

PASCAL USER'S GROUP

USER'S
GROUP

PASCAL NEWSLETTER

NUMBER 6

COMMUNICATIONS ABOUT THE PROGRAMMING LANGUAGE PASCAL BY PASCALERS

NOVEMBER, 1976

TABLE OF CONTENTS

#	0	POLICY	#
*			*
#	1	EDITOR'S CONTRIBUTION	#
*			*
#	5	HERE AND THERE WITH PASCAL	#
*			*
#	5	News	#
*	8	Conferences	*
#	9	Books	#
*	10	Errata	*
#	11	Back Issues	#
*	12	Membership Roster	*
#	33	ARTICLES	#
*			*
#	33	"Indexed Files"	#
*		- S. Knudsen	*
#	34	"The Need for Hierarchy and Structure in Language Management"	#
*		- G. Michael Schneider	*
#	35	"On the Suitability of a Pascal Compiler in an Undergraduate Teaching Environment"	#
*		- A. M. Addyman	*
#	36	"Pascal Potpourri"	#
*		- Richard J. Cichelli	*
#	42	"The Case for Extending Pascal's I/O"	#
*		- Michael Patrick Hagerty	*
#	45	"General Thoughts on Pascal Arising out of Correspondence Between Southampton and Tasmania"	#
*		- Arthur Sale	*
#	48	OPEN FORUM FOR MEMBERS	#
*			*
#	64	IMPLEMENTATION NOTES	#
*	64	Checklist	*
#	65	Portable Pascals	#
*	70	Compilers and Software Tools	*
#	91	ALL PURPOSE COUPON	#
*			*
#			#

POLICY -- PASCAL USER'S GROUP AND PASCAL NEWSLETTER

USER'S GROUP POLICIES

Purposes - are to promote the use of the programming language Pascal as well as the ideas behind Pascal. Pascal is a practical language with a small, systematic and general purpose structure being used for:

- * teaching programming concepts
- * developing reliable "production" software
- * implementing software efficiently on today's machines
- * writing portable software

Membership - is open to anyone: particularly the Pascal user, teacher, maintainer, implementor, distributor, or just plain fan. Institutional memberships, especially libraries, are encouraged. Membership is per academic year ending June 30. Anyone joining for a particular year will receive all 4 quarterly issues of *Pascal Newsletter* for that year. (In other words, back issues are sent automatically.) First time members receive a receipt for membership; renewers do not to save PUG postage.

Cost of membership per academic year is \$4 and may be sent to:
Pascal User's Group/ %Andy Mickel/University Computer Center/ University of Minnesota/Minneapolis, MN 55455 USA/ phone: (612) 376-7290
In the United Kingdom, send £2.50 to:
Pascal Users' Group/ %Judy Mullins/Mathematics Department/The University/ SOUTHAMPTON/S09 5NH/United Kingdom/ (telephone 0703-559122 x2387)

NEWSLETTER POLICIES

The *Pascal Newsletter* the official but informal publication of the User's Group. It is produced quarterly (usually September, November, February, and May). A complete membership list is printed in the November issue. Single back issues are available for \$1 each. Out of print: #s 1,2,3 #4 available from George Richmond/Computing Center/U of Colorado/Boulder/80309

The contribution by PUG members of ideas, queries, articles, letters, and opinions for the *Newsletter* is important. Articles and notices concern: Pascal philosophy, the use of Pascal as a teaching tool, uses of Pascal at different computer installations, portable (applications) program exchange, how to promote Pascal usage, and important events (meetings, publications, etc.).

Implementation information for the programming language Pascal on different computer systems is provided in the *Newsletter* out of the necessity to spread the use of Pascal. This includes contacts for maintainers, documentors, and distributors of a given implementation as well as where to send bug reports. Both qualitative and quantitative descriptions for a given implementation are publicized. Proposed extensions to Standard Pascal for users of a given implementation are aired. Announcements are made of the availability of new program writing tools for a Pascal environment.

Miscellaneous features include bibliographies, questionnaires, and membership lists. Editor's notes are in Pascal style comments (**).

WRITTEN INFORMATION FOR THE *Newsletter* IS EASIER TO PRINT IF YOU TYPE ALL MATERIAL 1½ OR DOUBLE SPACED SO THAT IT IS IN "CAMERA-READY" AND "PHOTO-REDUCIBLE" FORM FOR THE PRINTER. REMEMBER, ALL LETTERS TO US WILL BE PRINTED IN THE *Newsletter* UNLESS THEY CONTAIN A REQUEST TO THE CONTRARY. AN OVERRIDING GUIDE SEEN IN AN OLD MAD MAGAZINE APPLIES: "all the news that fits, we print!" - Andy Mickel, editor, John P. Strait, associate editor. Nov. 10, 1976.

POLICY



UNIVERSITY OF MINNESOTA
TWIN CITIES

University Computer Center
227 Experimental Engineering Building
Minneapolis, Minnesota 55455

(612) 376-7290

PART I - Standards

Wow! It took only one issue of PUG's Pascal Newsletter to bring on an avalanche of "Where do we go from here?"s! It was first put clearly in print with a short note in PUGN #3 by George Poonen who noted that various implementations had diverged and that a standard was necessary. Now we have: Tony Addyman, Frank Brewster, Charles Hedrick, and Willett Kempton (see News in HERE AND THERE); Mike Schneider, Rich Cichelli, and Arthur Sale (see ARTICLES); and Steve Young, Tony Addyman (again), Duke Haiduk, Judy Mullins, Arthur Sale (again), and Tim Bonham (see OPEN FORUM) all discussing the topic of standards. The concern, I believe, is out of our desire to see Pascal succeed. We are in a computing environment which is not altogether friendly to Pascal. We want to be able to respectably use Pascal in the future.

