



## Life Insurance: Computing Human Life Value

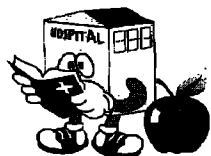
—by **Gary A. Bergquist**  
*Zark Incorporated, Hartford, CT, USA*

A plane goes down. Hundreds are killed. Many more hundreds of lives are disrupted by the loss of their loved ones. Airline officials, lawyers, insurance representatives, and economists huddle together to work out financial compensation for the survivors. In the process, the unquantifiable is quantified—a value is placed on each life. The age, occupation, salary, family characteristics, and so on are considered in the process of determining the financial loss represented by the victim's death.

Litigation Analytics, Inc. (LAI) developed an interactive APL system for rapidly computing human life value, the economic loss to survivors. Drawing upon the literature involving the economics of human capital and upon extensive demographic databases from a variety of federal agencies, the “PhD LIFE” system projects the earnings, taxes, consumption, savings, inflation, and so on, for a target “client.” Economists at LAI have used this system to prepare their testimony as expert witnesses for almost 20 years.

The system has been made available to life insurance agents as a tool in their selling efforts. What better way to assess the adequacy of a client's insurance coverage than to examine scientifically, in the form of colorful charts and graphs, the client's future life value?

*More information:* LAI@EconomicLoss.com



## Healthcare Information Management: Keeping hospitals healthy

—by **Christopher H. Lee**  
*SoftMed Systems*  
*Bethesda, MD USA*

SoftMed Systems, Inc., based in Bethesda, Maryland, is a two-hundred person company providing Medical Records Management software to the healthcare industry. They are the number-one vendor of such products, with software in approximately 1500 hospitals in the US and Canada. Most of their sixty products and add-ons are written in APL+Win by a permanent staff of 12 developers with a little help from two part-time consultants. SoftMed also sports a C++ group that deals mainly

in supporting software (DLLs, etc.) and a FoxPro group with two products. APL has been the main development language at SoftMed for all of its fifteen year history.

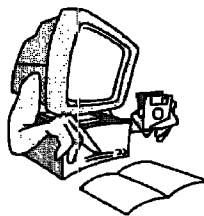
When moving from DOS to Windows, the development team decided to take a ground-up approach to APL Windows development, using the power of arrays to develop an easy-to-use tool set that makes for rapid construction and a standard user interface across all their products. They invented the concept of User-Defined Classes to provide APL with the same kind of value that VBXs gave to Visual Basic and Parts gave to Smalltalk. Coupled with a Master Code suite of over 500 functions, this has led to higher than 90% code re-use across their applications.

With two to five new applications every year plus major releases of most of the existing applications, these 12 APL developers are providing an impossible challenge to SoftMed's competition. This lead is increased by SoftMed's ability to concentrate on the design of a highly-specialized user interface that optimally addresses the way their customers do business. They credit this to “thinking at a higher level” because of the extensive set of building blocks they have produced.

Recently, they started developing with SQL databases, using APL LinkPro, and this has proven to be a very successful approach to high-volume data management. Their applications include image scanning, storage and retrieval, faxing, e-mail, web access, integration with Microsoft Word, and voice and APL COM Objects and they stand ready to embrace any new technology that helps them deliver the applications their customers need.

SoftMed's developers are frequent presenters at the APL2000 Annual User Conferences and are happy to provide others with large portions of their toolset, including the UDCs. Their envelope-pushing attitude has had a significant impact on new features in APL+Win, and has led to several extensions to its Windows Interface.

*More information:* Christopher H. Lee [chris@softmed.com](mailto:chris@softmed.com)



## Utilities: Covering the Windows API

—by **William R. Parke**

Recently, I decided to make it my quest to write additional APL+Win cover functions for Windows API functions which were not included in the standard APL2000 release or that I had not seen elsewhere. Most of the commonly-used ones are built-in to the APL+Win system or have already been done, and a lot of what's left seems very esoteric, so I've only accomplished a few so far.

The first ones I wrote were for reading and writing volume (disk) labels, *GetVolumeInformation* and *SetVolumeLabel*. Next

was the *ShellExecute* function to open files with registered filetypes in their native applications. The actual code needed is only one line, but I included some handling of file paths and names in varying formats as well as allowing passing a handle for a parent window from the user's application. The *Page Setup Dialog* is a little-known dialog for setting page margins, paper size and orientation for printing. It has the useful side benefit of returning the current printer's margin minimums. *WNetOpenEnum* and *WNetEnumResource* allow the programmer to determine what network resources are available on a LAN, and I use this to display and access them in my Explorer-like file-management application.

