

The Wayback Machine - <https://web.archive.org/web/19991003055535/http://lheawww.gsfc.nasa.gov:80/users/barrett/IDAE/table.1.html>

## Interactive Data Analysis Environments

The following table is an attempt at an objective comparison between various *Interactive Data Analysis Environments*. This has come to include several commonly used scripting languages, such as Java and Perl. The reason for including these scripting languages in the table, even though they are not explicitly interactive, is that these languages are being used in a data analysis environment.

We are also aware that the comparison of some languages, is like comparing apples and oranges, e.g. the inclusion of Khoros and AVS; and Java and Perl. This all stems from their use as or in the development of data analysis environments. Our aim is to be inclusive and not exclusive. Therefore, if your favorite data analysis environment or language has been omitted, please feel free to contact the authors about including it in the table. Any details you might provide about the language or environment will also be appreciated.

You will notice that the table is in an early stage of construction as evidence by the many '?' and incorrect choices for some languages. The authors hope to eventually remedy this situation, but don't expect it to happen anytime soon. (We have to put food on the table, too!) Hence, if you are familiar with any one of these languages or categories and would like 1) to contribute details, 2) to comment about a confusing or ill-defined category, or 3) just to "set the authors straight", please don't hesitate to contact us. All comments are welcome.

Paul Barrett (barrett@compass.gsfc.nasa.gov) and Joe Harrington (jh@alum.mit.edu)

Interactive Data Analysis Environments																					
	Textual Shells			Graphical Shells		Interactive Interpreted Languages														Non-interactive Interpreted Languages	
	<a href="#">Glish</a>	<a href="#">IRAF</a>	<a href="#">MIDAS</a>	<a href="#">AVS</a>	<a href="#">Khoros</a>	<a href="#">Guile</a>	<a href="#">IDL</a>	<a href="#">Mathe-matica</a>	<a href="#">Matlab</a>	<a href="#">Octave</a>	<a href="#">Phantom</a>	<a href="#">PV-wave</a>	<a href="#">Python</a>	<a href="#">Rlab</a>	<a href="#">S-plus</a>	<a href="#">Scheme</a>	<a href="#">Scilab</a>	<a href="#">Small-talk</a>	<a href="#">Tcl</a>	<a href="#">Java</a>	<a href="#">Perl</a>
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>GENERAL</b>																					
<b>Sponsor</b>	ATBF...	NOAO	MPE	AVS	Khoros															Sun	Perl
<b>Version</b>	0.9	2.x	2.0	6.0	2.1	FSF	RSI	Wolfram	?	?	TCD	-	CNRI	-	-	FSF	INRIA	FSF	UCB	1.0	5.0
<b>Price (US\$)</b>		?		?		1.0b	5.0	3.0	?	?	0.7	-	1.4	-	-	4.1	2.2	1.1	7.5		
<b>Copy</b>	left	license	left	right	license		1400	1500	?			-		-	-					license	left
<b>Platform</b>						left	right	right	right	left	left	-	left	-	-	left	left	left	left	Dos/Win	Dos/Win
		VMS	VMS			Dos/Win	Dos/Win	Dos/Win			Dos/Win		Dos/Win			Dos/Win		Dos/Win	Dos/Win	Mac	Mac
	Unix	Unix	Unix	Unix	Unix	Mac	Mac	Mac	?	?	Mac	-	Mac	-	-	Mac	Mac	Mac	Mac	VMS	VMS
<b>Source</b>	yes	yes	yes	no	yes	Unix	Unix	Unix			Unix		Unix			Unix	Unix	Unix	Unix	yes	yes
<b>Installation</b>						yes	no	no	?	yes	yes	-	yes	-	-	yes	yes	yes	yes		
type	binary	binary	binary	binary	binary		binary	binary	?				binary	-	-	binary	binary	binary	binary	binary	binary
method	makefile	makefile	makefile	program	makefile	source				source	source	-	source	-	-	source	source	source	source	makefile	makefile
compiler	optional	optional	optional	none	optional	makefile	program	program	?	?	makefile	-	makefile	-	-	makefile	makefile	makefile	makefile	optional	optional
<b>Size</b>						required	none	none	?	yes	required	-	optional	-	-	required	optional	required	optional		
core	5	60	30	40	50	30	20	30	?	?	10	-	15	-	-	30	75	5	10	10	10
library	~300	?	?	?	450	?	?	?	?	?	?	-	?	-	-	?	?	?	0	?	?
<b>Documentation</b>	manual	manual	manual	manual	manual	manual	manual	manual	manual	manual	manual		manual			manual	manual	manual	manual	manual	manual
	hypertext	tutorial	tutorial	tutorial	tutorial	tutorial	tutorial	tutorial	tutorial	tutorial	tutorial		tutorial			tutorial	tutorial	tutorial	tutorial	hypertext	hypertext
						hypertext	hypertext	hypertext	books		hypertext	-	hypertext		-	hypertext	hypertext	hypertext	hypertext	books	books
<b>Support</b>	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail	E-mail		E-mail			E-mail	E-mail	E-mail	E-mail	E-mail	E-mail
		phone	phone	usenet	usenet	usenet	usenet	usenet	usenet	usenet	usenet	-	usenet	-	-	usenet	usenet	usenet	usenet	usenet	usenet
cost (US\$/yr)					5000		300	300	?			-		-	-						
<b>ENVIRONMENT</b>																					
<b>Cmd-line</b>	custom	custom	custom	n/a	n/a															n/a	n/a
<b>GUI</b>	devel	yes	yes	yes	yes	GNU	custom	custom	?	custom	custom	custom	custom/GNU	custom	custom	GNU	custom	GNU	n/a	yes	yes