I have been very confused on the subject of Pascal standards in the past. Mike Schneider and Rich Cichelli have (I think) straightened me out. You see, I thought we already had a Standard Pascal, with the Revised Report and the Axiomatic Definition. These two concise and elegant (although not perfect - but yet what do you want?) documents were produced by Niklaus Wirth and his associates and coworkers. And I believe that Pascal has merit because it was produced by a single man of the calibre of Niklaus Wirth, who (as evident from his work) profoundly understands programming language design, from linguistics to implementation. This one person could decide what to meld when meeting all of the design goals set out from the start.

I wanted to do what I could to call for adherence to what Niklaus Wirth called "Standard Pascal": ~~Over time, I increasingly appreciated what he had written in several articles. He pointed out for various reasons that "fancier features" had to be omitted in order to meet the design goals of a small and efficient system. Also that some aspects were best left undefined. And that other features were omitted with good reason to achieve the goal of providing a tool with which to produce reliable software (okay - you could call it: "protect the error-prone human programmer from himself or herself." It may not be pleasant, but experiencing is believing; a good dose of egoless programming goes well with this.) It goes without saying that Pascal is not the ultimate programming language, or perfect, or that it is all things to all people. All good so far.~~

EDITOR'S CONTRIBUTION

But then other events took place. The Revised Report suffered "revisionism": Nov., 1972, July, 1973, Dec., 1973, the User Manual and Report, first edition (1974), second edition, first printing (1975), and now the second edition, third printing (1976). How can one call for adherence to the "standard" when the same(?) "standard" keeps changing?

Also among the many ill-conceived suggestions for "improvements" to the language by users, there were some very few that seemed reasonable to dyed-in-the-wool Pascalers. There was no mechanism for sounding these out for worthiness and acceptance, save writing to Niklaus and Urs in Zurich. This has been very frustrating because we didn't know where we were heading. (What was Pascal's future destined to be according to its creators?) We were told on the one hand, "no more changes." We relaxed and said "fine." Then a revision came along and we felt cheated. We weren't kept informed of what other users had suggested, either.

Rich and Mike have pointed out that Pascal can't continue to be what Niklaus Wirth says it is. And that Andy Mickel can't arbitrarily restrain attempts to change it because 1) Andy fears destruction of the language by attempts to "save" it, or 2) Andy doesn't want them to destroy the essential simplicity of Pascal which is probably its most likely reason for success. They also pointed out that we don't have an officially accepted standard; a "political standard" if you will. Really, when that concept dawned on me it made sense. A major computer manufacturer, when choosing a common language for all its software development, democratically decided to pick the one that most of its programmers wanted to use. With the choice of language X 30%, Pascal version A 25%, Pascal version B 13%, and Pascal version C 27%, language X won by a plurality (and by default) and too bad - as we all can see. If we want Pascal to ultimately and completely succeed, we can't have this!

Now how do we resolve the conflict(s)? Many persons suggest a "PUG Standards Committee", and frankly, although I think committees are inherently evil, I don't see any better choice. The alternative at this point is to lower our expectations, quit striving for excellence, quit "dreaming the impossible dream" of seeing Pascal take over the majority of industrial and academic computing (wiping out Cobol and Fortran within our lifetimes). Then we could say regretfully - "wow, Pascal's nice, but..." as so many of our half-hearted supporters and critics do now.

I feel that: 1) we should continue to debate this topic; 2) a PUG Standards Committee when set up should be small (less than 8 members); 3) its charter be initially agreed on so as to limit its power; 4) within the committee's initial charge

* This brings to mind two acronyms: John Easton's SHAFT or Society to Help Abolish Fortran Teaching, and Mitch Wand's ACS or the American Cobol Society - analogous in meaning to the American Cancer Society.

EDITOR'S CONTRIBUTION

the action should be to get the Revised Report (User Manual and Report, Second Edition third printing) accepted as an official standard as is (even if only provisionally); 5) later the committee could recommend subsequent actions.

Look up the articles in this issue of PUG Newsletter by Mike and Rich with their excellent analyses of the current situation. Rich bluntly hints that many features are best left to separate software writing tools. In all honesty, I don't see how Arthur Sale can say in his October 22 letter to Judy Mullins, "Of course I agree that standard Pascal must be adhered to" and also say that it is best in specific cases to add features that all Burroughs Algol programmers are used to. Pascal was meant to be a departure from the past. See also the article "Experience from the Standardization of the SIMULA Programming Language", by Jacob Palme, SOFTWARE, Practice and Experience Vol. 6, No. 3 July-Sept, 1976, pp 405-409. (It seems that each issue of SOFTWARE, Practice and Experience always has some good articles for the practical programmer!)

We are indeed in a unique position in computer science history as people (rather than large organizations) responsibly influencing an influential language.

PART II - Pascal User's Group and Pascal Newsletter

1) PUG has 516 members in 22 countries and 43 states. (We had 317 at last writing.) I'm sorry this newsletter is so late. But this year the November issue will have in it feedback to the September issue.

2) Ms. Judy Mullins and Prof. P. W. Barron of the University of Southampton have done us all a favor by creating a European distribution center for PUG newsletters and a clearing house for PUG memberships in the United Kingdom! Judy was concerned that members in the U.K. would not get fast mail service, while at the same time having to pay a relatively high exchange rate for \$4. We in fact had decided to send the first 2 newsletters (#5 & #6) air mail because we could afford it and Pascal needed the shot in the arm. What has transpired between Southampton and Minnesota is no less than 6 letters east to west and 5 letters and a phone call west to east on the subject of cheaper ways to send the newsletters (air freight, etc.) These 11 letters are not reproduced here; they mostly contained calculations and mechanics of mailing.

