



Altogether this isn't a very promising start.

Wrong flowchart symbol. What are they doing in there?

C+

Department of Computer Science Newsletter

This isn't an operation—it doesn't do anything

May never get out of this loop

no

~~9~~
September
1974
?

13
November
yes

PRINTOUT

Volume 1

Number ~~1~~ 2

STOP

Again—wrong symbol

PRINTOUT, the newsletter of the Department of Computer Science of the University of Maryland at College Park, is published sporadically and distributed to faculty, staff, and students in the Department. Opinions expressed in signed articles may be those of the author, but no opinions represent the policy of the Department, or of the College Park Campus, or of the University.

Contributions may be submitted to the editor, and unless they are obscene or seditious they will probably be used, but minor editing may be done. Complaints directed to the newsletter will be investigated and publicized when possible. It is well to keep in mind however that the Department is subordinate to higher levels of administration, not the other way around; and, the Department does not provide computing service to the campus. Complaints in these areas are best directed to other publications.

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PRINTOUT

Volume 1
Number 2

CONTENTS

BUZZ WORDS

CARRIAGE CONTROL Dick Hamlet

PROFESSIONAL NEWS

CORRECTION (@SETUP, A)

UNIVACKY Harry Gilbert

PICNIC

2001EXTRA LINEFEED Rick Thomas

AUTOMATIC GRADING Bob Noonan

ELEANOR WATERS

MOSTLY SOFTWARES Marv Zelkowitz

ANNOUNCEMENTS

COLLOQUIUM

PUBLICATIONS, ETC.

FEDUP

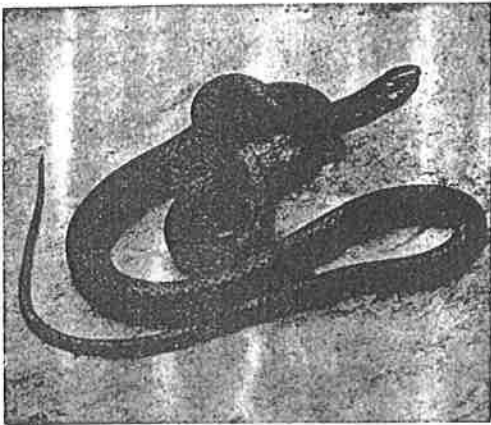
ACM LIVES

b u z z

w o r d s

The definitions below come from a part of the computer folklore collected by M. Zelkowitz. They appear to have originated in the computer division of Philco Corporation, when there was such a thing (early 1960's?). The list has been edited, notably to eliminate terms no longer in use, and a kind of male sexist humor no longer in style. Incidentally, the Philco 200 series computers were highly thought of by the few who possessed them.

Adder- a variety of snake; *half adder*-
A seriously wounded snake.



Adder. Half adder not shown.

ALGOL- first part of a quotation ending in: "is divided into three parts".
buffer- a way of cleaning certain mammals.
closed subroutine- what is done before a submarine dives.
code- a respiratory ailment.
core- part of the army.
cycle- half of a bicycle.
decoding- winter rest in Florida.
determinant- a stubborn insect.
diode- an elegy; *tunnel diode*-elegy to a miner.
down time- shedding season for ducks.
edit- consumed, as in: "I edit."
end file- a collection of obituaries.

ferrite core- a well trained troupe of small, furry animals.



Ferrite (A.W.O.L. from core).

file maintenance-keeping abrasive tools abrasive.
format- tee.
IBM- a manufacturer of excellent electric typewriters.
interlock- where the key goes.
kilocycle- a thousand wheel bicycle.
logical or- a smart, Cockney business woman.
matrix- leftover April Fool's Day pranks.
Minneapolis-Honeywell- manufacturer of excellent thermostats.
or gate- metal gate for Fort Knox.
overlay- produce too many eggs.
program- group in favor of a leading evangelist.
RCA- leading producer of electron microscopes.
real time- length of a dance.
Remington Rand- manufacturer of excellent electric shavers.
semiconductor- man who runs a bus for midgits.
six bit character- a bum with 75¢ in his pocket.
solid state device- sure revenue producers, such as sales tax.
thin film memory- can't remember Fatty Arbuckle.
transistor- a hypnotized relative.
MESA transistor- a lot of hypnotized relatives.
truncate- what the crocodile did to the elephant when it was drinking.

