file.

copy. As a *verb*, copy means to transfer the contents of a file from one location to another but without changing or physically removing the contents from their original location.
As a *noun*, copy refers to a piece of text.

descender. The part of such letters as *p*, *q* and *y* that extends below the *base line*, or bottom of the capitals.

device. See output device

directory. A list of files that exist in a user's disk area, and is maintained by the system. The user can print or display the directory by using the monitor command DIRECT.

disk. A device containing rotating magnetic platters on which information can be written and then read.

disk area. A given amount of storage space on a disk that is assigned to an individual user and is identified by the user's PPN(project-programmer number).

editing. As used in a computer environment, editing usually refers to text editing and is performed through use of an editor program at the terminal. The editor program is used to modify the content or format of a text file. Modification can consist of transposing text, adding new material, deleting or changing words etc.

em space. A horizontal space as wide as the current pointsize.

en space. A horizontal space one half the size of an em space.

face. See typeface.

file. As used in text preparation, a file is labelled disk space containing text in some stage of preparation. A file is always identified by a unique filename plus a filename extension.

filename. One to six alphanumeric characters selected by the user to describe the class of information in a file. The filename and filename extension are separated by a period.

filling. Lines are automatically filled until one more word would exceed the right margin. Then a decision is made about hyphenation and the next word may be split to fill the line.

flush. No indentation. Flush lines begin at the left margin. *Flush right* indicates that type aligns at the right.

font. See typeface.

format. The shape, size, style and general appearance of a publication, as determined by type, margins, etc.

galley or galley proof. A proofing copy is a review copy of text in preparation. It is printed prior to the production of a camera-ready master to check for spelling, layout and composition errors.

hard-copy terminal. A terminal that prints on paper in a fashion similar to a standard typewriter.

indents. Commands that cause a temporary reduction in the column width usually at the left side of the text block.

input device. Any device that can accept data and commands. Typical examples are terminal keyboards. Some devices such as terminals can function as both input and output devices.

italic. A slanted and otherwise modified version of a typeface. *This is italic text.* Italic text is often represented by underlining on machines that do not have an italic font. Text that would be underlined by RUNOFF is set in italic if the output device has an italic font.

JH file. A justification and hyphenation log file produced by JUSTIF with a /LOG switch. It shows all the composition errors detected by JUSTIF.

justification. The vertical alignment of text lines to a pre-defined left margin, right margin or both (column width). Letter spacing and word spacing is adjusted if necessary.

justify. To perform justification on text.

lead. (Pronounced *led*) see leading.

leaders. (Pronounced *leeder*) characters used to separate columns of text horizontally, such as the small dots in a table of contents.

leading. (Pronounced *ledding*) vertical space measured in points. In this manual, a leading of 12 points is used, giving six lines per inch. See POINT SIZE command.

lightface. A typeface that is not bold or italic; usually the regular or normal typeface used in the main body of printed text.

line printer. An output device capable of printing an entire line in one operation. It is the standard device for printing data at computer installations.

login. The process of initially establishing communication with the monitor via a terminal. Login is initiated by typing LOGIN, followed by your PPN(project-programmer number) and password.

log off. The process of ending a terminal session so no further computer time is charged to your account on that terminal. To log off, type KJOB.

LST file. The final output file for the phototypesetter, line printer or terminal, ready for printing. (a .LST file will not be produced if any errors in composition commands are detected.) All automatic hyphenation and justification has been performed. No embedded composition composition commands appear in the printed output.

macro. In typesetting terminology, a set of JUSTIF commands with a defined name called by inserting [*name] into the .TYP file. RUNOFF inserts macro calls for many of the composition commands.

mark up. The process of inserting composition commands into text to control the appearance of the publication.

measure. Another word for column width.

monitor. A collection of computer programs that function as a single unit to control and schedule the flow of services throughout the system. The terms "monitor" and "operating system" may be used synonymously.

off-line file. A copy of a file which is stored on a disk not immediately accessible from a terminal. The archival system provides secure and economical long term storage of off-line files. See the monitor ARCHIVE and RETRIEVE commands.

output device. In this context an output device refers to a device capable of producing printed copy, such as a photocomposition machine, hard-copy terminal or line printer.

parameter. A variable that is given a constant value for a specific purpose, for instance paragraph indent.

photocomposition machine. A typesetting machine that produces typeset characters on a special photographic paper rather than by metal type used by some printing presses. The developed paper(bromide) is then used as the master for producing copies on a photo-offset printing machine or office photocopier. Photocomposition machines are equipped with various typefaces and pointsizes of type accessible by typesetting commands to RUNOFF.

pi case. Special (non-alphanumeric) characters in a font accessed (using .TYPESET command in RUNOFF) by +x, e.g., +s for ★ , +b for • , +c for ¢ , and +0 for – .