3) While we are on the subject of finances, I'm happy to report that we're doing just about right. We've been able to afford to send out 250 issues of #4, and do a large mailout requesting implementation information. We still plan to print and mail #7 and #8, so don't worry. The next sheet contains a breakdown:

516 members @ \$4	\$2064.00
8 members not paid yet	- 32.00
6 members for 2 years	24.00 extra
1 member for 5 years	16.00 extra
ABM + JPS contribution	29.00
	<hr/>
	\$2101.00 Total Assets

postage, mass mailings	\$ 52.00
refunds for overpayment	4.00
printing and mailing #5	487.10 (700 printed, 368 mailed)
buying 230 copies of #4	100.00 no bill for mailing yet
postage for #5 backissues	27.40 so far
printing newsletter titles	5.60
	<hr/>
	\$676.10 Total Expenses

Theoretical balance = 2101.00 - 676.10 = 1424.90

Cash on hand	\$ 77.76
PUG UCC Account	\$1353.30
	<hr/>
Actual balance =	\$1431.06

4) Backissues. See the section in HERE AND THERE. Our offer to send #4 to persons in North America who didn't already get one directly from George Richmond expired on October 2nd. We simply ran out. But we did buy time. And now the problem of trying to include information in the issue was in #4 is not so acute because #5, #6, and #7 will gradually make up for that. We will be updating nearly all the news which appeared in #4. So for those of you who joined after October 2nd and still want the newsletter #4, order one from George Richmond.

5) I apologize for announcing our policy of: "all the news that fits, we print" in the same issue that we put the policy into practice. We modelled the policy after SIGPLAN Notices. Feedback to Newsletter #5 has been mostly favorable; the unfavorable comments have been largely unwritten. Some heretofore unwritten comments went like this:

- "Your organization could be improved."
- "It was fun reading the News section in HERE AND THERE."
- "It's good to see the correspondence you had with Zurich."
- "It's taken a long time to get my newsletter in the mail."
- "The articles you printed weren't so hot."

6) Last issue we tried to plan events so that you would receive the newsletter at the beginning of September. But we didn't come close. Our cutoff date for material was supposed to be July 15, but it lagged to July 31. We began putting the newsletter together July 29. We were to have August 13 (and here's the bad news) 20 days later we got our 700 copies on September 7. We had it all in the mail September 9. In the U.S. we know (so far) that some arrived as late as October 21. This issue will probably arrive by Christmas (no kidding) but we began November 4 to put it together and we are going to press November 15 - much better than last time, except we have a late start. Our cutoff for material for this issue was originally October 1 but lagged to November 5. Issue #7 will probably be smaller as it will go to press probably before we get reaction to this issue. By being smaller, it also won't cost as much to print.

7) Offers to help. In #5, N. Solntseff and W. Richard Stevens offered to help with the User's Group. Now that some things have been established, several tasks are becoming clear. These are:

- . managing distribution of software writing tools for Pascal written in standard Pascal
- . managing distribution or cataloging of library and applications programs for Pascal written in standard Pascal
- . maintaining a bibliography on all publications about Pascal (including articles and books)

Any target

8) Two encouraging trends. First, with microprocessor interest spreading (real computer power to the people!) it is important to have a Pascal subset compete with BASIC in 16K. Mark Rustad understands this very well - see his Motorola 6800 description in IMPLEMENTATION NOTES. Mark would like to hear from those persons interested. Second, John and I have been getting lots of inquiries about Pascal and implementations in the form of phone calls and letters - with most of them from persons in industry. Predominate are small software writing firms and minicomputer companies. So next time someone says Pascal is dead, but it's not "real world" tell them that it's happening right now.

9) Thanks are due to all the people who have sent in information to print - that makes the newsletter. - Thank to John, Tim Bonham, Jim Miner, and Herb Rubenstein for helping put together this issue.

- Andy

November 14, 1976

ANNOUNCEMENT OF A PASCAL USERS' GROUP
DISTRIBUTION CENTRE IN THE
UNITED KINGDOM

AIMS

1. To expedite distribution of the P.U.G. Newsletter to the U.K. and the rest of Europe, the Near and Middle East and Northern Africa.
2. To collect memberships in P.U.G. from U.K. members avoiding high bank charges on transfers of £ to \$.

DISTRIBUTION

1. Central P.U.G. at Minnesota will send the original of the newsletter to Southampton for reprinting.
2. Newsletters will be mailed (second-class postage) from Southampton to members in Europe, the Near and Middle East and Northern Africa.

PASCAL USERS' GROUP MEMBERSHIPS

1. The address for U.K. Region memberships is

Pascal Users' Group
c/o Judy Mullins
Mathematics Department
The University
SOUTHAMPTON. SO9 5NH

(telephone 0703-559122 x2387)

2. Members can pay £2.50 by cheque or postal order to, PASCAL USERS' GROUP (UK) at the above address, and will receive a receipt and member certificate directly.
3. Membership forms will be forwarded at short intervals to Minnesota (at least in time to catch the next newsletter); a copy is kept at Southampton.

AVOIDING CONFUSION

1. There is only one membership list and labelling program - Minnesota's.
2. Therefore anyone can join directly by writing to the U.S.A.
3. Using the U.K. Distribution Centre only saves money.
4. No matter how he/she joined, a member with an address in the U.K. will receive newsletters via Southampton.
5. All correspondence other than subscriptions (such as change of address, articles for the newsletter, or questions about compilers) must go direct to Minnesota. If it inadvertently arrives at Southampton it will be sent on by airmail.

August, 1976.

J.M. Mullins.

Rev. November, 1976.

A.B. Mickel.

NEWS (ALPHABETICAL BY LAST NAME)

A. M. Addyman, Department of Computer Science, The University, Manchester M13 9PL United Kingdom (PUG member): "I would like to join the Pascal Users' Group. Also, I am engaged in an effort to have Pascal standardised by a major standard's organisation, e.g. ANSI or ISO. How may I use your newsletter to contact people who would be interested in this, or alternatively to discover that there is considerable opposition?" (*9/19/76*)

Urs Ammann, Institut für Informatik, ETH - Zentrum, CH-8092 Zurich, Switzerland (PUG member): "...By the way: What is your philosophy with the letters you received as to their publication in the Newsletter? I was somewhat astonished to see private correspondence in it. While I agree that this kind of information distribution makes editorship most easy, it is my strong opinion that any letter which is not explicitly marked as "letter to the editor" should not be published in full length, since this clearly exceeds or even contradicts (sic) the purpose of private correspondence.