Carriage Control

Everyone knows that programming and programs are at the heart of computer science. It is heartening to be able to say exactly what those things are.

Programming is what any high-school student with the proper talent and access to a PDP-10 can pick up in six weeks. It is not so clear that others can pick it up in years at a university, particularly one without a PDP-10.

Programming is what Donald Knuth can write a marvelous series of at least three books about the art of. Unfortunately there is big difference between writing a marvelous book and reading one; there appears to be only one Donald Knuth.

Programming is fun, as long as I'm not responsible for the results.

A Program is a string. But then, so is a skinny clothesline. And in the same vein, so are many non-programs. It isn't clear that the concept justifies a rigorous discussion starting with free monoids and working up to context-sensitive van Wijngaarden table grammars. Even so, it comes down to a program being what some compiler will tolerate. (And what is a compiler? Well, it's a program...)

A Program is what when it doesn't work you debug it.

On second thought, perhaps it would be better to make structured programming the heart of computer science. It is acknowledged to be hard to say what that means, but my own feeling is that structured is to regular programming rather like Donald Knuth is to a talented high-school student whose PDP-10 is down.

--Dick Hamlet

Professional News

Dr. Charles Rieger has been nominated for Secretary/Editor of the Special Interest Group for Automatic Language Processing (SIG/ALP) of the American Association of Information Science. He is likely to be elected since his was the only nomination.

NASA has awarded Prof. Jack Minker a grant for \$25,000 to work on problem-solving systems. The one-year grant is to support implementation and experiments with a parallel unification algorithm for a theorem prover. Prof. Minker also delivered an invited talk on September 18 at the Institute for Computer Analysis in Science and Engineering at Langley Air Force Base, entitled "The Q* Algorithm--A Search Strategy for Question-answering Systems."

Prof. Laveen N. Kanal chaired the Workshop on Near Future Prospects for Image Pattern Recognition sponsored by the National Science Foundation, EIA, and the University's Laboratory for Pattern Analysis, November 11-13 in Silver Spring.

CORRECTION

In describing access to the student SAVELOAD file from the master account in Vol. 1, No.1, the format of the command to establish the name "DUM\$PF" was incorrectly given. It should be

@SETUP,A 001999

The two-month lag between the publication was time enough for this command to begin working even on the 1106.

It was also reported that the @ACCOUNT processor behaves strangely when actually run in the batch mode; it may be necessary to work in demand, using @ADD streams which result from putting cards on disk.



Twas BRKPT and the I/O queue
Was SYMming fastrand like the wind.
All idle was the CPU:
Production had just FINned.

"Beware the UNIVAC, my son,
Its fastrand and its high-speed
drum;
And fielfdata, and listen for
The CTMC's hum."

He quickly dialed a low-speed line
And then keyed in his siteID;
He typed @RUN and then sat back
To wield his CRT.

"NO ACTIVE RUN", it answered back,
And "WAITING ON FACILITY";
"BAD STATUS WORD FROM CSF"
And then just "SYMB 03".

"I'll fix you now", he shouted out,
"You've finally got me ired.
I'll use the system's terminal:
1200-Baud, hard wired!!!"

"I'll write a loop in SSG
To make your ferrite holler!
1000 runs, and in each one
Ten ER's to FORK\$."

"Each Fork", he smiles, "@ADDS 10 files;
Each file starts 10 runs more;
Each run contains ten COBOL jobs
To crunch along in core."

"Each job will write ten nine-track
tapes
And then rewind and read them;
Each tape, of course, is punched to
cards
For backup, if I need them."

As fast as light his fingers write:
@SETC and @TEST, @JUMP
@XQT and then, for spite,
A full post-mortem dump.

He wiped his hands upon his shirt
And then he FINned his run.
And scurried to the console
To sit and watch the fun.

"MEMORY FAULT", the system cried
And "PARITY-07 ADG"
"PANIC DUMP IMPOSSIBLE",
And "ERROR 53".