Pi font. A font of special (non-alphanumeric) characters. In font 740, "A B C D" becomes "∓ ± © ←".

pica. A unit of horizontal or vertical measure. There are approximately six picas to the inch. One pica is 0.1661 inches or 4.218 mm.

point. A twelfth of a pica. There are approximately 72 points to the inch (actually one point is 0.01384 inches or 0.3515 mm).

pointsize. The height of type (including ascending and decending characters and some extra space) measured in points. In some fonts where small type may be required as much as a third of the pointsize is white space. Unless explicitly changed by the point size command, RUNOFF uses 10 point characters for the main text.

PPN. The project-programmer number assigned to a user by the Computer Centre administrator and used as an identifier for login and computer services.

QEDIT. A line oriented text editor developed at the University of Queensland. It features line location by content rather than line number and is easy to learn.

queuing. The processing of output files is handled by a program that takes jobs one at a time from a queue of print requests. The PRINT monitor command is used to queue files for output and for listing the queues.

ragged right. A typesetting term used to denote that the right margins of a column are not to be right-justified. The text processing systems automatically justify text to the right unless a specific command is used to overide the condition.

rule. A horizontal line extending a pre-determined length in a column. *Em dash* and *en dash* are short rules.

switch. Part of a command or file specification, preceded by a slash, that modifies the action of the command. If a value or argument is required it is separated from the switch by a colon (e.g., /FILE:FORTRAN).

tab. White space appearing between columns of text. Tabs are set by a RUNOFF command in an equivalent way to an electric typewriter. There is an implied tab at the right margin.

take. Take is the basic unit for all processing within the typesetting system. A take is one file and could be a story, a chapter of a manual, a simple form letter, or anything else that constitutes text to be printed.

terminal. A piece of equipment that communicates with the computer either by being wired directly or through a telephone coupler. It has a typewriter style keyboard and is the primary link between the user and all available computer resources.

text entry. The process of entering copy into a file through a terminal for purposes of text preparation.

timesharing. Simultaneous use of a computer system by a large number of different terminal users. For all practical purposes no user need be aware that services are being shared with other users.

typeface. A set of typeset characters all of which are in similar style. Another name for typeface is font.

VIDED. A text editing program designed to be used with video screen terminals.

video terminal. A terminal that displays characters on a screen resembling a small television set rather than on paper.

widow line. A single line ending a paragraph at the top of a page, avoided when possible by changes in wording or spacing to remove the line or lengthen it.

x-height. A vertical dimension equal to the height of the lower case letters (such as *x*) without ascenders or descenders.

Appendix A

RUNOFF Composition Commands

Commands and abbreviations in alphabetical order.

APPENDIX *text*	AX *text*	start next appendix with rest of line as name.
ARABIC NUMERALS	AN	use arabic numerals in page numbering.
AUTOPARAGRAPH *n,v,t*	AP *n,v,t*	treat leading spaces as new paragraph (.I *n*;.S *v*;.TP *t*).
AUTOTABLE	AT	treat lines without leading space as new paragraph.
BEGIN BAR	BB	start a change bar.
BEGIN BOLD	BBO	start setting in bold type.
BEGIN ITALIC	BIT	start setting in italic type.
BLANK *n*	B *n*	skip *n* lines.
BOLD *text*	BO *text*	set the text in bold type if typesetting.
BOTH SIDES *n,m*	BS *n,m*	titles swing from side to side (column *n* to *m*).
BOTTOM NUMBER	BN	pages will be numbered at the bottom.
BREAK	BR	start new output line.
CENTER *n*	C *n*	centre next line around column *n*/2.
CENTRE *n*	C *n*	(as above).
CHAPTER *text*	CH *text*	start new chapter with rest of line as name.
COMMENT *text*		treat rest of line as comment.
CONTROL CHARACTERS	CC	allow control characters.
DISABLE BAR	DBB	set to ignore change bars.
DO INDEX *text*	DX *text*	output index with rest of line as title.
DOCUMENT DATE *ddmmmyy*	DD *ddmmmyy*	use date as subtitle.
DOCUMENT ID *text*	DI *text*	use *text* as title.
ELSE *name*		change sense of IF/IFNOT.
ENABLE BAR	EBB	set to allow change bars.
ENDIF *name*	EI *name*	ends conditional input.
END BAR	EB	end change bar.
END BOLD	EBO	end bold type.
END FOOTNOTE		terminate a footnote definition.
END ITALIC	EIT	end italic type.
END LIST	ELS	end a list.
END LITERAL	EL	terminate a literal block of text.
END NOTE	EN	terminate a NOTE command.
END SUBPAGE	ES	stop subpage numbering (resumes page).
FIGURE *n*	FG *n*	space for *n* line figure, maybe on new page.
FIGURE DEFERRED *n*		same, but may insert text to end of page.
FILL	F	resume filling and justifying each line.
FIRST TITLE	FT	include title on first page.
FLAGS ALL		enable existing flag characters.
FLAGS *type ch*	FL *type ch*	change flag character to ch.
FONT *n*	FO *n*	select font number *n* for typesetting. Default value is the standard font for the device (see /TYPESET switch).
FOOTNOTE *n*	FN *n*	start *n* line footnote (input until ! in col.1).
HEADER LEVEL *n*	HL *n*	start section at level *n*(1-5); rest is name.
IF *name*		start conditional input if VARIANT *name* is on.
IFNOT *name*	IN *name*	start conditional input if VARIANT *name* is off.
INDENT *n*	I *n*	indent next line.
INDEX *text*		insert rest of this line in index.
ITALIC *text*	IT *text*	set the text in italics or underline it.
JUSTIFY	J	resume justifying text.
LEFT *n*	L *n*	start next line *n* cols from left margin.