"Please don't misinterpret this statement! I have nothing against transparency, on the contrary! Any information of general interest you find in your correspondence should be passed on. But you will agree that with some effort from the editor, information can be passed on without letting everybody read private correspondence..." (*9/29/76*)

Diosdado P. Banatan, 3060 Bilbo Drive, San Jose, CA 95121 (PUG member): "I would like to be a member of the Pascal Users Group... My interests are in microprocessors and microcomputers and involved in both hardware and software development." (*18/19/76*)

Philip N. Bergstresser, 128 Jackson Ave., Madison, AL 35708 (PUG member): "We at TRW Systems are using Pascal on the CDC 7600, CDC 6400 and TI-ASC and claim the Guinness record for program size." (*9/21/76*)

Frank M. Brewster, 4701 Kenmore Ave #1009, Alexandria, VA 22304 (PUG member): "...It's been pointed out that many BASICs are 'non-standard'. I have yet to hear anyone ask, 'Why?'. The answer seems obvious: the language initially didn't have 'legal' provision for many of the users' real problems. The current ANSI BASIC proposal still demonstrates this failing. E.g., the CHR and SEQ(or ORD) functions are optional; how can anyone do general work without these functions? So BASICs will continue to be 'non-standard', as people fill in the gaps. If a car were sold without say, steering wheel, no one should complain if a buyer adds

a tiller. The point is that if the automotive designer finds steering wheels uninteresting and refuses to specify them as standard equipment, the user has two options (assuming he buys the car in spite of its failings): design his own steering apparatus, or cooperate with others in filling the gap in the 'standard'. If the designer won't see the issue, users will. The letters in the newsletter mention this, and appear to have been formatted in this manner. Apparently Wirth's not concerned. If you and others are waiting, then everybody either abandons Pascal or invents their own wheel (tiller?). But why don't those of you with early and practical experience with the language-

-list your complaints & problems, ranked, one list per man. (Maybe in a newsletter section, 'What's wrong with Pascal?')

-compare notes for similarities

-see if you can agree on solutions to any of these

-implement experimental changes; test till working

-promulgate as PUG-US 'extensions'

"The last item is the tackiest one. "A camel is a horse designed by a committee." Standards - the real ones, in actual use - are designed by those who are actually working in the field, in the course of their work. So if you and other of the few presently experienced Pascal users won't add to or alter Wirth's pronouncements, don't be surprised at the later irreverence of others.

"All of you (me too someday) may owe a lot to Wirth. His opinions deserve respect and attention. But if he's to be treated as God, and his language as the ten commandments, how can Pascal be improved? The time to 'standardize' is not now, but after user problems have been faced frankly, and solutions found..." (*18/19/76*)

E. E. Brinson, E. I. du Pont de Nemours & Co., Engineering Development Lab, 101 Beech Street, Wilmington, DE 19898 (PUG member): "Have: PDP-11 series machines: 04, 05, 10, 15, 20, 40, 45. Using: (1) Prof. Per Brinch Hansen Solo Pascal Compilers, (2) University of Illinois DOS V4 Pascal Compiler, (3) Pascal P2 System.

"All of the above systems have their drawbacks. My interest is in a better transportable system for use on μ CPU applications. I am very happy with the CDC 6000 version 3.4 at Purdue University; however, achieving the same degree of performance on a mini-computer has been and will continue to be a challenge. Mr. Stephen C. Schwarm, a coworker, is in the process of starting a DECUS SIG PASCAL for PDP users of Pascal." (*9/13/76*)

HERE AND THERE WITH PASCAL

(NEWS FROM MEMBERS, CONFERENCES, NEW BOOKS, APPLICATIONS PROGRAMS, ETC.)

HERE AND THERE WITH PASCAL

(NEWS FROM MEMBERS, CONFERENCES, NEW BOOKS, APPLICATIONS PROGRAMS, ETC.)

K. Frankowski, Computer Science Dept., 114 Lind Hall, University of Minnesota, Minneapolis, MN 55455 (PUG member): "If one wants to have formatted output simply read several integers (if each has four digits) as one integer and use DIV AND/OR MOD to extract the values desired." (*10/15/76*)

Dennis Graham, Amdahl Corp., 1250 E. Arques Ave., Sunnyvale, CA 94086 (PUG member): "I am interested in running Pascal on an Amdahl-470 V/6 system and am contacting the University of Manitoba about their compiler." (*10/26/76*)

David J. Griffiths, Academic Computer Centre, Tyler Hall, University of Rhode Island, West Warwick, RI 02881 (PUG member): "I am investigating the possibility of implementing Pascal on our IBM360-370. Concurrent Pascal would be the ideal, since we wish to investigate more advanced operating systems, however, we are prepared to settle for less." (*10/3/76*)

Donald E. Grimes, 90 Sylvia Street, Arlington, MA 02174 (PUG member): "Congratulations on a timely Newsletter #5, and thanks for your efforts in establishing PUG." (*10/8/76*)

Charles Hedrick, 183 Commerce West, University of Illinois, Urbana, IL 61801 (PUG member): "When considering operational definitions of portability maybe it is useful to distinguish among versions that are:
-machine independent
-semi-machine dependent and concepts universal
-machine dependent and site independent

"The last choice may not be so bad for Pascal to shoot for." (*10/15/76*)

Carl Henry, Computer Center, Carleton College, Northfield, MN 55057 (PUG member): "...We are using...the University of Illinois version (Mickunas, et al) and runs under DOS V4 on an 11/20, (very little use has been made of it so far.).
"A brief description of our facilities: 6 PDP-8s - home brewed version of TSS/B and OS/8; PDP 11/20 - DOS, RT-11, RSTS V4; PDP-11/40 - RSTS V6, UNIX V6." (*10/15/76*)