"Oh frabjous day, callou callay,
I've made the system stall".
He tore it from the pagewriter
And taped it in the hall.

Twas BRKPT and I/O queue
Was SYMming fastrand to the wind
All idle was the CPU:
Production had just FINned.

-Harry Gilbert
(date unknown)

[Editor's note. The above was submitted by a group which calls itself "Y.F.N.S.S." Like EXEC 8, it seems inappropriate to spoil the contribution by further documentation.]

Algol: The variable star Beta in
Perseus. [Arabic: *alghul*, the ghou].]

Compile is from the Latin *compilare*,
to plunder. OED says the history is
obscure.



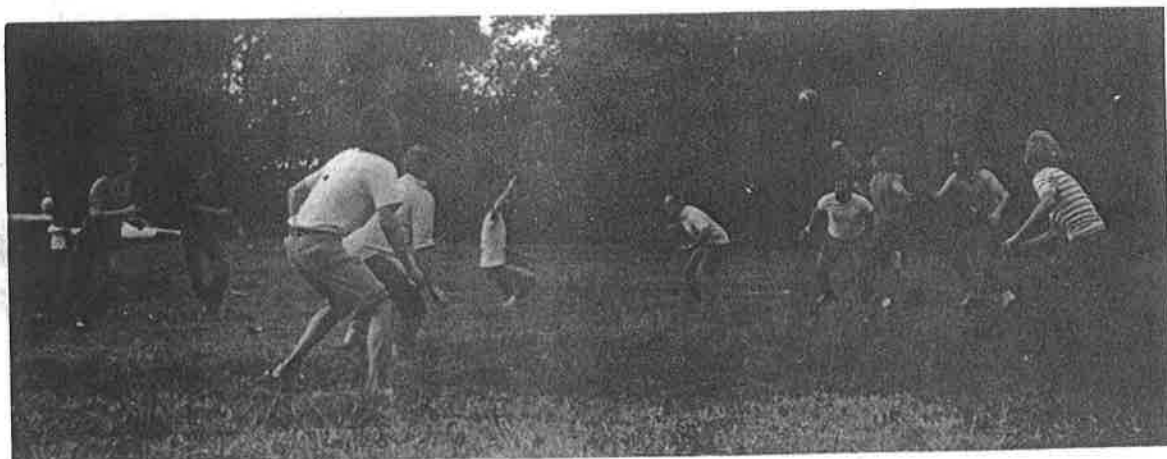
P I



N



C



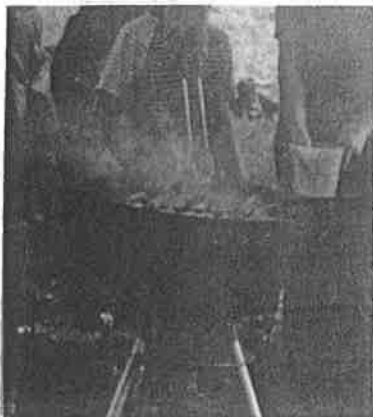


I



C

!



2001extra Linefeed

Terminals which supply an internal line feed produce double spacing when used with Exec 8; this is annoying, particularly when a limited display screen area is mostly filled with blank lines. Exec 8 lacks the controls to deal with the situation, but the command

@TTY T,012

will change the "send it" character from "RETURN" to "LINEFEED", and has the sole disadvantage that one must learn to end lines with the latter instead of the former. Also,

@TTY N,0

will eliminate the "sluff" characters sent to await carriage motion, increasing apparent speed on a terminal which doesn't need them.

-R. Thomas

Automatic Grading

In assigning class programming projects a dilemma arises: should students create their own test data, or should the test data be distributed with the project description? Both methods have obvious disadvantages, especially for 100 - 200 level courses.

A solution is to have the students submit their decks to the grader and have him run and test the programs. This is clearly better from an educational viewpoint. The student must devise data which exhaustively tests his program. The unwary student soon learns that because the program has run on a single test case does not necessarily mean that it is correct. Thus, how to test a program becomes part of the learning process.

