URL: http://cxc.harvard.edu/ciao3.4/index_alphabet.html
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Alphabetical list of Ahelp files for CIAO 3.4

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

	Topic	Context	Summary
A	abs	slangrtl	Compute the absolute value of a number
	acisreadcorr	tools	Flag and relocate out−of−time CCD events
	acisspec	tools	(1) Extract source and/or background ACIS imaging spectra for both point−like and extended sources; (2) coadd ACIS spectra; (3) build weighted ARFs and RMFs.
	acis_bkgrnd_lookup	tools	Find the matching ACIS "blank−sky" dataset for an observation
	acis_build_badpix	tools	Create an observation−specific bad−pixel file
	acis_classify_hotpix	tools	Determine whether a suspicious pixel is hot or affected by an afterglow.
	acis_detect_afterglow	tools	Identify and flag cosmic ray afterglows (L1)
	acis_expmap	tools	Generate ACIS exposure maps for celldetect recursive blocking
	acis_fef_lookup	tools	Find the FITS Embedded Function file for use by mkrmf
	acis_find_hotpix	tools	Identify pixels that have an unusually large (or small) number of events.
	acis_process_events	tools	Produce or update TIME, coordinates, PI, GRADE, and STATUS information in ACIS event files
	acis_run_hotpix	tools	Identify and flag "hot" pixels and cosmic−ray "afterglows."
	acis_set_ardlib	tools	

		Sets the bad pixel paremeters of the ardlib file to the given file
aconvolve	tools	Convolve an N−dimensional image with a kernel
acosh	slangrtl	Compute the inverse cosh of an number
acos	slangrtl	Compute the arc−cosine of an number
acrosscorr	tools	Cross−correlate two N−dimensional images or autocorrelate an image
add_grating_orders	tools	Add positive and negative diffraction orders of a grating PHA spectra and the corresponding ARFs
add_grating_spectra	tools	Add two, source and background, grating PHA spectra, averages the corresponding ARFs, and group the coadded spectrum.
ahelp	ahelp	Access the CIAO help documentation.
analysis−menu	gui	The "Analysis" menu in CIAO GUIs allows users to run command−line tools.
analysis	sherpa	Specifies whether to analyze datasets in energy, wavelength, or channel space.
analyze_ltcrv	tools	analyze_ltcrv.sl − An algorithm for cleaning lightcurves
apowerspectrum	tools	Compute the power spectrum of an N−dimensional input array, or from two columns (independent/dependent variable) in an input file
append_to_slang_load_path	slangrtl	Append a directory to the load−path
apropos	varmm	S−Lang function to find defined symbols (functions and variables)
ardlib	calibration	Analysis Reference Data Library
arestore	tools	restore image resolution using deconvolution techniques
array_info	slangrtl	Returns information about an array
array_map	slangrtl	Apply a function to each element of an array
array_sort	slangrtl	Sort an array
array_to_bstring	slangrtl	Convert an array to a binary string
ascii2fits	tools	Convert simple ASCII files to FITS format files
asinh	slangrtl	

			Compute the inverse−sinh of an number
	asin	slangrtl	Compute the arc−sine of an number
	asphist	tools	Bin the aspect solution into a 3D histogram of duration vs pointing offset and roll offset.
	assoc_delete_key	slangrtl	Delete a key from an Associative Array
	assoc_get_keys	slangrtl	Return all the key names of an Associative Array
	assoc_get_values	slangrtl	Return all the values of an Associative Array
	assoc_key_exists	slangrtl	Check to see whether a key exists in an Associative Array
	atanh	slangrtl	Compute the inverse−tanh of an number
	atan	slangrtl	Compute the arc−tangent of an number
	atof	slangrtl	Convert a string to a double precision number
	atten	sherpa	Attenuation by ISM. Integration OFF.
	autoest	sherpa	Automatic estimation of initial parameter values in Sherpa models
	autoload	slangrtl	Load a function from a file
	autoname	concept	Autonaming is a feature available in various tools for automatically naming an output file based upon the name of an input file.
	axbary	tools	Apply barycentric corrections to event times, GTIs, and header values.
	axes	chips	Specifies the appearance of the bounding box surrounding a drawing area. The command AXIS is equivalent.
B	background	sherpa	Defines a model expression to be used for the background. The command BG is an abbreviated equivalent.
	back	sherpa	Inputs the contents of one or more background data files.
	batch	chips	Turns on/off use of a plotting device.
	bayes	sherpa	

			A Bayesian maximum likelihood function.
	bbodyfreq	sherpa	Blackbody as a function of frequency. Integration ON.
	bbody	sherpa	Blackbody as a function of energy. Integration ON.
	berrors	sherpa	Defines an expression to be used to specify the statistical errors for background data. The commands BACKERRORS and BSTATERRORS are equivalent.
	beta1d	sherpa	1−D surface brightness beta−model. Integration OFF
	beta2d	sherpa	2−D Lorentzian with varying power law. Integration OFF. The LORPOW2D model is equivalent.
	box1d	sherpa	1−D box function. Integration OFF.
	box2d	sherpa	2−D box function. Integration OFF.
	bpl1d	sherpa	Broken power law function. Integration ON.
	browse	chips	Launches the CIAO file−browsing GUI, Prism. The command PRISM is equivalent.
	bstring_to_array	slangrtl	Convert a binary string to an array of characters
	bstrlen	slangrtl	Get the length of a binary string
	bsyserrors	sherpa	Defines an expression or file to be used to specify the systematic errors for background data.
	bye	sherpa	Terminates the Sherpa program. Other equivalent termination commands are EXIT and QUIT.
	byte_compile_file	slangrtl	Compile a file to byte−code for faster loading.
C	calCreateInfo	caldb	Create a CALDB structure for use in other CALDB calls.
	calc_kcorr	sherpa	Calculate the k correction for a spectral model, redshift, and energy range.
	caldb	calibration	CALibration DataBase (CALDB)
	caldb	modules	The S−Lang interface to the CXC CALDB library
	calFindFile	caldb	Query the Calibration Database for a file
	calGetData	caldb	