<b>Extensible</b>						yes	yes	yes	?	no	?	yes	devel	?	?	?	yes	yes	yes		
lang interface	C++	no	no	?	yes															no	no
dyn linking	N/A	yes	yes	yes	yes	yes	no	?	?	?	?	?	C	?	?	?	C/fortran	?	yes	yes	yes
RPC	?	?	?	?	?	yes	yes	?	?	?	yes	yes	yes	?	?	yes	yes	?	yes	?	?
<b>Debugger</b>	?	no	?	yes	?	yes	?	?	?	?	?	?	?	?	?	?	?	?	?	no	yes
<b>Mem Manager</b>	yes	no	?	yes	?	?	no	?	?	?	?	?	yes	?	?	?	?	?	yes	?	yes
<b>Distributed</b>	code	no	?	code	code	yes	no	?	?	?	yes	?	yes	?	?	?	?	?	no	code	code
						?	code	code	?	?	object	?	object	code	code	code	code	code	code		
<b>LANGUAGE</b>																					
<b>Syntax like</b>	fortran	C	fortran	n/a	C															C	C
<b>Arg passing</b>	ref/val	value	?	ref	?	Lisp(1)	fortran	fortran	?	?	C	?	C	?	?	Lisp	Matlab	Pascal	C	?	value
<b>Namespaces</b>	?	local	?	local	global	?	ref	value	?	?	?	?	value	?	?	?	value/ref	?	value	local	local
<b>Classes</b>	yes	no	?	?	no	?	global	?	?	?	local	?	local	?	?	?	local	local	local	yes	yes
<b>Modules</b>	yes	yes	?	yes	yes	?	no	no	?	?	yes	?	yes	?	?	?	?	yes	yes	yes	yes
<b>Exceptions</b>	yes	no	?	no	yes	yes	yes	yes	?	?	yes	?	yes	?	?	yes	yes	yes	yes	yes	no
						?	?	?	?	?	?	?	yes	?	?	yes	?	yes	yes		
<b>NUMERICS</b>																					
<b>Binary data</b>	yes	yes	yes	yes	yes															yes	no
<b>Symbolic</b>	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	?	yes	yes	no	no	no
<b>Complex</b>	no	no	?	yes	yes	yes	no	yes	no	no	no	no	no	no	no	no	no	no	no	no	no
<b>Array</b>						yes	yes	yes	?	?	?	yes	yes	?	?	?	yes	?	no		
indexing	fortran	fortran	?	C/fortran	C															C	C
slicing	yes	yes	?	yes	yes	?	fortran	?	?	?	?	fortran	C	?	?	?	?	?	C	no	yes
matrix ops	element	yes	?	yes	yes	?	yes	?	yes	yes	?	yes	yes	yes	?	?	yes	?	n/a	?	no
optimization	partial	partial	?	partial	partial	?	yes	?	yes	yes	?	yes	yes	yes	?	?	yes	?	no	?	none
						?	binary	?	binary	binary	?	binary	binary	binary	binary	?	binary	?	none		
<b>LIBRARY</b>																					
<b>Binary IO</b>	?	?	?	yes	yes															yes	yes
<b>CL options</b>	?	?	?	no	yes	?	yes	?	yes	yes	yes	yes	yes	yes	?	?	yes	yes	no	?	yes
<b>Lists</b>	no	no	?	yes	?	?	?	?	?	?	?	?	yes	?	?	?	?	?	yes	yes	yes
<b>Regular expr</b>	no	?	?	?	yes	yes	no	?	?	?	yes	?	yes	?	?	yes	yes	yes	yes	yes	yes
<b>String</b>	yes	yes	?	?	?	yes	no	?	?	?	yes	?	yes	?	?	?	?	?	yes	yes	yes
<b>System</b>	yes	yes	?	yes	yes	yes	yes	?	?	?	?	?	yes	?	?	yes	yes	yes	yes	yes	yes
						yes	yes	?	?	?	yes	?	yes	?	?	yes	?	yes	yes		
<b>GRAPHICS</b>																					