LEFT MARGIN *n*	LM *n*	set left margin.
LIST *n*	LS *n*	start list of items with spacing *n*.
LIST ELEMENT	LE	start of item in a list.
LITERAL *n*	LT *n*	start a literal block of text *n* lines long.
LOWER CASE	LC	start footnotes and text in lower case.
NO AUTOPARAGRAPH	NAP	stop autoparagraph mode.
NO AUTOTABLE	NAT	stop autotable mode.
NO CONTROL CHARACTER	NCC	don't allow control characters.
NO FILL	NF	stop fill and justify.
NO FLAGS ALL		disable existing flag characters except '.','!'.
NO FLAGS *type*	NFL *type*	don't use flag character *type*.
NO HEADER	NHD	suppress page headers.
NO JUSTIFY	NJ	stop justifying.
NO NUMBER	NNM	stop page numbering.
NO PAGING	NPA	stop splitting into pages.
NO PERIOD	NPR	stop double spacing after period,excl.,ques.,etc.
NO SPACE	NSP	suppress space on this end of line.
NOSPACE UNDERLINE	NSU	turns off underlining for all types of spaces.
NO SUBTITLE	NST	suppress subtitles.
NOTE *text*	NT *text*	start indented note with heading 'text' centered.
NUMBER *n*	NM *n*	resume page numbering at page *n*.
NUMBER APPENDIX *n*		set chapter to appendix *n*.
NUMBER CHAPTER *n*		set chapter number to *n*.
NUMBER INDEX		set chapter number to 'INDEX'.
NUMBER LEVEL *a,b,c...*		set next HEADER LEVEL to *a.b.c...*
NUMBER LIST *d,c*		set list counter depth *d* to *c*.
NUMBER PAGE *n*		resume page numbering at page *n*.
NUMBER SUBPAGE *ch*		set subpage number to *ch* (A-Z).
ONE SIDE *m*	OS *m*	titles positioned at column *m* on one side only.
PAGE	PG	start new page.
PAGE SIZE *n,m*	PS *n,m*	paper is *n* lines by *m* columns.
PAPER SIZE *n,m*	PS *n,m*	(as above).
PAGING	PA	resume breaking into pages.
PARAGRAPH *n,v,t*	P *n,v,t*	start new paragraph (.I *n*, S *v*, TP *t*).
PERIOD	PR	double space after .!?:;.
POINT SIZE *n,m*	PO *n,m*	set *n* point type with *m* points of leading (base line to base line). Has no effect unless typesetting.
PRINT INDEX	PX	start printing index.
RIGHT *n*	R *n*	right adjust next line *n* cols left of right margin.
RIGHT MARGIN *n*	RM *n*	set right margin.
ROMAN NUMERALS	RN	number pages with roman numerals.
SKIP *n*	S *n*	skip *n**(line spacing) lines.
SPACE UNDERLINE	SU	underline real, quoted, and justified spaces.
SPACING *n*	SP *n*	set line spacing (default=1).
STANDARD *n*	SD *n*	standard setup of width *n*.
SUBINDEX *text*	X *text*	index with '>' used to delimit sub-indices.
SUBPAGE	SPG	start sub-page numbering.
SUBTITLE *text*	ST *text*	use rest of line as subtitle.
SUBTTL *text*	ST *text*	(as above).
TAB STOPS *n,n,...*	TS *n,n,...*	set tab stops.
TEST PAGE *n*	TP *n*	skip to new page if fewer than *n* lines left.
TITLE *text*	T *text*	use rest of line as title.
TOP MARGIN *n*	TM *n*	allows variation of number of lines that appear at top of each page. (default=1).
TOP NUMBER	TN	pages will be numbered at the top.
TYPESET *arg*	TY *arg*	for typesetting only, put the argument into the output file unchanged.
UPPER CASE	UC	leave text as it is input.
VARIABLE *name,c1,c2*	VR *name,c1,c2*	declare variable with on/off flags *c1, c2*.

Appendix B

RUNOFF switches

The available RUNOFF switches are listed below.