Mark Hersey, 323 Village Drive Apt. 534, East Lansing, MI 48823 (PUG member): "currently modifying P2 version of Janus compiler for readability, fixing bugs, expanding subset processed, and improving portability.
"All work being done on Michigan State University's CDC 6500." (*10/4/76*)

Brian W. Johnson, 1525 Westlake, Plano, TX 75075 (PUG member): "I am particularly interested in μ processor versions. We have it on the PDP-10 and PDP-11 at UT Dallas." (*11/4/76*)

Willett Kemton, 2512 San Gabriel St., Austin, TX 78705 (PUG member): "Thanks for the newsletters. ... I was delighted to see that dynamic array parameters will be implemented in CDC Pascal; this is clearly an extremely important feature, and I would hope that it become a feature of the standard language; FORTER than an execution variable in some implementations (and not others).
"Keep after those implementors to accept standard Pascal programs!" (*10/27/76*)

G. A. Lane, Cambridge University Press, Pitt Building, Trumpington St., Cambridge CB2 1RP, United Kingdom (PUG member): "We are interested in publishing books concerned with Pascal." (*10/26/76*)

Michael Lutz, School of Computer Science and Technology, Rochester Institute of Technology, Rochester, NY 14623 (PUG member): "...I would also appreciate any information you might have on Pascal implementations for the Xerox (Honeywell) Sigma 5 - 9 and PDP 11 computers. We have both a Sigma 9 and a PDP 11/T34 (with 48K words of memory) here at R.I.T., and we are interested in obtaining Pascal for use in our courses...." (*10/27/76*)

John Montague, Los Alamos Scientific Laboratory, Group C11 - Mail Stop 296, Los Alamos, NM 87545 (PUG member): "...We plan to bring up Pascal on the CRAY-1, probably using the P-code compiler to bootstrap." (*10/18/76*)

Judy Mullins, Computer Studies Group, Department of Mathematics, The University, Southampton SO9 5NH, United Kingdom (PUG member): "...Pascal is alive and happy in Southampton. One hundred nineteen-year-olds are pushing in programs by the hundreds ... and doing amazingly well. I do believe it is the language that is so friendly that increases their interest and output...

"...I was wondering if it would be appropriate to have a section of PUGN for exchange of course ideas, examples etc. This would have to be firmly controlled space-wise, but could prove very informative especially for universities who have Pascal but don't teach it yet. Later on a survey on the use of Pascal in teaching would be of great interest. Addyman's survey showed Pascal is growing and therefore its growth should be monitored every year.

"Another thought was for book reviews. Pascal primers are beginning to proliferate and we have strong views on the ones we've seen. Once again, to have the right effect this section would need to be controlled, and I'm not sure that we want to start issuing PUG marks of approval or anything like that. However, reviews in normal journals are only opinions and it does seem fitting for opinions of Pascalers on Pascal books to be in the Pascal Newsletter." (*11/3/76*)

APPLICATIONS PROGRAMS

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address
SLAC, P. O. Box 4349
Stanford, California 94305
18 October, 1976

Request for Programs

Pascal Users:

I am presently doing research on Pascal to determine how various parts of the language are used and what patterns of execution occur in actual programs. This will be similar to a study done by Knuth on Fortran (1).

In this regard I am interested in obtaining a sample of programs from a wide range of users in hopes that the results of this study might be representative of the actual use of Pascal.

If you have or know of programs which can be lent to this effort, I would very much like to hear from you. I can be contacted by mail at

Hall Drop 88
Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, CA. 94305

or by phone at

(415) 854-3300 X2802.

John Banning

- (1) D. E. Knuth, "An Empirical Study of FORTPAN Programs", Software Practice and Experience, Vol. 1 (1971), 105-133.

(*Note: John also enclosed a note which said: "With regards to the enclosed request, I expect that the mentioned study will complete sometime in the first quarter of 1977. I would be most happy at that time to provide a summary of the results for the Newsletter if you are interested - ... Does there exist some formal mechanism for Pascal program interchange (between users), and, if so, who is running it and how can I contact them?")

Fred Powell, Computer Center, Mary Baldwin College, Staunton, VA 24401 (PUG member): "We have Pascal P2 and are interested in implementing Pascal on an IBM 1130 and possibly a System 3. Other possibilities include investigating data bases and disk access techniques with Pascal." (*9/24/76*)

Douglas H. Quebbeman, 2235 Lombardy Drive, Jeffersonville, IN 47130, (PUG member): "...Having seen the article in the June '76 Random Bits (Indiana University's Computing Center Newsletter) on the Pascal User's Group, I decided to join. I am a student and part-time operator - programming consultant and have only recently begun using Pascal, but I am quite enthused about its flexibility (especially considering my wrestling bouts with Fortran) and hope to become more proficient in it. So, thanks (for forming the User Group) and I hope to hear from you soon." (*9/24/76*)

Peter A. Rigsbee, Code 5494, Naval Research Laboratory, Washington, DC 20375 (PUG member): "...My connection with Pascal is that my group is trying to get Per Brinch Hansen's SOLO operating system to run on a PDP 11/40, and once this is done, will be using Pascal as a primary systems programming language...." (*8/25/76*)

Berlyn de Mello Sobral, Departamento de Computacao, Univ. Federal de S. Carlos, C.P. 308, 13068 S. Carlos SP, Brazil (PUG member): "We have a HP 2100A at our installation (32K words core, 2 disks, 1 tape, DOS) and we are looking for a Pascal compiler. There is no way we can produce one in the next 3 years. Could you help us?" (*10/21/76*)

