

Pascal News

NUMBER 21

COMMUNICATIONS ABOUT THE PROGRAMMING LANGUAGE PASCAL BY PASCALERS

APRIL, 1981

If this isn't APRIL...



does that mean we're late ?

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- * Pascal News is the official but informal publication of the User's Group.
- * Pascal News contains all we (the editors) know about Pascal; we use it as the vehicle to answer all inquiries because our physical energy and resources for answering individual requests are finite. As PUG grows, we unfortunately succumb to the reality of:
 1. Having to insist that people who need to know "about Pascal" join PUG and read Pascal News - that is why we spend time to produce it!
 2. Refusing to return phone calls or answer letters full of questions - we will pass the questions on to the readership of Pascal News. Please understand what the collective effect of individual inquiries has at the "concentrators" (our phones and mailboxes). We are trying honestly to say: "We cannot promise more that we can do."
- * Pascal News is produced 3 or 4 times during a year; usually in March, June, September, and December.
- * ALL THE NEWS THAT'S FIT, WE PRINT. Please send material (brevity is a virtue) for Pascal News single-spaced and camera-ready (use dark ribbon and 18.5 cm lines!)
- * Remember: ALL LETTERS TO US WILL BE PRINTED UNLESS THEY CONTAIN A REQUEST TO THE CONTRARY.
- * Pascal News is divided into flexible sections:

POLICY - explains the way we do things (ALL-PURPOSE COUPON, etc.)

EDITOR'S CONTRIBUTION - passes along the opinion and point of view of the editor together with changes in the mechanics of PUG operation, etc.

HERE AND THERE WITH PASCAL - presents news from people, conference announcements and reports, new books and articles (including reviews), notices of Pascal in the news, history, membership rosters, etc.

APPLICATIONS - presents and documents source programs written in Pascal for various algorithms, and software tools for a Pascal environment; news of significant applications programs. Also critiques regarding program/algorithm certification, performance, standards conformance, style, output convenience, and general design.

ARTICLES - contains formal, submitted contributions (such as Pascal philosophy, use of Pascal as a teaching tool, use of Pascal at different computer installations, how to promote Pascal, etc.).

OPEN FORUM FOR MEMBERS - contains short, informal correspondence among members which is of interest to the readership of Pascal News.

IMPLEMENTATION NOTES - reports news of Pascal implementations: contacts for maintainers, implementors, distributors, and documentors of various implementations as well as where to send bug reports. Qualitative and quantitative descriptions and comparisons of various implementations are publicized. Sections contain information about Portable Pascals, Pascal Variants, Feature-Implementation Notes, and Machine-Dependent Implementations.

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****Note****

- We will not accept purchase orders.
- Make checks payable to: "Pascal Users Group", drawn on a U.S. bank in U.S. dollars.
- See the Policy section on the reverse side alternate address if you are located in the Australasian Region.
- Note the discounts below, for multi-year subscription and renewal.
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JOINING PASCAL USERS GROUP?

- Membership is open to anyone: Particularly the Pascal user, teacher, maintainer, implementor, distributor, or just plain fan.
- Please enclose the proper prepayment (check payable to "Pascal User's Group"); we will not bill you.
- Please do not send us purchase orders; we cannot endure the paper work!
- When you join PUG any time within a year: January 1 to December 31, you will receive all issues of Pascal News for that year.
- We produce Pascal News as a means toward the end of promoting Pascal and communicating news of events surrounding Pascal to persons interested in Pascal. We are simply interested in the news ourselves and prefer to share it through Pascal News. We desire to minimize paperwork, because we have other work to do.

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- American Region (North and South America), and European Region (Europe, North Africa, Western and Central Asia): Join through PUGUSA
 - Australasian Region (Australia, East Asia - incl. Japan): PUG(AUS). Send \$A10.00 per year to: Pascal Users Group, c/o Arthur Sale, Department of Information Science, University of Tasmania, Box 252C GPO, Hobart, Tasmania 7001, Australia. International telephone: 61-02-23 0561 x435

PUG(USA) produces Pascal News and keeps all mailing addresses on a common list. Regional representatives collect memberships from their regions as a service, and they reprint and distribute Pascal News using a proof copy and mailing labels sent from PUG(USA). Persons in the Australasian Region must join through their regional representative. People in other places please join through PUG(USA).

RENEWING?

- Please renew early (before November and please write us a line or two to tell us what you are doing with Pascal, and tell us what you think of PUG and Pascal News. Renewing for more than one year saves us time.

ORDERING BACK ISSUES OR EXTRA ISSUES?