/AUTOPARAGRAPH	leading spaces force a new paragraph.
/BAR:*ch*	use *ch* as bar character.
/CASE:LOWER	start in lower case mode
/CASE:UPPER	(default) start in upper case mode
/CONTROL	allow control characters in input.
/CRETURN	necessary for correct spacing on some terminals.
/DOWN:*n*	move text of each page down *n* lines.
/DRAFT	include all excluded contents.
/HEADER:LOWER	page header in lower case.
/HEADER:MIXED	(default) page header in upper and lower case.
/HEADER:UPPER	page header in upper case.
/HELP	type this text.
/IRANGE:*r*	only output pages in input range.
/LINES:*n*	start with *n* lines per page.
/NOSEQUENCE	(default unless /DRAFT) don't list input line numbers.
/NOSET	(default unless /TYPESET) don't run JUSTIF to typeset the output.
/ORANGE:*r*	only output pages in output range (not accurate with /TYPESET).
/PAUSE	pause between pages.
/RIGHT:*n*	move text of each page to the right *n* spaces.
/SEQUENCE	list input sequence numbers at left side of output.
/SIMULATE	simulate form feeds.
/SPACING:*n*	start with SPACING *n*.
/UNDERLINE:BACKSPACE	underline by backspace and overprint.
/TYPESET:APS	typeset by JUSTIF for APS-5 phototypesetter.
/TYPESET:DIABLO	typeset by JUSTIF for DIABLO printer.
/TYPESET:LPT	typeset by JUSTIF for line printer or terminal.
/UNDERLINE:CHARACTER	underline character does not space.
/UNDERLINE:LINE	(default) underline by overprinting line.
/UNDERLINE:SEPARATE	output underlines as separate line.
/UNDERLINE:0	suppress underlining.
/UNDERLINE:*ch*	use *ch* (octal or quoted character) as underline character.
/VARIANT:*word*	do variant *word*
/VARIANT:(*w1,w2,...wn*)	do variants *w1, w2, ...wn* together.
/WIDTH:*n*	start with page width *n*.

Appendix C

RUNOFF Typesetting Macros

A typesetting macro is a set of JUSTIF composition commands to perform a typesetting function. These macros are defined in a system file, TPS:RUNOFF.MCR, which is referenced by all typeset files (.TYP files) created by RUNOFF. This list of macros serves two purposes. The .TYP file created by RUNOFF contains calls to these macros as well as typesetting commands and the text, so the user may find this description helpful in interpreting messages from JUSTIF. The TYPESET command (q.v.) may be used to insert a call to one of these macros into a RUNOFF input file, e.g., .TYPESET "[*SUP]35@".

The more experienced user may wish to bypass the RUNOFF stage and prepare his own .TYP file. This can be accomplished, perhaps using a .TYP file produced by RUNOFF as a guide and following the directions given below. Typesetting commands for JUSTIF are listed in Appendix D.

In general, these macros parallel RUNOFF commands in name and function. Wherever there is an applicable RUNOFF command there is a typesetting macro of the same name (usually RUNOFF's abbreviated name) with the same or similar function.

To use the RUNOFF macro system simply include in your .TYP file:

```
[*setup macro]
[*RUNOFF][preliminary user commands][*BEGIN]
body of user text
[*END]
```

This command sequence must be followed in order to assure proper functioning of the macro sub-system. For '[*setup macro]' use '[*APS], [*LPT] or [*DIABLO]'. The 'preliminary user commands' are any commands which merely set parameters such as [*FT] or [*PS], etc. The [*BEGIN] macro call must precede all user text (including all leading, tabbing, etc.). The [*END] macro call (to do any device-specific ending functions) is the very last line of the .TYP file.

[*RUNOFF]	Set initial values for parameters and define the following macros
[*AX]n@ title@	Set appendix number 'n', title 'title'
[*BEGIN]	Start typeset output
[*BL]n@	Skip 'n' times 12 points
[*CH]n@ title@	Set chapter number 'n' with title 'title'
[*COL]n@ g@	Set multiple columns (note this command resets both the left and right margins) n = Number of columns g = Gutter (picas.points) between columns
[*ELS]	End list
[*END]	End of typeset text, clean up
[*ERROR]	Increment error counter, print '?'
[*FT]	Put running head on first page
[*HL1]Header@	Header level 1 text with header 'Header'
[*HL2]Header@	Header level 2 text
[*HL3]Header@	Header level 3 text
[*HL4]Header@	Header level 4 text
[*HL5]Header@	Header level 5 text
[*I]n@	Indent 'n' picas.points from left (one-shot)
[*IVLS]i@ j@ k@ l@ m@	Set list parameters i picas.points indent for each [*LS] j inter-list extra leading k inter-list t.p. (lines after 'j') l intra-list extra leading m intra-list t.p. (lines after 'l')