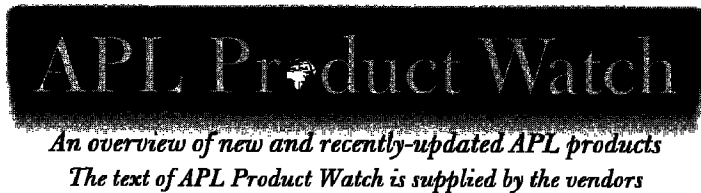
*WNetAddConnection2* allows connection to password-protected resources. There are many more to be done, either when I need them or when I want to indulge my curiosity. Researching the Windows API documentation for useful functions becomes a great learning experience, and writing re-usable code is always time well-spent.

*More information:* e-mail: [wrp@parkenet.org](mailto:wrp@parkenet.org)  
You can find these functions and more on Web pages:  
<http://www.parken.net/org/wrp/apl> ■

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Snail-mail: F.H.D.v.Batenburg, Theoretical Biology, Leiden  
University, Kaiserstraat 63, 2311 GP Leiden, the Netherlands.*

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## News from IBM Corporation

### New Service Level Available

**A** NEW SERVICE LEVEL FOR THE APL2 WORKSTATION PRODUCT SET (Windows, OS/2, AIX/6000 and Sun Solaris) is now available. This service level is Level 5 for Windows and Level 16 for OS/2, AIX and Solaris.

In addition to the usual fixes for user-reported problems, this service level contains several new features.

### Files as Arrays

A new associated processor, Processor 12, provides the capability to associate a name in the APL workspace directly with an operating system file. Once associated, the file can be accessed using ordinary APL operations. The files can be regular text files or files containing APL objects. The syntax and features of this new Processor 12 are compatible with the APL2/370 version of Processor 12 already available.

### Workspace Compare

A new workspace, WSCOMP, is provided in public library 1. This workspace contains tools to compare two workspaces and provide a report of their similarities and differences.

### Hiding the Interpreter Window

The "-hostwin" invocation option, already available on AIX and Solaris, has now been implemented for OS/2 and Windows. Specifying "-hostwin off" suppresses the interpreter's console window.

### Time Format Translation

Two new functions, MS2TS and TS2MS, have been added to public workspace 2 DDESHARE. These functions translate between the Microsoft time format (typically used in software like Excel) and the APL2 time format.

### GPiB Processor

A new auxiliary processor, AP 488, provides access to devices on a general-purpose interface bus (GPiB) via the National Instruments GPiB driver software. (Note: this processor is only available for OS/2 and Windows)

### New font in APL2 for Windows

A new bitmap font, "APL2 Image", has been added to APL2 for Windows. This font will provide better resolution for screen displays.

### Windows shortcut keys

A new option has been added to the session manager and editors in APL2 for Windows. This option enables standard Windows shortcut keys like cntrl-x for cut and cntrl-v for paste.

### AP 145 service AplCopyMem

The AP 145 service AplCopyMem, already available in OS/2, has been implemented in Windows.

OS/2 and Windows users can download service from our Web site: [www.ibm.com/software/ad/apl](http://www.ibm.com/software/ad/apl), click on "Download". AIX and Solaris users can open a problem report with the IBM Support Center to obtain the latest maintenance. ■

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*WNetAddConnection2* allows connection to password-protected resources. There are many more to be done, either when I need them or when I want to indulge my curiosity. Researching the Windows API documentation for useful functions becomes a great learning experience, and writing re-usable code is always time well-spent.

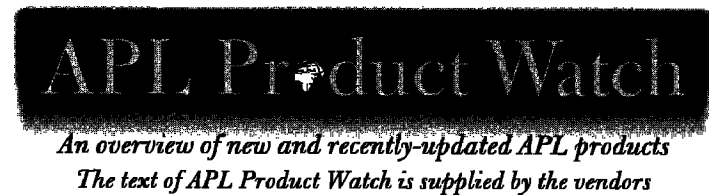
*More information:* e-mail: wrp@parkenet.org  
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Snail-mail: F.H.D.v.Batenburg, Theoretical Biology, Leiden  
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OS/2 and Windows users can download service from our Web site: [www.ibm.com/software/ad/apl](http://www.ibm.com/software/ad/apl), click on "Download". AIX and Solaris users can open a problem report with the IBM Support Center to obtain the latest maintenance. ■

## **News from Soliton Associates**

**S**OLITON ASSOCIATES IS PLEASED TO ANNOUNCE the future availability of SHARP APL for Linux. SHARP APL for AIX and Solaris have been used by Soliton's corporate customers since 1994. SHARP APL for Linux is the result of a POSIX port of the AIX/Solaris products. SHARP APL for Linux will be available in October 1999 as a beta release and a production version is planned for the first quarter of 2000.