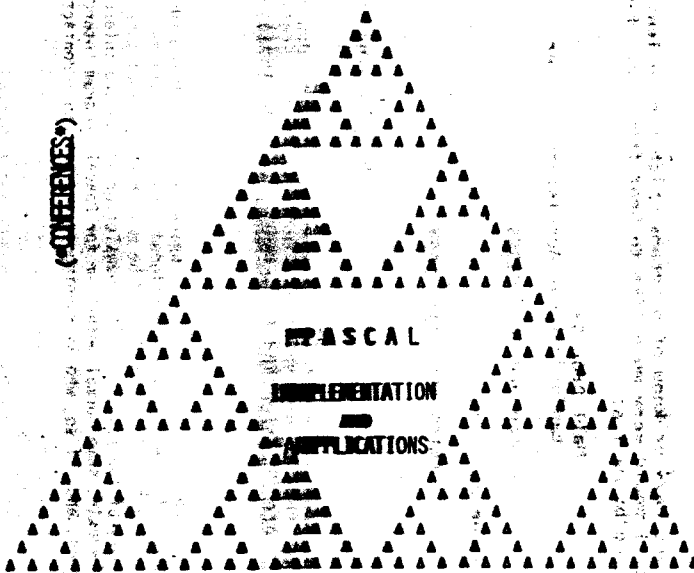
Stephen C. Schwarm, E. I. du Pont de Nemours Co., 101 Beech St., Wilmington, DE 19898 (PUG member): "I am chairman of DECUS SIG Pascal and I will be glad to help with distribution any systems on DEC PDP-11's." (*10/29/76*)

Dave Tarabar, Data General Corp., Field Engineering, 235 Old Connecticut Path, Framingham, MA 01701 (PUG member): "I was very pleased to receive and read the first PUG Pascal Newsletter. It was full of interesting information. The newsletter will be very useful in publishing the correspondence with Zurich and other implementors and your summary of all known implementations was great. Keep up the good work." (*10/18/76*)

William P. Taylor, L-315, University of California, PO Box 808, Livermore, CA 94550 (PUG member): "I am interested in obtaining information about implementations of Pascal on 16-bit mini-computers. I am especially interested in implementations for the PDP-11 as we will be getting one soon. Also, some of my fellow employees here at Lawrence Livermore Laboratory wish to implement a structured programming language like Pascal for system development on a new mini-computer." (*10/3/76*)

THIRD ANNUAL COMPUTER STUDIES SYMPOSIUM

UNIVERSITY OF SOUTHAMPTON



24-25 MARCH 1977

SYMPOSIUM CHAIRMAN

PROFESSOR D.W. HANSEN

SYMPOSIUM ORGANIZER

MISS J.M. MULLINS

AIMS

Few languages since FORTRAN have had the same run-away success as Niklaus Wirth's PASCAL, which shows signs of becoming a *de facto* standard for Computer Science teaching and research, as well as pointing the way to a new generation of sparse, simple languages.

The purpose of this symposium is to explore "what's going on" in PASCAL at the present time. Leading authorities will describe new implementations and applications in systems programming, research and education. The symposium will end with an open discussion about the future of PASCAL.

In the tradition of the Southampton symposium, speakers will be allowed ample time for their presentations, together with provision for a discussion at the end of each lecture. Attendance will be kept to 100 and it may be necessary to limit applications from each institution. Applicants are expected to have a working knowledge of PASCAL.

Full preprints of the Proceedings will be available on registration; the Proceedings will subsequently be published in book form.

SPEAKERS

Dr. Urs Ammann
Technische Hochschule
Zurich
SWITZERLAND

Prof. David Barron
Mathematics Department
The University
SOUTHAMPTON

Dr. Per Brinch Hansen
Computer Science Program
University of Southern
California
LOS ANGELES

Dr. Barry Hood
Electronics Department
The University
SOUTHAMPTON

Miss Judy Mullins
Computer Studies Group
The University
SOUTHAMPTON

Dr. Mike Rees
Computer Studies Group
The University
SOUTHAMPTON

Dr. David Watt
Computer Science Department
University
GLASGOW

Dr. Graham Webster
Computer Science Department
Teesside Polytechnic
Middlesborough,
CLEVELAND.

Dr. Jim Welsh
Computer Science Department
Queen's University
BELFAST

PROGRAMME

IMPLEMENTATION

- Dr. U. Ammann The Zurich Compilers
- Dr. J. Welsh Two ICL 1900 Compilers
- Dr. D.A. Watt A Diagnostic System
- Dr. H.J. Rees PASCAL on an Advanced Architecture
- Miss J.M. Mullins A PASCAL Machine?

APPLICATION

- Dr. P. Brinch Hansen Concurrent PASCAL
- Dr. G. Webster PASCAL in Education
- Dr. B. Hood PASCAL in Research

THE FUTURE

Panel Discussion introduced by Prof. D.W. Barron

ARRANGEMENTS

ALL ENQUIRIES TO

APPLICATIONS must be made on the official form (or a copy) to reach Southampton by
FRIDAY 18 FEBRUARY 1977

accompanied by full payment of the fee.

COST

£45, inclusive of

- Accommodation on Wednesday and Thursday nights
- Lunches and teas on Thursday and Friday
- Midweek banquet at luncheon in the New Forest
- Complete Preprints of the Proceedings.

Applicants from overseas should pay in sterling by Bankers Draft or International Money Order.

TELEPHONE

0703-559122 EXT 733
ASK FOR PASCAL SYMPOSIUM SECRETARY

ARRIVAL

Delegates are expected to arrive on Wednesday evening as the first session starts at 0930 on Thursday.

INTERNATIONAL TELEPHONE

44-703-559122 EXT 733

DEPARTURE

Transport to the station will be arranged after the last session that 1630 on Friday.

ACCOMMODATION

Will be provided at Gosportmain Hall of Residence. Further details, addresses and maps will be sent with finalising instructions on 25 February 1977.