[*IVTB]i@ t@ v@ g@	Set table sub-column parameters i indent picas.points t test page picas.points v leading between entries g gutter between sub-columns
[*LALL]	List macro and command expansions
[*LE]	List entry item follows
[*LM]n@	Set left margin to 'n' picas.points from 0
[*LS]	Start a new list (recurses)
[*NHD]	No running head (but keep paging)
[*NLV]n@ m@ o@ p@ q@	Set header level to 'n.m.o.p.q'
[*NM]n@	Set page number to 'n', enable paging
[*NNM]	Turn off page numbering
[*NOTE]note@ text@	Print 'note' bold centered, text
[*NPA]	Turn off paging completely Note that [*AX] and [*CH] reset this
[*NRFOOT]	Turn off running feet
[*NRHEAD]	Turn off running head(s)
[*NST]	Turn off subtitles in running head(s)
[*NTI]	Turn off titles, subtitles in running head(s)
[*PARA]i@ s@ t@	Set paragraphing parameters: Indent 'i' picas.points; Skip 's' points; Test Page 't' points.
[*PG]	Force a new page
[*PGCOL]	Force a new column
[*PLCHAP]p@ l@	Pointsize & leading for chap/app (Must be issued from regular text)
[*PLFOOT]p@ l@	Pointsize & leading for running feet (Must be issued from regular text)
[*PLHEAD]p@ l@	Pointsize & leading for running head(s) (Must be issued from regular text)
[*PLTEXT]p@ l@	Pointsize & leading for regular text (Must be issued from regular text)
[*PS]h@ w@	Set page size 'w' picas.points wide by 'h' picas.points high
[*RFOOT]	Turn on running feet
[*RHEAD]	Turn on running head(s)
[*RM]n@	Set right margin to 'n' picas.points from 0
[*SK]n@	Skip 'n' lines
[*SP]v@	Set vertical leading to 'v' points
[*SUB]n@	Print 'n' as subscript
[*SUBTTL]text@	Set page header subtitle to 'text'
[*SUP]n@	Print 'n' as superscript
[*TABLE2]w1@ w2@	Set for two column table w1 width of sub-column 1 w2 width of sub-column 2
[*TABLE3]w1@ w2@ w3@	Set for three column table w1 width of sub-column 1 w2 width of sub-column 2 w3 width of sub-column 3
[*TABLE4]w1@ w2@ w3@ w4@	Set for four column table w1 width of sub-column 1 w2 width of sub-column 2 w3 width of sub-column 3 w4 width of sub-column 4
[*TABLE5]w1@ w2@ w3@ w4@ w5@	Set for five column table w1 width of sub-column 1 w2 width of sub-column 2 w3 width of sub-column 3

	w4 width of sub-column 4
	w5 width of sub-column 5
[*TABS8]	Set Tab stops every 8 'spaces'
[*TE2]t1@ t2@	Text entry for 2-sub-column table
	t1 text for sub-column 1
	t2 text for sub-column 2
[*TE3]t1@ t2@ t3@	Text entry for 3-sub-column table
	t1 text for sub-column 1
	t2 text for sub-column 2
	t3 text for sub-column 3
[*TE4]t1@ t2@ t3@ t4@	Text entry for 4-sub-column table
	t1 text for sub-column 1
	t2 text for sub-column 2
	t3 text for sub-column 3
	t4 text for sub-column 4
[*TE5]t1@ t2@ t3@ t4@ t5@	Text entry for 5-sub-column table
	t1 text for sub-column 1
	t2 text for sub-column 2
	t3 text for sub-column 3
	t4 text for sub-column 4
	t5 text for sub-column 5
[*TITLE]text@	Set page header title to 'text'

Appendix D

JUSTIF Composition commands

This list of commands is included to explain the mysteries of .TYP files for those who may be interested. Error messages from JUSTIF are preceded by a line from the .TYP file showing the expansions of any macros, so a reference to these commands may be helpful.

Occasionally some effects beyond the scope of normal RUNOFF commands is needed. In these cases, a few typesetting commands may be entered directly using the .TYPESET command.

Persons creating .TYP files directly will, of course, need this list.

	Essential parameters
[Dx]	setup number
[Fx]	select font x
[Px]	pointsize
[Vx]	stored leading (vertical spacing)
[Cx]	column width
	Type face change
[Fx]	select font x
[WFx]	change face for one line
[FB]	bold face
[WB]	bold face one line
[FI]	italic face
[WI]	italic face one line
[FR]	face restore, cancel [FB] and [FI]
[WC]	all caps one line
	Point size change
[Px]	set point size
[PRx]	set point size to x or nearest size
[PGx]	set point size to x or next greater legal size
[PLx]	set point size to x or next smaller legal size
[WPx]	point size for one line
	Leading change
[Vx]	stored leading of x points
[WVx]	change leading for one line
[VAx]	added leading (advances paper x points immediately)
[VRx]	reverse leading (like [VA-x])
[VDx]	change percent of leading on first line in proportional leading
	Column width change
[Cx]	set column width
[CZ]	restore column (cancel all indents and tabs)
	Paragraph; flush and hang
[IPx,y,z]	set indent, spacing, test page
/P	paragraph break
[IP%]	reset standard indent, spacing and test page
[IHx]	define flush and hang indent
/H	flush and hang
[IH%]	cancel flush and hang
	Horizontal Spacing
/M	em space (equal to the point size)
/N	en space (half an em space)
/I	thin space (quarter of an em space)
/F	fixed space (third of an em space)
/G	figure space (same as the numerals)
/O	one unit space (twentieth of an em)
/B	backspace to over print one character
	Quads
/L	quad left; break line and flush left
/R	quad right; break line and flush right
/C	quad centre; break line and centre text
/Q	quad middle; flush left but no line break
/?	/L if no quad after preceding text
/Z	quad zero; flush left, break line, but no vertical leading
	Rules
—	em dash —
+0	en dash – (as wide as a figure space)
-	hyphen -
|	vertical rule |
	Tab settings
[TSx,y,z...]	set tabs at positions indicated in picas.points
[T%]	cancel all tab settings
/U	tab left (same as <tab> key)
/W	tab right (right justify text in tab column)
/V	tab centre (centre text between tab stops)
/A	tab around (centre text on next tab stop)
	Column indents
[ILx]	indent left (set left margin)