Personal licenses for SHARP APL for Linux will be available free of charge.

### **A new platform**

Linux extends the SHARP APL product line that includes OS/390, AIX and Solaris. Linux can run on personal computers and workstations. The initial investment for setting up Linux is rather small and SHARP APL for Linux is an excellent product for prototyping and market development. With the Linux platform, SHARP APL offers scalability and a growth path for customer applications.

Linux is extremely reliable and efficient. Soliton considers Linux as 'industrial strength' and well suited for SHARP APL. Linux growth will benefit our customers.

Commercial licenses for SHARP APL for Linux offer different levels of support and regular upgrades. Personal licenses do not have support, but problem reports will be accepted.

### **Promoting APL**

In our effort to promote APL, SHARP APL for Linux can be used, at no cost, for personal use. The free version of the product is complete. The product will be FTP-able from any Linux distribution site and from Soliton's home page ([www.soliton.com/linux](http://www.soliton.com/linux)). There is no required registration process for the personal version. The documentation in PDF format is also free. We may consider selling a CD or a printed manual in the future.

We wish to promote APL among college and university students. By having a Linux version, we wish to encourage resellers and consultants to include SHARP APL in their solutions.

### **Architecture**

SHARP APL for Linux is a true multi-user system. Linux, like Unix, offers its users private disk areas and security. Consequently, SHARP APL for Linux offers private workspaces and files.

Because it runs in a server environment (Linux), you can have several users logged in at the same time running different applications unaware of each other. These users could be on different Linux machines or running W/98 with an X-Server, a JVM (Java

VM), Telnet or a browser. As long as you are TCP connected to Linux and have a user-id, you can run APL.

The same multi-user architecture enables an application writer or user to have several APL sessions running concurrently with excellent performance. These sessions are called tasks. A shared variable processor enables tasks to share data with each other, either within the same user-id or system-wide. The shared variable processor is also the mechanism used to contact APs (auxiliary processors).

The workspace size is limited to 2GB but Linux will restrict this limit further depending on its swapping area and memory. Intel Linux kernel 2.0.36 and above is the only supported platform.

### **Components**

SHARP APL for Linux comes with:

- A interpreter that runs as a process;
- A file system where files can be shared among users;
- A private or global shared variable processor;
- An interface to C-code through the Intrinsic Function (IF) facility;
- A set of IFs for Linux file operations, Linux commands;
- A set of IFs for Socket calls;
- A host AP;
- A full screen function editor;
- A set of public workspaces for date calculation, printing, import and export of software;
- A utility to de-fragment files;
- All documentation in PDF format.

Additionally, a set of utilities will be available (not included in the beta package):

- SCL or Socket Client Library to send, and read E-mails from APL; and to FTP files to and from APL;
- SSM or Socket Server Manager to run socket servers including an FTP daemon;
- SBI or Browser Interface to enable applications to have a browser front-end;
- SJI or Java Interface to enable applications to have a Java front-end or use Java services like JDBC.

### **GUI**

The Graphical User Interface for application development is based on Java and the "SJI". This approach is consistent with the server architecture of SHARP APL for Linux where the interface to an application is separated from the application server. This enables the 'client' to an application to be separated by a network, possibly the Internet and the choice of Java offers portability across many platforms including Windows (95,98, NT, 2000), Mac-OS and most Unix implementations.

In particular, an Intranet connected machine with a Java VM (Netscape or IE4 for example) will be able to run GUI applications on Linux removing the need to have a second desktop. They can share a Linux machine with other users and have the same functionality as if they physically had it on their desks.

The SJI simplifies and provides the Java front-end capability for the application developers. Many will choose to call Java from APL via the SJI. However, it is also possible for a Java program to 'call' APL by using the SSM API for Java.

## Language

The SHARP APL language is based upon Ken Iverson's APL dictionary. It has enclosed and heterogeneous arrays. Functionally, it is equal to APL2 but the syntax differs slightly. It is not difficult to program SHARP APL when you know APL2. Events and errors trapping are similar to Dyalog APL. APL objects can be packed together into packages that can be stored on file and manipulated. Most large applications page-in code from files that have packages of functions and variables. A rank operator and the notion of rank in all the APL primitives enable elegant programming. A file system is incorporated in the language.