The difficulty with running programs for grading would seem to be the large number of cards to be handled. However,

Eleanor Waters

Mrs. Eleanor B. Waters, the Office Supervisor for the Department of Computer Science, has worked for the University of Maryland and Computer Science for eight years the end of October. During these eight years, she worked almost five years for Dr. Azriel Rosenfeld as a secretary and typed research work for his Picture Processing Group.

Before her marriage and two children she worked for the U. S. Government for 14 years: a Clerk Typist for Censorship during World War II, an Audit Clerk for Bureau of Standards, and Statistical Clerk and Research Assistant for the Department of Interior. There was a break after Censorship as a Service Representative for the C & P Telegraph Co. for 4 years.

Her hobbies are reading, baking, gardening, and sewing.

thanks to a processor written originally by J. Verson, such program decks can be submitted and maintained on the computer (either 1108 or 1106). This deck processor inserts all necessary control cards, such as @RALPH, @XQT, etc. To run the program the grader need only create the data and @ADD the data file in which the student's programs are kept.

This system is currently in the third semester of use by CMSC 120. The deck processor can handle multiple sections of the same course. Students may submit multiple projects, although only the latest submission of a particular project by a student will be kept. The deck processor can handle different languages, although only one language per project is currently allowed.

The deck processor is written almost entirely in FORTRAN. Although some tailoring would be required for use by another class, this consists only of a couple of DATA statements. Any interested instructors should see R. Noonan.

--R. Noonan

Mostly SoftWares

The UNIVAC world, being a relatively small world, has not developed as significant an assortment of programs as have other computing communities. Nevertheless, some interesting programs have been developed and are currently available on our 1108/1106 installation.

1. MLISP

MLISP, the "meta-LISP" system developed by Dave Smith for use on the Stanford Artificial Intelligence Project's LISP 1.6 system for the PDP-10, has been implemented under the newly-released Wisconsin LISP system for the UNIVAC 1108. The MLISP translator, written completely in LISP itself, allows a programmer to design and write LISP programs using an ALGOL-like syntax (BEGIN-END, IF THEN-ELSE, FOR, WHILE, DO, UNTIL, etc.), then run them directly or translate them into exportable pure LISP or compiled LISP.

The systems are invoked as:

```
@XQT LISP*LIB.LISP      (LISP)
```

```
@ADD MLISP*SYSTEM.SETUP (MLISP)
```

This system also includes MICRO-PLANNER, developed at MIT for artificial intelligence applications. For further information contact Dr. C. Rieger.

2. SIMPL

The SIMPL family of languages is generally well known. There are currently two versions available for programming on the 1108. SIMPL-T contains integer and string data while SIMPL-R also includes real arithmetic. SIMPL is probably the most reliable compiler currently running at Maryland, and is easy to learn and use. SIMPL-R has the computational power of FORTRAN, but contains a control structure that leads to well developed structured programs that are much easier to debug than their FORTRAN equivalents. In general, SIMPL generates code that is as good as, or better than, the code produced by UNIVAC FORTRAN V.

For further information, see Computer Science Center Computer Note CN-14 "SIMPL-T A Structured Programming Language" or contact Dr. V. Basili.

3. PDP-11 Software

A significant amount of software has been developed in order to properly prepare programs for the departments' PDP-11 Computers. An assembler has been implemented which assembles programs on the 1108. Another program takes the output of the assembler and prints it (in paper tape format). A program on the PDP-11 takes the output and saves it on mass storage on the PDP-11. The saved copy can then be run when desired. A link editor is also being developed which links several independent modules in the 1108, before transmitting to the PDP-11.

For further information see Dr. M. Lay. A version of SIMPL has also been implemented for the PDP-11. SIMPL-XI executes on the 1108 and generates code for the PDP-11, which may then be handled as for the cross assembler described above. This version of SIMPL has many systems programming features added to the basic SIMPL language.

For further information contact Dr. R. Hamlet.

4. PLUM

PLUM is a load and go PL/1 compiler for the 1108. It is probably the fastest compiler on the 1108 in that it compiles about 10,000 statements per minute. Programs go into immediate execution without calling the collector. PLUM contains many diagnostic capabilities and effectively monitors many error conditions that most other compilers are unable to monitor.