[IRx]	indent right (set right margin in from column width)
[IL%]	cancel left indentation
[IR%]	cancel right indentation
[I%]	cancel all indents: columns, text, hangs and skews

Mark point

[VMx]	set vertical mark x (0-9)
[VMx%]	cancel vertical mark x
[VM%]	cancel all vertical marks
[VPx]	position vertically to mark point x
[VCx,y]	set vertical column x points wide returning to mark point y
[VC%]	cancel vertical columns
[VB]	if VC is in effect, causes immediate column return
[VGx]	set gutter width between columns

Ragged mode

[RL]	ragged left (lines are flush right)
[RR]	ragged right (lines are flush left)
[RC]	ragged centre (lines are centred in column)
[R%]	cancel ragged

Leaders

[XL]	use leaders instead of white space
[XDs]	define alternate leader (s is a six character string)
[XX]	use alternate leader defined by [XDs]
[X%]	cancel leaders
/.	one shot leaders (use dots as leaders on this line)
/X	one shot alternate leader
/S	one shot white space while in leader mode
/—	one shot rule (use a rule as leader on this line)

Justification parameters

[JPw,x,y,z]	w minimum word space, x maximum word space before hyphenation, y maximum word space before letter spacing, z maximum letter spacing
[JLx]	allow letter spacing with x as minimum relative unit space
[JL%]	cancel letter spacing
/J	one line justify, break line and justify

Hyphenation

[YPw,x,y,z]	at least w letters before a hyphen, at least x letters after a hyphen, no more than y successive hyphens and at least z letters in a hyphenated word
[YA%]	disable hyphenation
[YA]	enable hyphenation after [YA%] or [YA1]
[YA1]	hyphenate using the algorithm for French instead of English
[YW]	disable hyphenation of the immediately following word
[YD]	hyphenate by the hyphenation dictionary only
/-	if necessary hyphenate this word at this point only

Arithmetic commands

[MR]	cause registers used in Z commands to be displayed in .JH file
[ZXr,s]	load the value or register s into register r
[ZAs]	output (typeset) the value of s as a number
[ZWs]	output the value of s in words
[ZZr]	zero the register r
[ZIr]	add one to register r
[ZJr]	display and increment r ([ZAr][ZIr])
[ZPr,s]	r is replaced by r plus s
[ZMr,s]	r is replaced by r multiplied by s
[ZDr,s]	r is replaced by r divided by s
[ZCr,s]	r is the remainder when r is divided by s
[ZU,r]	save the value r on the stack
[ZV,r]	recover the value r from the stack

Test register commands

[ZEr,macro]	do the macro if r is zero
[ZNr,macro]	do the macro if r is not zero
[ZGr,macro]	do the macro if r is greater than zero
[ZLr,macro]	do the macro if r is less than zero

Values available in internal registers

$C	column width in points
$D	setup number (400 for LPT, 230 for APS, 220 for DIABLO)
$E	number of errors so far
$F	font number (see Appendix E)
$I	total indents in points
$J	total left indents in points
$K	total right indents in points
$L	lines so far
$M	points of leading remaining in mark point command
$N	points of lead in the last [VCx,y]
$P	pointsize in 1/100 points
$S	one-shot indent in points times point size resolution
$T	total column width so far in points
$U	total lead accumulated (paper used) in points
$V	leading specified in last [Vx] command in 1/100 points
$X	pointsize resolution (1 for whole points, 2 for half points)
$Y	leading resolution (1 for whole points, 2 for half points)

Appendix E

Type Styles

In these examples, 10 point type has been used except where it is not included in the range, and for the book fonts 780 and 782. Because of the way these fonts were created, they need to be set at 15 point to give the appearance of 10 point type. Any point size may be specified in the RUNOFF command ".PO m,n", but the size actually used will be from the set: 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 44, 48, 56, 60, 64, 72, and 96 points. The default font for a device is selected automatically by the RUNOFF switch /TYPESET:device, or the setup macro (Appendix C). The default fonts are 400, 220, and 230 for devices LPT, DIABLO and APS respectively. Basic font numbers end in 0. The italic (underlined) and bold variations of the basic font are used where italic and bold are requested. Any font may be specified by the user (see .FONT command), but italic and bold variations are not available in all fonts. Availability is indicated in this list by the presence of fonts *nn*1 and *nn*2 corresponding to the *nn*0 font. Thus there is no bold variation of Bodoni Bold (Font 240) and no italic variation of Univers Medium (Font 710).