## IDE—Integrated Development Environment

A session manager coupled with a full screen function editor simplifies the interactions with APL during application develop-

ment. This offers portability and capability to develop APL remotely, separated from the server. An X-server on a Windows platform can be used with the same benefit as using a Linux desktop.

We are currently developing an IDE within the SJI framework. An experimental version should be available by year-end.

## Support

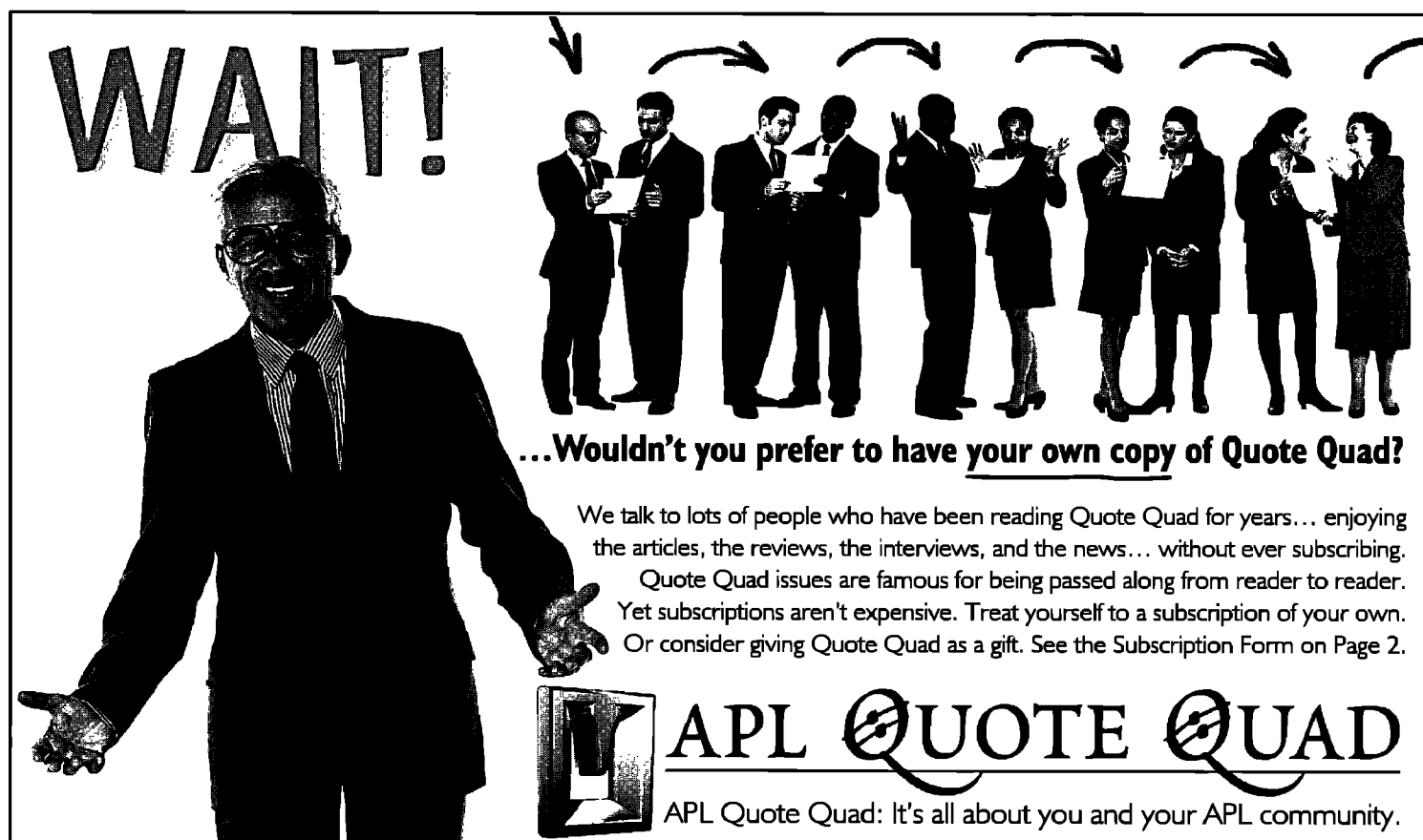
The personal version of SHARP APL for Linux does not have any support. However, problem reports can be submitted to [linux@soliton.com](mailto:linux@soliton.com). We plan to offer comprehensive support plans to our corporate customers. Please contact Soliton for further details.