For further information see Computer Science Center Computer Note CN-8 "PLUM Reference Guide" or see Dr. M. Zelkowitz.

--Marvin Zelkowitz

Announcements

H. D. MILLS-STRUCTURED PROGRAMMING

Dr. Harlan D. Mills of IBM Gaithersburg will offer a course in structured programming as CMSC 498E, spring semester, Tuesday/Thursday 3:30-4:45. The course objective is to learn to program computers effectively, by practice and theoretical study. The course will have three parts: (1) Mathematical preliminaries, (2) Programming Principles and Practice, and (3) A Mathematical Theory of Programming. The only prerequisite is CMSC 440 or Dr. Mills's consent.

NATIONAL SCIENCE FOUNDATION MONEY

Information on NSF Graduate Fellowships is available from the Department Chairman's office. The three-year awards are open to citizens and nationals of the United States, and are intended for students just beginning their graduate careers. Applications must be submitted before December 2.

STUDENTS & DIVISIONAL COMMITTEES

Almost every standing committee of the MPSE Division is in need of student members. These committees offer an opportunity to contribute to the administration of the Division, and to make student viewpoints known. For example, there are committees on "quality of education," "advising and counseling," and "student affairs." For details see Dr. R. Austing.

MATHEMATICAL SUBROUTINE PACKAGE

The Computer Science Center maintains a highly-recommended mathematical and statistical package by subscription, and the Center is debating whether or not to re-subscribe because the usage is low. The package is International Mathematical and Statistical Libraries, and contains routines for analysis of experimental design, basic statistics,

Colloquium

PRINTOUT's deadlines permit only some of the speakers below to be heard by those without time machines. All talks are in Room 2324 at 4:00; coffee is served at 3:30 in Room 3316.

October 14: Dr. Marvin V. Zelkowitz, "Third Generation Compiler Design."

October 21: Dr. John D. Gannon, "Language and Compiler Design to Enhance Reliability."

October 28: Dr. S. K. Chang, "Processor Allocation in a Distributed Computer System."

November 4: Dr. H. D. Mills, "The New Math of Computer Programming."

November 7: Dr. G. J. Chaitin, "Information-Theoretic Computational Complexity."

November 14: Dr. Michael E. Senko, "DIAM: Data Independent Accessing Model"

November 18: Dr. Ashok Agrawala, "MIPACS - Maryland Interactive Pattern Analysis and Classification System."

November 25: Dr. Forest Baskett, "A Stochastic Model of Program Paging Behavior."

December 2: Dr. D. R. McNeill, "A New Look at Some Old Results in Spline Approximation."

The December 2 colloquium will be the last of the Fall semester.

categorized data analysis, differential equations, eigenanalysis, econometrics, time series, random numbers, interpolation, linear equations, special functions, nonparametric statistics, regression analysis, matrix arithmetic, and linear programming. Information about IMSL can be obtained in the Program Library.

Publications, Etc.

Kanal, L., B. D. Fritchman, and J. D. Womer. Optimum sequential detector performance on intersymbol interference channels. *IEEE Transactions on Communications*, Vol. COM-22, No. 6 (June 1974) 788-797.

Minker, J., J.R. McSkimin, and D.H. Fishman. MRPPS--An interactive refutation proof procedure system for question-answering. *International Journal of Computer Information Sciences*, 3 (June, 1974), 105-122.

Minker, J. and G. J. VanderBrug. The earley algorithm as a problem representation. *Information Processing Letters* 3 (July, 1974), 1-7.

Stockman, G., L. Kanal, and M.C. Kyle. An experimental waveform parsing system. *Proceedings of the 2nd International Joint Conference on Pattern Recognition*, Copenhagen, 1974 (IEEE Special Publication 74 CH0885-4C).

Rosenfeld, A. and C.M. Cook. Some experiments in grammatical inference. *Proc. NATO Advanced Study Institute in Computer Oriented Learning Processes*, Bonas (Ger.), France, August 1974, 157-171.