Font 400 Line Printer

KRISTOL'S LAW. Being frustrated is disagreeable, but the real disasters in life begin when you get what you want.

Font 401 Line Printer (Underlined)

Understanding the laws of nature does not mean we are free from breaking them.

Font 402 Line Printer Bold

Half of being smart is knowing what you're dumb at.

Font 220 Diablo

ORBDEN'S PACKAGING DISCOVERY. To-day, one bag of groceries produces two bags of garbage.

Font 221 Diablo (Underlined)

There is no such thing as free love.

Font 222 Diablo Bold

Hell hath no fury like a pacifist.

Font 230 Times New Roman in 10 point, available in 6-96 point

ANDERSON'S LAW. I have yet to see any problem, however complicated, which, when you looked at it in the right way, did not become still more complicated.

Font 231 Times New Roman Italics in 10 point, available in 6-96 point

AGNES ALLEN'S LAW. Almost anything is easier to get into than out of.

Font 232 Times New Roman Bold in 10 point, available in 6-48 point

BOK'S LAW. If you think education is expensive, try ignorance.

Font 620 Times Roman Bold Italics in 10 point, available in 6-48 point

COMPUTER MAXIM. To err is human but to really foul things up requires a computer.

Font 240 Bodoni Bold in 10 point, available in 6-96 point

BOMBECK'S RULE OF MEDICINE. Never go to a doctor whose surgery plants have died.

Font 241 Bodoni Bold Italics in 10 point, available in 6-96 point

CLOPTON'S LAW. For every credibility gap there is a gullibility fill.

Font 630 Newton Light in 10 point, available in 6-48 point

BEIFELD'S PRINCIPLE. The probability of a young man meeting a desirable and receptive young female increases by a pyramidical progression when he is already in the company of 1. a date, 2. his wife, 3. a better looking and richer male friend.

Font 640 Newton Medium in 10 point, available in 6-96 point

WING-WALKING, FIRST LAW OF. Never leave hold of what you've got until you've got hold of something else.

Font 641 Newton Medium Italics in 10 point, available in 6-48 point

CORCORAN'S LAW. All papers that you save will never be needed until such time as they are disposed of, when they will become essential.

Font 642 Newton Bold in 10 point, available in 6-96 point

GARDENING, LAW OF. You get the most of what you need the least.

Font 650 Newton Bold Condensed in 10 point, available in 6-96 point

IRON LAW OF DISTRIBUTION. Them that has—gets.

Font 660 Newton Bold Italics in 10 point, available in 6-48 point

HARRIS'S LAW. Any philosophy that can be put "in a nutshell" belongs there.

Font 670 Techno Extra Bold in 10 point, available in 6-96 point

DARWIN'S OBSERVATION. Nature will tell you a direct lie if she can.

Font 680 Techno Extra Bold Condensed in 10 point, available in 6-96 point

EVE'S DISCOVERY. At a sale, the only dress that you like and that fits is not the one on sale.

Font 700 Univers Light in 10 point, available in 6-96 point

ETTORRE'S OBSERVATION. The other queue moves faster. This applies to all queues—bank, supermarket, customs. If you change queues, then the other queue—the one you were in originally—will move faster.

Font 710 Univers Medium in 10 point, available in 6-96 point

FIEDLER'S FORECASTING RULES. 1. It is very difficult to forecast, especially about the future. 2. He who lives by the crystal ball soon learns to eat ground glass. 3. The moment you forecast, you know you're going to be wrong—you just don't know in which direction. 4. If you are ever right, never let them forget it.

Font 712 Univers Bold in 10 point, available in 6-96 point

FALKLAND'S RULE. When it is not necessary to make a decision, it is necessary not to make a decision.

Font 720 Univers Extra Bold in 10 point, available in 6-48 point

GOLDEN PRINCIPLE. Nothing will be attempted if all possible objections must first be overcome.

Font 730 Bell Gothic Light in 10 point, available in 6-48 point

PARKINSON'S LAW. 1. Work expands so as to fill the time available for it's completion. 2. Expenditure rises to meet income.

Font 732 Bell Gothic Bold in 10 point, available in 6-48 point

OSBORN'S LAW. Variables won't, constants aren't.

Font 690 News Gothic Bold Condensed in 10 point, available in 6-96 point

LUCE'S LAW. No good deed goes unpunished.

Font 780 Techno Book in 15 point, available in 6-15 point

MOYNIHAN'S LAW. If the newspapers of a country are filled with good news, the jails of that country will be filled with good people.

Font 782 Techno Book Bold in 15 point, available in 6-28 point

GENERALISED ICEBERG THEOREM. Seven-eights of everything can't be seen.