- Our unusual policy of automatically sending all issues of Pascal News to anyone who joins within a year means that we eliminate many requests for backissues ahead of time, and we don't have to reprint important information in every issue--especially about Pascal implementations!
- Issues 1 .. 8 (January, 1974 - May 1977) are out of print.
- Issues 9 .. 12 (September, 1977 - June, 1978) are available from PUG(USA) all for \$15.00 and from PUG(AUS) all for \$A15.00
- Issues 13 .. 16 are available from PUG(AUS) all for \$A15.00; and from PUG(USA) all for \$15.00.
- Extra single copies of new issues (current academic year) are: \$5.00 each - PUG(USA); and \$A5.00 each - PUG(AUS).

SENDING MATERIAL FOR PUBLICATION?

- Your experiences with Pascal (teaching and otherwise), ideas, letters, opinions, notices, news, articles, conference announcements, reports, implementation information, applications, etc. are welcome. Please send material single-spaced and in camera-ready (use a dark ribbon and lines 1 1/2 cm. wide) form.
- All letters will be printed unless they contain a request to the contrary.

APPLICATION FOR LICENSE TO USE VALIDATION SUITE FOR PASCAL

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Richard J. Cichelli
On behalf of A.H.J. Sale & R.A. Freak

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Contributors to this issue (#21) were:

EDITOR	Rick Shaw
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Applications	Rich Cichelli, Andy Mickel
Standards	Jim Miner, Tony Addyman
Implementation Notes	Bob Dietrich, Greg Marshall
Administration	Moe Ford, Jennie Sinclair

Editor's Contribution

NEW ADDRESS

Yes, in my continued effort to bring you better service, (read this as: I can not do all the work effectively!) I have found someone else (read: sucker) to take over the PUG mailing list. I am sure that this will increase the satisfaction level for this task 100%. this will take a great load off of my back and allow me to devote all of my time to editing and publishing Pascal News.

LATE

I thought April first (April Fools Day) was an appropriate target date for this issue of Pascal News! I apologize for the tardiness, but my work (I have a real job that pays the bills) and the many pressing problems and issues of PN got in the way. I had to solve the PUG Europe problem, and try to gather as much as I could concerning the final vote on the ISO standard.

FUTURE OF PUG IN EUROPE

It took me more than a few months to correct the festering problems in Europe surrounding Pascal News. The previous coordinator was sinking under the mire of ever increasing job responsibilities as well as the editorship of clearly the best journal dealing with practical software implementation. (SP&E) As a result, the european region suffered from lack of attention. This is over! PUG cares. Please send your "job well done's" to David in Southampton, and send your complaints to PUGUSA. We will be handling all but the Australasia Region from the US. Please read the new APC carefully for policy and price changes. We will be mailing by surface mail to the UK and Europe, but I have been assured by the USPS that it should take no more than a month. I have been asked if I would mail by air for an extra surcharge. The answer has to be no, at this time. PUG can just not afford the special processing and handling that this would be required for two different types of mail. Sorry!

STANDARDS

Another delay was the standards effort. There is so much going on in the standards arena that we just could not afford to miss it. I think it was worth it. Over half of this issue is devoted to the vote on the ISO standard for Pascal (7185). Jim Miner has done another fine job.

THIS ISSUE

Now the good news! We have another jam packed issue. I think you will recognize our book reviewer this issue. He is an "occasional" contributor to PN. And I hope you will get a chuckle from our "sister" publication PUG PRESS. Andy Mickel brings this little gem to us. The other HERE and THERE article is a real puzzle. It came to me just as you see it!?

The application for this issue was so good I could not miss publishing it. It is a Pascal to EM1 pseudo code compiler by Andrew Tanenbaum. Its a real beauty. But it was sooooo big I could not publish it all ... yet. This issue contains the definition of the assembler language that is output and also an interpreter which serves as the EM1 machine definition. Issue 22 will contain the program text for the EM1 Pascal compiler. I hope everyone reviews the documentation and the code, even if they do not need the compiler. It is a fine example of elegant design and implementation using the language Pascal. Also included in the APPLICATIONS section is an article by Jeff Pepper on the implementation of extended precision integer arithmetic. A fine job.

The ARTICLES section contains a thought provoking extension to the read/write subroutines by David Rowland. Lets hear a response from the members. And finally Maragret Kulos has contributed a very comprehensive article comparing OMSI-1 Pascal and The Swedish Pascal compiler. There is a great deal of interest in these two compilers for the PDP-11. I hope this provides some answers.

All in all, a great issue. More to come on EM1 in issue #22.

Hope you like it!