Hamlet, R.G and M.V. Zelkowitz. SIMPL systems program on a minicomputer. *Digest of Papers COMPON '74*, Washington, D.C., September 1974, 203-206.

Sastry, A.R.K. ARQ error control on satellite channels with high error rates. *Computer Science Technical Report 327*, September 1974.

Stockman, G., and L. Kanal. How to parse a waveform. *Proceedings of the National Electronics Conference*, Oct. 16-18, 1974, Chicago, Ill.

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Hamlet, R. G. *Friedberg Programming Languages*. Computer Science Technical Report 337, College Park, Md. October 1974.

Kanal, L. Patterns in pattern recognition: 1968-1974. *IEEE Transactions on Information Theory*, November 1974.

McClellan, M. T. *The Exact Solution of Linear Equations With Rational Function Coefficients*. Computer Science Technical Report 341, College Park, Md., November 1974.

Sastry, A.R.K. Error control techniques for satellite communications - an overview. *Conference Record, International Conference on Communications*, 1974, 6A-1 to 6A-5.

Rosenfeld, A. and I. D. G. MacLeod. The visibility of gratings: spatial frequency channels or bar detecting units, *Vision Research* 14, (1974), 900-915.

"Alan Turing...had written the instruction manual for Mark I. ... I wrote asking him for a copy of the manual--a document that was famed in those days for its incomprehensibility. It wasn't really very difficult; it was just that people who did computer programming weren't used to reading really accurate descriptions, and this one was written by a mathematician. It was difficult to read partly because you had to code things in a frightful way; all arithmetic was done in scale 32 backwards, with the most significant digits on the right. ... As far as Alan Turing was concerned, that didn't make much difference; the direction was only one bit and he could change it round without any difficulty at all--but other people found it harder to understand the manual."

--From an interview with Christopher Strachey in Computing, 15 Aug. 74.

FedUp

(/Letters mostly from the Editor/)

Dear Sir:

Why doesn't my program work?

Disgusted 120 Student

Dear DIS: You must have failed to
Structure it.

Editor:

I have just arrived at this wonder-
ful University, and everything seems
to be fine, except that in the Computer
Center I always hear a lot of people
complaining about the computer and
saying bad things about someone called
the Executive. What's wrong with
people like that who have no respect
for authority, and what are you going
to do about it?

Polly Anna

Dear Polly: Those people probably did
not have a proper structuring when they
were children; we intend to see that
they get it now. (And if we don't get
them, the Executives will. Did you
know that there are 8 of them?)

SIR:
DATA IGNORED - IN CONTROL MODE
WHAT'S WRONG WITH ALL THE TYPE-
WRITERS IN THIS PLACE?
I'M NOT A VERU GOOD TYPIST, BUT THESE
MACHINES ARE SOMETHING ELSE! FIRST
OF ALL, THEY DON'T SEEM TO HAVE ANY
LITTLE LETTERS, AND WHEN YOU TYPE
THE THINGS OVER THE NUMBERS YOU GET
PROGRAM NOT FOUND.
STRANGE RESULTS LLIKE THE ONE UP

DATA IGNORED - IN CONTROL MODE
THERE--THERE IT IS AGAIN. ONE THING
I FOUND BY ACCIDENT THAT SEEMS TO
WORK IS TO SAY "SHORT TERM PROJECT"
WHEN IT IS A LONG TERM PROJECT. THE FEED DOESN

(communication ends)

Dear Overstrike: When you run afoul
of a Teletype, you can structure it all
you want, and it doesn't help. I've
found it is better to curse a lot.
When you start repeating yourself it is
called recursion, and that's almost as
good as structure.

Editor:

If a department head is a Chair-
person, is a first-year undergraduate
a freshperson?

AR

Dear AR: Your question is not properly
structured. A chairperson is the one
you call when some students have no
place to sit in your classroom.

The logo features the text "acm" in a bold, lowercase, sans-serif font, enclosed within a thin circular border. To the right of the circle, the word "lives." is written in a similar bold, lowercase, sans-serif font.

The student chapter holds monthly
meetings, usually featuring a faculty
member talking on his favorite topic.
However, refreshments are always served.

Meeting notices are posted about
one week in advance.