Font 800 News Gothic Bold in 10 point, available in 6-96 point

RUNYON'S LAW. The race is not always to the swift, nor the battle to the strong. But that's the way to bet.

Font 810 Gothic Extra Condensed in 10 point, available in 6-96 point

SEGAL'S LAW. A man with one watch knows what time it is; a man with two watches is never sure.

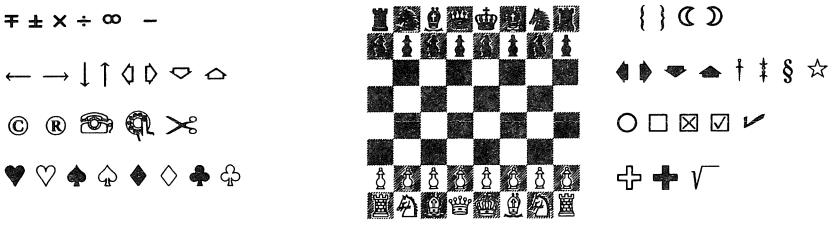
Font 820 Gothic No. 13 in 10 point, available in 6-96 point

THURBER'S CONCLUSION. There is no safety in numbers, or in anything else.

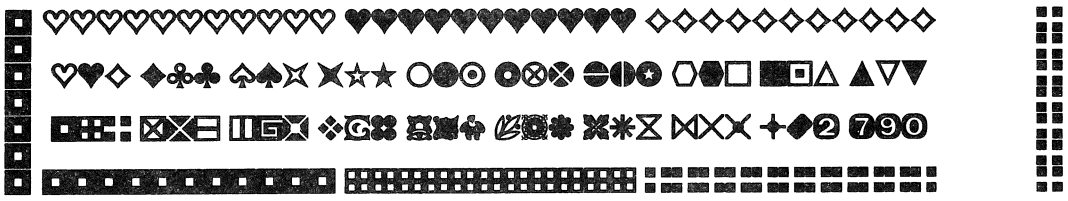
Font 840 Reiter Reverse in 10 point, available in 6-96 point

UNNAMED LAW. If it happens, it must be possible.

Font 740 Pi in 10 point, available in 6-96 point (chess to 28 point only)



Font 850 Border Rules in 10 point, available in 6-15 point



Font 600 Logos in 56, 60 and 64 point, available in 56-96 point

INDEX

POINT SIZE CHART

font 230 TIMES	font 240 BODONI	font 640 NEWTON	font 780 TECHNO
6pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUV	6pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUV	6pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVW	6pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ
7pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRS	7pt. abcdefghijklmnopqrstuvwxy ABCDEFGHIJKLMNOPQRS	7pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRST	7pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ
8pt. abcdefghijklmnopqrstuvwxy ABCDEFGHIJKLMNOP	8pt. abcdefghijklmnopqrstuv ABCDEFGHIJKLMNOP	8pt. abcdefghijklmnopqrstuvw ABCDEFGHIJKLMNOPQ	8pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVW
9pt. abcdefghijklmnopqrstuv ABCDEFGHIJKLMN	9pt. abcdefghijklmnopqrs ABCDEFGHIJKLMN	9pt. abcdefghijklmnopqrstu ABCDEFGHIJKLMNOP	9pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTU
10pt. abcdefghijklmnopqrst ABCDEFGHIJKLM	10pt. abcdefghijklmnopq ABCDEFGHIJKLM	10pt. abcdefghijklmnopqrs ABCDEFGHIJKLMN	10pt. abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRS
11pt. abcdefghijklmnopqr ABCDEFGHIJKL	11pt. abcdefghijklmno ABCDEFGHIJKL	11pt. abcdefghijklmnopq ABCDEFGHIJKLM	11pt. abcdefghijklmnopqrstuvwx ABCDEFGHIJKLMNOPQ
12pt. abcdefghijklmnop ABCDEFGHIJK	12pt. abcdefghijklmn ABCDEFGHIJK	12pt. abcdefghijklmno ABCDEFGHIJKL	12pt. abcdefghijklmnopqrstuv ABCDEFGHIJKLMNOP
14pt. abcdefghijklmn ABCDEFGHIJ	14pt. abcdefghijkl ABCDEFGHIJ	14pt. abcdefghijklm ABCDEFGHIJ	14pt. abcdefghijklmnopqrs ABCDEFGHIJKLMN
16pt. abcdefghijklm ABCDEFGH	16pt. abcdefghijkl ABCDEFGH	16pt. abcdefghijkl ABCDEFGHI	
18pt. abcdefghijkl ABCDEFG	18pt. abcdefghij ABCDEFG	18pt. abcdefghijk ABCDEFG	
20pt. abcdefghij ABCDEF	20pt. abcdefghi ABCDEF	20pt. abcdefghij ABCDEFG	
24pt. abcdefgh ABCDE	24pt. abcdefg ABCDE	24pt. abcdefg ABCDEF	
28pt. abcdefg ABCD	28pt. abcdef ABCD	28pt. abcdef ABCDE	
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