

P R E S S R E L E A S E

“Ada 2000” Development Launched

Now that the Ada-9X effort is well underway, work has started on developing “Ada 2000”, a programming language for the 21st Century.

“Ada 2000” will incorporate many new features and remove many of the shackles of current software development technology.

Among the revolutionary changes, destined to propel software engineering (and, yea, Systems Engineering) into the future and change the face of hacking as we know it, are:

- o “Ada 2000” will *be* the APSE. No auxiliary support tools will be necessary. “Ada 2000” will support software engineering in the large, because “Ada 2000” *is* large. Applications will be large. Large is in. Small was beautiful, but no more. (You nix, I nix, we all nix UNIX.) “We’re not your father’s Oldsmobile.”

- o “Ada 2000” will put a steel trap around “STEELMAN”. No holes left uncovered, implied requirements are met, do-dah do-dah.

- o Validated compiler systems will not have bugs/errors, only undocumented features. And validation itself will be on the honor system. “It’s validated, really, trust us, we mean it, we worked hard on it, really. Just a few more ‘features’ to finish up.”

- o Mathematical/formal reasoning, assertions, annotations, and automatic verification of systems is standard. Ambiguous language features, notations, and descriptions are gone, except where applications developers need it most.

- o “Up-front” requirements and design will be translated into “Ada 2000” code automatically. “Downstream” effort will be minimized. You’ll finally be able to keep your head “above water”. You won’t be “up the creek” anymore. Your code won’t be “all wet” anymore. System designers and application developers won’t be “oceans apart” anymore. “Quoth the Raven, ‘Nevermore.’”

- o Symbolic execution on the host system, and symbolic real-time debugging on the target system will be required. Symbolic gestures are optional.

- o Automatic documentation (requirements, specifications, design notes, liner notes, user guides) is provided. Hypertext links will be automatically generated. Links to organized programming syndicates are undocumented (the so-called “missing link”). The compiler system will be provided with interfaces to CD-ROM devices so that documentation can be stored on CD-ROM disks, and accessed via interactive, multimedia technologies.

- o Automatic test generation is standard. (A moot point since the compiler system is self-checking and has no errors; see “Validation” above.)

- o Three (3) tasking models are a part of the language. Ambiguous wording in the reference manual will allow application projects to develop a custom tasking model that is best suited to that project. Programs will be able to dynamically choose which model is in effect at any given time. (Research is continuing on how to best handle concurrent tasking models.)

o You want static, we got static. You want dynamic, we got dynamic. But don't give us any static. Take in a little here, let out a little there, we'll fix you up in no time. Tailor made systems are a little extra. Off-the-rack is a thing of the past. Never shop again at Sonia's "Just Like New" boutique.

o Automatic program restructuring and formatting will be standard. Program listings will be Postscript compatible, with an option to be stored on CD-ROM (see above).

o Pragma VECTORIZE will allow distributed/parallel array and numeric processing. Compilers will perform data analysis to automatically generate instructions for computers with distributed/parallel processing capabilities. FORTRAN will be superseded. John Von Neumann bottlenecks will be avoided, but not development bottlenecks. Alfred E. Newman architectures will not be supported. This pragma will be especially helpful to applications programs running on such systems as the Cray Z-CRSXMPa-i "Turbo" meta-network, with Intel 809x pre-/co-/post-processors, VAX-cluster frontend, and of course, Apollo workstation interfaces.

(By then, workstations will have wall-sized, curved screens for that "just like you are there" feeling, Dolby sound, and XXX-windows. Programmers will actually be plugged into the workstations to avoid the use of mice. However, this is not meant to encourage "seat-of-the-pants" programming. [Joy-sticks and joy-riding are still OK. Bill Joy will be around, possibly still basking in the Sun-shine.] By being plugged-in, tuned-in, and turned-on, having sweet dreams will solve many problems with little effort. System crashes could be a little painful. "Look-and-feel" interface claims will have a different meaning than now. Workstation cabinets will actually come in your choice of two decorator colors.)

o "Ada 2000" will have language support for backward-chaining, forward-chaining, logic programming, programming logic, and expert-system/system-expert rule handling. Prolog and LISP will be superseded. Chain gangs of logical programmers will appear. Chain smoking is unsupported.

o COBOL will be superseded. Packages for information systems, business, and financial applications will be predefined. Picture formats for I/O, exact decimal calculations, runtime checking (no ATM's), and automatic account rejection/mishandling are standard. Hooks will be added for embezzlers and/or auditors.

o Dynamic size arrays (read "dynamic length strings") will be the default. Symbolic pattern matching and processing will be fundamental. SNOBOL and BASIC will be superseded.

o Pragma DO_AS_I_WANT will save compiler maintainers much effort because application developers will be able to tell the compiler what they really want as generated code. In fact, when possible, the compiler will produce source code from the "I Want" specification that will generate the desired code. Assembly language will be superseded. 'C' will be superseded, although any future 'Super-C' will, of course, *not* be superseded. The compiler system has two responses for the requested pragma: (1) "No sweat", or (2) "Hit the road, Jack".

o A database interface will be added. Lotus 1-2-3 and other spreadsheet programs will be superseded. 4GLs will be superseded (and forgotten). Time card charges will be recorded automatically. Access to public, government, and industry databases will be encouraged. Hooks will be added for hackers to give them something to do. By forcing everything to be visible and

accessible, no one will be able to have private information for blackmail purposes, tabloid news will lose its appeal, and you can find out how much Buffy and Skippy really earn.

- o Built-in graphic functions will allow “program visualization”. Movies of what the compiler is doing to your code will be projected holographically via the workstation interface. Erroneous and other unsound programs will still be discouraged, but they will be fun to watch.

- o Reusable, portable, robust, reliable, deterministic, verifiable, distributed/parallel, high-throughput, low-resource, self-configurable, fault-tolerant systems are a snap.

- o Automatic runtime royalty payments will be a feature.

- o As a required compiler system tool, an e-mail interface will be provided along with phone numbers and network addresses of the “Big-Names” so you can get real-time, in-time, high-time, right-on, on-line help.

- o Send your suggestions to the “Ada 2000” committee on the attached form today, or make up your own form since we can’t agree on what it should look like anyway.

- o “Ada 2000” fever. Catch it. It’s the choice of a new generation.

(Circle 1815A on the Reader Service Card)

Michael L. Cook, 15-August-1989

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