

MASTER

HUMAN FACTORS IN SPEAKEASY

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Human Factors in Speakeasy

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In the design of any computer language there is of necessity a conflict between the needs of individual users and of the implementation team. For most languages, the implementors attempt to satisfy the needs of a specific user group. How well they succeed is most often directly related to the skills of the designers. Users are able to influence the structure of such languages only after the product is in production and thus they can have little input on the design of basic components of the system.

Speakeasy is a language designed to provide a casual user with effective access to the power of a computer. It is not a computer language in the usual sense, since no attempt is made to provide its users with information about how the actual computation is carried out on the hardware of the machine. Rather, emphasis is placed on providing users with the means of formulating problems in a notation that is modeled on that of conventional mathematics. The task of converting this simplified formulation into an executing computer program is given to the Speakeasy processor.

The basic design philosophy of Speakeasy differs markedly from most programming languages. Rather than attempting to completely define specifications for this language, an alternative approach was taken in which only really basic parts of the syntax were set. The rest of the system was allowed to evolve under the influence of its users. The notation itself has been modified in response to reasonable requests. The view that users' complaints and suggestions usually have merit has led to the creation of a language that is truly user oriented since it was in fact designed by its users.

Speakeasy is intended to provide a total computing environment for its users. To do this it is essential that a mechanism be provided so that users and user communities be able to extend the language to match their own needs and overcome limitations in the system. The concept of the linkule, the linkable module, has provided this capability to Speakeasy. The growth of the overall capabilities of the Speakeasy system is through the introduction of new libraries of linkules provided by user communities. Standards for the structure of such additions exist, but the basic growth in the language capabilities rests in the hands of actual users of the language. It is not surprising then, that each group of users finds the language and its notation natural, for the most part it has been designed by their own co-workers.

Although originally created for researchers in the physical sciences this language is now accepted in many fields. In all cases the reason is that the language is designed primarily to aid its users. For this reason users find it usable, friendly and at the same time powerful. It continues to grow in power as new users find limitations in the system and overcome them to the benefit of all of its users. Speakeasy is rapidly becoming one of the leading

+Work performed under the auspices of the USERDA, Division of Physical Research

econometric languages and at the same time is a contender for the most popular interactive graphics language. It is also growing in popularity not as a computer language but as a basic teaching tool for many disciplines

Speakeasy will continue to evolve in the future. It will become even more powerful and more encompassing as new users discover its capabilities. It will also remain a human oriented system with more and more features added to aid the user in his interaction with a computer.