TELEX

47661

BOOKS AND ARTICLES

(*There has been no news of new books on Pascal. In future issues of the Newsletter, we should also list current articles appearing in journals and other computer science literature. Apologies for the void in this section in this issue.*)

A. M. Addyman and H. R. Addyman, "Which Language?", Computer Bulletin, June, 1976, pp 31-33. [an article which surveys the language used at various institutions teaching computer science]

(*Last issue there were a couple mistakes in the list of books; these are corrected below.*)

~~A Primer on PASCAL by Richard Conway, David Arlen, and F. P. Zimmerman; WILEY-PUBLISHERS; 1976; 140 PAGES; PAPERBOUND; \$8.95.~~

Introduction to Problem Solving and Programming with Pascal, by G. Michael Schneider, Steven W. Weingart, and David M. Perlman, Wiley, to be published in late 1977. (*A complete soft cover manuscript will be available March 1, 1977 and may be ordered from Michael Schneider, Computer Science Department, 114 Lind Hall, University of Minnesota, Minneapolis, MN 55455. Such copies may be duplicated (once received) for local use.*)

PASCAL User Manual and Report, by Kathleen Jensen and Niklaus Wirth, Springer-Verlag, 1974, 1975, 167 pages, paperbound, \$5.90. Second (study) edition. (*This book is selling well; it's in its third printing which now incorporates the errata that appears on the next page as reproduced from Newsletter #4. In Newsletter #5 we printed out of date errata because no one kindly informed us of anything more up to date. So like the implementation notes, we are only as good as what people send us to print. Note that this errata includes the change to the language Pascal - namely the generalization of the read and write procedures to perform I/O on files of any type, not just text files.*)

Errata to

PASCAL
User Manual
and Report
Second Edition.

KEY:

p = page number

l = line number

(blank lines
are ignored
and negative
line numbers
are counted
from the
bottom)

c = code

(that is:

r = replace

i = insert)

- 13 -3 r "if" by "If"
- 45 -18 r "<unsigned constant>" by "<constant>"
- 51 16 r "(output)" by "(output);"
- 56 -8 r "f1" by "f(i)", "g(1+i)" by "g(i+1)", "g1" by "g(j)"
- 63 2 r "1" by "n", "2" by "n-1", "1" by "n-2",
"(n-1)" by "2", "n" by "1"
- 69 23 r "stricly" by "strictly"
- 78 7 r "i,j" by "i"
- 77 18 r " begin inorder(pf.llink);" by "begin inorder(pf.llink);"
- 78 -14 r " , <formal" by " : <formal"
- 81 2 r "extent" by "extend"
- 84 -15 r "as ne" by "as one"
- 86 8 i The procedure read can also be used to read from a file f which
is not a textfile. read(f,x)
in this case stands for
begin x := f1; get(f) and
- 87 8 i The procedure write can also be used to write onto a file r
which is not a textfile. write(f,x)
in this case stands for
begin f1 := x; put(f) and
- 98 18 r "debby" by "debby ;"
- 102 7 r " r" by "or"
- 102 28 r "buffer" by "buffer"
- 103 -6 r "scaler" by "scalar"
- 103 -7 r " char, and alfa" by "and char are listed"
- 105 8 r " " by "105"
- 105 12 r " nly" by "only"
- 105 -1 i dispose(p,t1,...,tn) can be used to indicate that storage occu-
pied by the variable p1 (with tag field
values t1...tn) is no longer needed.
- 117 r (diagram expression) "x" by "<=", ">" by ">=", "<" by "<="
- 128 -18 r "neither be formal nor non local" by
"not be declared on intermediate level"
- 121 4 i 177: assignment to function identifier not allowed here
178: multidefined record variant
179: X-opt of actual proc/func does not match formal declaration
180: control variable must not be formal
181: constant part of address out of range
- 121 8 i 205: zero string not allowed
206: integer part of real constant exceeds range
- 121 -8 i 268: too many exit labels
- 124 -15 r "14" by "15"
- 124 -14 r "14" by "15"
- 127 27 r "18.A" by "4.A"
- 133 3 r "two" by "to"
- 135 5 r "althought" by "although"
- 135 30 r "substitute" by "substitute"
- 148 11 r "structure type" by "structured type"
- 161 -17 r whole line by
"addition to the procedures get and put. The textfiles these"
- 161 -16 r whole line by
"standard procedures apply to must not necessarily represent"
- 162 3 r "end of line" by "end of line"
- 162 -15 i The procedure read can also be used to read from a file f which
is not a textfile. read(f,x) is in this case equivalent to
x := f1; get(f).
- 162 -6 i The procedure write can also be used to write onto a file f
which is not a textfile. write(f,x) is in this case equivalent
to f1 := x; put(f).

PAST ISSUES OF PASCAL NEWSLETTER

Reproduced below is a complete description of Newsletters 1, 2, 3, and 4. Numbers 1, 2, and 3 are out of print, but they did appear in issues of SIGPLAN

Notices, the ACM Special Interest Group on Programming Languages monthly journal. Number 4 is available for \$1.00 from George H. Richmond, Computing Center, 3645 Marine Street, University of Colorado, Boulder, CO 80309.

#1 January, 1974 (also SIGPLAN Notices Vol. 9 No. 3 1974 March) 8 pages.

Table of Contents

- 1 From the Editor
- 1 Current CDC Pascal Compiler
- 5 Cost of the CDC Compiler
- 5 Forthcoming Versions of the CDC Compiler
- 6 Other Pascal Compilers
- 7 Modifications to CDC Pascal
- 7 Other Documentation

#2 May, 1974 (also SIGPLAN Notices Vol. 9 No. 11 1974 November) 18 pages.

Table of Contents

- 1 From the Editor
- 1 History of Pascal
- 2 Pascal for non-CDC machines
- 6 Pascal 6000-3.4 - N. Wirth
- 18 Pascal and Portability - N. Wirth

#3 February, 1975 (also SIGPLAN Notices Vol. 11 No. 2 1976 February) 19 pages.