## Contact Information

Please refer to <http://www.soliton.com/linux> for up to date information. For commercial licenses, please contact Laurie Howard ([ljh@soliton.com](mailto:ljh@soliton.com)) at +31 20 646 4475 (Europe) or Nancy Lamb ([nancy@soliton.com](mailto:nancy@soliton.com)) at (716) 256-6466 (North-America).

For information about personal licenses for SHARP APL for Linux, please contact [linux@soliton.com](mailto:linux@soliton.com). ■

To submit your own APL product announcements to APL Product Watch, contact Ray Polivka: "[Polivka@ACM.org](mailto:Polivka@ACM.org)".



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# APL BERLIN 2000

## The Array Processing Languages Conference for the Year 2000

*"Ich bin ein APLer!"*

**T**HE ARRAY PROCESSING LANGUAGES CONFERENCE for the Year 2000 will be held on 24 July 2000 through 27 July 2000, at the Technical University of Berlin in Germany. APL-Berlin-2000 is sponsored by ACM/SIGAPL and APL Germany.

For more information, please contact Dieter Lattermann at Rheinstrasse 23, D-69190 Walldorf, Germany; Tel: +49 6227 2003, or E-Mail ID: "Dieter\_Lattermann@Compuserve.com".

### APL-Berlin-2000 Contacts

#### General Chair:

**Dieter Lattermann** Dieter\_Lattermann@Compuserve.com

#### Co-Chair:

**Conrad Hoesle-Kienzlen** ..... chk@hoesle-kienzlen.de

#### Organizing Chair:

**Martin Barghoorn** ..... barg@cs.tu-berlin.de

#### Treasurer:

**Gert Osterburg** ..... GertOsterburg@t-online.de

As the final plans develop, they will be posted on the APL-Berlin-2000 website, at "<http://stat.cs.tu-berlin.de/APL-Berlin-2000>". This can also be accessed through the SIGAPL web page, at "[www.acm.org/sigapl](http://www.acm.org/sigapl)".

### The City of Berlin



The city of Berlin is situated in the easternmost part of Germany (opposite, so to speak, of Bonn, the former capital, which lies in the westernmost part of the country). It was founded in 1230 and became capital of the German empire in 1871. The town is situated in a mostly flat and sandy landscape—the highest hill in Berlin has the gigantic height of 68 meters—and straddles two navigable rivers, the Havel and the

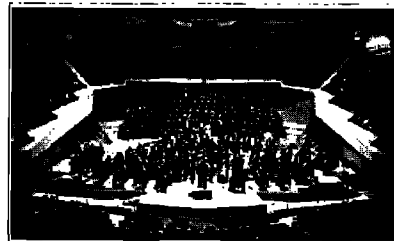
Spree, which form several lakes and canals within the boundaries of the city. Today, the map of Berlin shows an area of roughly 900 square kilometers, a population of 3.4 million and no less than three airports, (one for each million ;-).

The picture to the left shows the famous thoroughfare and shopping street "Unter den Linden," with the television tower in the background.

During the conference in July you can expect temperatures averaging 18°C. But don't be deceived by that number, this is an *average* and can mean that, while it is pleasantly cool at night, the temperature can very well go past the 30°C mark during the day. Rain is not unheard-of, but rather rare during the summer months (however, bringing an umbrella is always a good idea).



If you want to visit the opera, you had better bring some fashionable clothes (if you don't want to buy them in Berlin, which would be an option); jeans and a sweat-shirt will be frowned upon by the more classy Berliners you will see there.



If you love music you have many choices in Berlin, but one is an absolute "must" for those who prefer classic music to the more modern cacophony our children seem to be attracted to: *The Philhar-*

*monie*. Not only are the Berlin Philharmonics famous for their top-quality performance (the most famous conductor of the Berlin Philharmonics was Herbert Karajan), the house which is their "home base" was built by the famous architect Hans Scharoun. As you can see on the left, the audience completely surrounds the orchestra like in a circus (therefore the building once was known as "Circus Karajani") and it is also renowned for its fantastic acoustics.



The town itself is rich in majestic buildings from the 17th, 18th and 19th centuries and is a flourishing and fashionable metropolis now that it has regained its status as Germany's capital. The downside to this can be easily seen in the picture of the famous Brandenburger Tor: huge construction sites and multitudes of cranes "decorate" the town wherever you look (obviously every century wants its own majestic buildings, but one wonders why we prefer the old to the new ones in general...). Anyway, by the time you will arrive,