Rick

Here and There With Pascal

BOOK REVIEW

The Pascal Handbook by Jacques Tiberghien
500pp, 270 Illustrations, SYBEX, Berkeley
(1980) \$US14.95 (paper edition only),
ISBN 0-89588-053-9.

Overview

This is not a Pascal textbook; it is something very different. Perhaps the most succinct description is that it is a Pascal *lexicon*: a sort of all-purpose reference manual. It is organized around entries keyed by an appropriate Pascal word (eg if, scope, writeln) arranged in alphabetical order. Each entry takes up one or more whole pages, and the standard sub-headings are SYNTAX, DESCRIPTION, IMPLEMENTATION-DEPENDENT FEATURES and EXAMPLE. The relevance of the entry to Standard Pascal and a number of particular implementations (HP1000, CDC, OMSI-1, Pascal/Z and UCSD Pascal) is encoded into the entry.

Thus the book is meant to be used as a dictionary to look up difficult points or to find out what some usage in a program you have received really means. As such, it follows a lot of reference manuals which are similarly structured (eg the B6700/7700 Pascal Reference Manual).

However, since Pascal is a small language with not very many things needing to be remembered, it needs to be asked why a lexicon of 500 pages is needed? Examination of the book indicates that its main purpose seems to be to document extensions and differences between implementations. Thus, since its topic is the union of all the quirks of 5 implementations, it has grown to this rather large size.

Target and reality

So much for the target; how does the book match up to it in reality? The answer seems to be that it does a reasonably good job of documenting what exists, but that it does not measure up to the very exacting standards that such an ambitious project warrants. The standard of accuracy against which a dictionary is judged is much higher than that appropriate for textbooks, in which a few lapses can be tolerated or justified on the grounds that pedantic accuracy would impede learning.

The slips in the book are far too numerous to detail (a list is being sent to the author), and a few examples will have to suffice. Dipping into the entry for the reserved word for is probably the richest source of examples. Faults which should be mentioned are:

- (1) An "equivalent flow-chart" is given. The sense of defining a high-level construct such as while in flow-chart terms is questionable at the best of times, but for the complex for-statement it is extremely unfortunate in that it might make people think the flow-chart is right. It isn't.
- (2) The prohibition on changing the value of the count variable is not mentioned.
- (3) The limitations on what a count variable can be (only a local simple variable) are not mentioned.
- (4) The correct restriction of the HP-1000 implementation is considered to be an implementation-dependent feature, whereas the corresponding flaw in the J6W/CDC implementation is not mentioned.

- (5) The failure of many of these implementations to enforce the requirements of the for-statement is not mentioned; indeed for four implementations the entry is *None known* for implementation-dependent features.
- (6) The possibility of the statement failing to terminate (incorrectly) for some limit values in the OMSI and UCSD implementations is not documented.
- (7) The statement is made that *The A and B parameters may not be modified by the statement in the loop*. This is simply incorrect, though it is true to say that the loop limits are determined on entry to the loop.

Perhaps this is the worst case to show, but a few more examples will suffice to show that the problem is not isolated. The syntax for MARK shows that this non-standard procedure takes a parameter which is an integer expression. MAXINT is incorrectly described as determining the positive limit of representable integers (which it may be only coincidentally). The syntax for CASE statements is incorrect. And so on.

General issues

There are two major deficiencies in this book which deserve comment. First is the lack of formal definitions, and indeed the appearance of only a few English descriptions that resemble the actual requirements of Pascal. The author claims to be talking about Pascal (presumably the standard variety) as well as the others, but there is simply no basis for comparison if the reader cannot find out what sets, for example, are really supposed to be.

The second is the mystifying omission of any reference to the Pascal Validation effort. If one of the purposes of the book is to aid programmers who wish to write portable Pascal programs, then it is difficult to understand why the author did not carry out validation tests on the five compilers he regards as important, and print the results in a second section of the book. It would have added significantly to the value of the book as a reference.

Minor issues

Regrettably, once again it is necessary to point out that capitals were designed for carving into stone, not for ease of reading. This book perpetuates the habit of printing programs in capitals, with consequent loss of legibility.

It is difficult to deduce the author's criteria for choosing which topics to omit or include. To illustrate this, note that the UNIT feature of UCSD Pascal, together with the corresponding USES, INTERFACE and IMPLEMENTATION reserved words, is not treated in the book, apart from a mention, despite their undoubted importance in use. On the other hand, such trivia as a pre-defined function EXP10 in OMSI Pascal takes up 2 pages.

Directing another comment to the publisher rather than the author, one wonders why the tremendous amount of white space in the book was tolerated. A little care in layout (perhaps two entries per page; perhaps denser printing) would have halved the number of pages, and perhaps reduced the price.