Table of Contents

- 1 From the Editor
- 1 Pascal User Manual and Report
- 3 Pascal Questionnaire Results
- 4 History of Pascal, Revised - G. Richmond
- 8 Bibliography
- 10 Portable Pascal
- 11 A Generalization of the Read and Write Procedures - N. Wirth
- 12 Corrections to Pascal 6000 - 3.4
- 13 Pascal 6000 - 3.4 Interactive Operation
- 13 Letters to the Editor

#4 July, 1976 (copies may be obtained for \$1.00 from George Richmond, the editor, as explained on the previous page) 103 pages.

Table of Contents

- 0 From the Editor
- 1 Correspondence (altogether 36 letters and notices including much implementation information)
- 81 A New Release of the Pascal-P System - Ch. Jacobi
- 86 Errata, PASCAL User Manual and Report (Second Edition)
- 88 Pascal User's Group
- 90 Pascal Implementors List
- 100 Bibliography (Literature about the Programming Language Pascal)

ROSTER 11/14/76

For our mutual benefit in communication, here is the 516 member PUG roster spanning 22 countries and 43 states. It is sorted (intelligently, we think) by zip (mail) codes (U.S. first) and then alphabetically by country. You can see at a glance who is at a well known organization at a well known place or who is in your area (or on your street!). Now, if you need an index by last name, there is one at the end, cross-referencing with zip (mail) code.

HENRY F. LEDGARD
COMPUTER AND INFO. SCI.
U OF MASSACHUSETTES
AMHERST MA 01002
(413) 545-2744

NORMAN E. SONDAK
COMP. SCI. DEPT.
WORCESTER POLYTECHNIC INSTITUTE
WORCESTER MA 01609
(617) 753-1411

HANK EDWARDS
2C BRACKETT ROAD
FRAMINGHAM MA 01701
(617) 620-1066 (HOME)
(617) 897-5111 X6809

BERNIE ROSMAN
MATH/CS DEPT.
FRAMINGHAM STATE COLLEGE
FRAMINGHAM MA 01701
(617) 872-3501

DAVID TARABAR
FIELD ENGINEERING
DATA GENERAL CORPORATION
235 OLD CONNECTICUT PATH
FRAMINGHAM MA 01701
(617) 620-1200

LLOYD DICKMAN
25 HAWTHORNE VILLAGE
CONCORD MA 01742

ATTN: LIBRARY
ML5-4/A20
DIGITAL EQUIPMENT CORPORATION
MAYNARD MA 01754

RONALD F. BRENDER
BLISS LANGUAGE DEVELOPMENT
ML3-5/E82
DIGITAL EQUIPMENT CORP.
146 MAIN STREET
MAYNARD MA 01754
(617) 897-5111 X2520

ALBERT S. BROWN
PK3-1/M12
DIGITAL EQUIPMENT CORP.
146 MAIN STREET
MAYNARD MA 01754
(617) 897-5111 X2391

N. AMOS GILEADI
APPLIED SYSTEMS GROUP
ML 21-4 E-20
DIGITAL EQUIPMENT CORP.
146 MAIN STREET
MAYNARD MA 01754
(617) 897-5111 X4402/X3888/X6472

RONALD J. HAN
ML5-5/E40
DIGITAL EQUIPMENT CORPORATION
146 MAIN STREET
MAYNARD MA 01754
(617) 897-5111

WILLIAM F. SHAW
ML5-5/E40
DIGITAL EQUIPMENT CORPORATION
146 MAIN STREET
MAYNARD MA 01754
(617) 897-5111

EDWARD STEEN
119 SHERMAN STREET
LOWELL MA 01852
(617) 454-9320

AARON SAWYER
DEPT 330
THE FOXBORO COMPANY
FOXBORO MA 02035
(617) 543-8750 X2029

WARREN R. BROWN
D.330
THE FOXBORO COMPANY
38 NEPONSET AVE.
FOXBORO MA 02038
(617) 543-8750 X2023

VICTOR S. MILLER
DEPT OF MATHEMATICS
BLDG 2
U OF MASSACHUSETTS
HARBOR CAMPUS
BOSTON MA 02125
(617) 287-1900 X3170/X3161

MICHAEL MEEHAN
WINTHROP PUBLISHERS
17 DUNSTER STREET
CAMBRIDGE MA 02138
(617) 868-1750

ATTN: READING ROOM
INFORMATION PROCESSING CENTER
39-430
MIT
CAMBRIDGE MA 02139

GABRIEL CHANG
575 TECHNOLOGY SQUARE
HONEYWELL INFORMATION SYSTEMS
CAMBRIDGE MA 02139
(617) 491-6300

F. J. CORBATO
NE43-514
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
545 TECHNOLOGY SQUARE
CAMBRIDGE MA 02139
(617) 253-6001

JEANNE FERRANTE
125 ANTRIM ST.
CAMBRIDGE MA 02139
(617) 876-8635

R. STERLING EAMES
SOFTECH
460 TOTTEN POND ROAD
WALTHAM MA 02154
(617) 890-6900

R. KRASIN
FIRST DATA CORP.
400 TOTTEN POND ROAD
WALTHAM MA 02154
(617) 890-6701

DAVID SOLOMONT
COMPUTER SERVICES
MILLER HALL
TUFTS UNIVERSITY
MEDFORD MA 02155
(617) 628-2943

PETER COLBY
289 MILL ST.
NEWTONVILLE MA 02160
(617) 527-2394

CHRISTOPHER K. JOHANSEN
PREEKSHOW ELECTONWORKS
176 GROVE STREET
AUBURNDALE MA 02166
(617) 969-2399

GEORGE POONEN
15 ORCHARD AVE.
WABAN MA 02168
(617) 969-4684

DONALD E. GRIMES
90 SYLVIA STREET
ARLINGTON MA 02174
(617) 646-4129