		Returns the code name stored in the CALDB structure.
calGetDate	caldb	Returns the observation start date stored in the CALDB structure.
calGetDetector	caldb	Returns the name of the detector stored in the CALDB structure.
calGetError	caldb	Returns the severity of the last CALDB error.
calGetFilter	caldb	Returns the name of the filter stored in the CALDB structure.
calGetInstrument	caldb	Returns the name of the instrument stored in the CALDB structure.
calGetQuery	caldb	Returns the value of the query expression stored in the CALDB structure.
calGetTelescope	caldb	Returns the name of the telescope stored in the CALDB structure.
calGetTime	caldb	Returns the observation start time stored in the CALDB structure.
calPrintInfo	caldb	Display the contents of the CALDB structure
calSetData	caldb	Sets the data product code name for the next CALDB query.
calSetDate	caldb	Sets the date for the next CALDB query.
calSetDetector	caldb	Sets the name of the detector in the CALDB structure.
calSetExpression	caldb	Sets the boundary condition(s) for the CALDB query.
calSetFilter	caldb	Sets the filter to be used in a CALDB query.
calSetInstrument	caldb	Sets the name of the instrument in the CALDB structure.
calSetTelescope	caldb	Sets the name of the telescope in the CALDB structure.
calSetTime	caldb	Sets the time for the next CALDB query.
cash	sherpa	A maximum likelihood function.
cast	sherpa	[REMOVED AS OF CIAO 3.0.2] Casts a dataset to single or double precision.
celldetect	tools	Use a "sliding cell" to search for sources
chart_spectrum	tools	chart_spectrum.sl − Create a source spectrum for input to ChaRT

char	slangrtl	Convert an ascii value into a string
chdir	slangrtl	Change the current working directory.
chicvar	sherpa	Chi−square statistic with constant variance computed from the counts data.
chidvar	sherpa	Chi−square statistic with variance computed from the data.
chigehrels	sherpa	Chi−square statistic with the Gehrels variance function.
chimvar	sherpa	Chi−square statistic with variance computed from model amplitudes.
chiprimini	sherpa	Chi−square statistic with Primini variance function.
chips_auto_redraw	chips	Set the automatic redrawing mode.
chips_clear	chips	Removes all plotting objects, creating a new blank drawing area.
chips_color_name	chips	Converts a color number to a string.
chips_color_value	chips	Converts the name of a color to its numeric value.
chips_eval	chips	Call ChIPS commands from S−Lang
chips_get_pane	chips	Get the current pane/drawing area.
chips_get_xrange	chips	Get the upper and/or lower x−axis limits of the plot
chips_get_xscale	chips	Get the x−axis scale
chips_get_yrange	chips	Get the upper and/or lower y−axis limits of the plot
chips_get_yscale	chips	Get the y−axis scale
chips_get_zrange	chips	Get the upper and/or lower z−axis limits of the plot
chips_get_zscale	chips	Get the z−axis scale
chips_label	chips	Adds a label to a drawing area.
chips_line	chips	Adds a line to a drawing area.
chips_pickpoints	chips	Read 1 or more cursor positions from ChIPS.
chips_redraw	chips	Redraws all plotting objects.
chips_set_pane	chips	Set the current pane/drawing area.
chips_set_xrange	chips	Set the upper and/or lower x−axis limits of the plot
chips_set_xscale	chips	Set the x−axis scale
chips_set_yrange	chips	Set the upper and/or lower y−axis limits of the plot
chips_set_yscale	chips	Set the y−axis scale

chips_set_zrange	chips	Set the upper and/or lower z−axis limits of the plot
chips_set_zscale	chips	Set the z−axis scale
chips_split	chips	Creates multiple drawing areas.
chips_version	chips	Report the version of ChIPS as a number or string.
chips	chips	Introduction to ChIPS, CIAO's plotting package.
chisquare	sherpa	Chi−square statistic.
chmod	slangrtl	Change the mode of a file
chown	slangrtl	Change the owner of a file
ciao.par	gui	Parameter file to configure options for CIAO applications.
ciaoshmem	gui	Provides information on and configuration of CIAO sessions.
ciao	concept	Chandra Interactive Analysis of Observations
clearerr	slangrtl	Clear the error of a file stream
clearstack	varmm	S−Lang function to clear the stack.
clear	chips	Removes all plotting objects and creates a new blank drawing area.
close	sherpa	Closes the image display window.
close	slangrtl	Close an open file descriptor
colden	proposaltools	Interactive program to evaluate the neutral hydrogen column density at a given direction on the sky
colorsys	chips	Sets the color system for hardcopy plots.
color_image	tools	Run dmimg2jpg to make a color JPEG image
compute_errors	sherpa	Module function to estimate errors for an array of data
compute_statistic	sherpa	Module function to estimate a statistic given arrays of data, model amplitudes, and errors, etc.
configure	concept	Configuration and customization of CIAO
Conj	slangrtl	Compute the complex conjugate of a number
const1d	sherpa	1−D constant amplitude model. Integration ON.
const2d	sherpa	2−D constant amplitude model. Integration ON.
contour	chips	Adds a contour plot to a drawing area.

	coords	chandra	Coordinate systems used in Chandra analysis
	coord	sherpa	Specifies the coordinate system for use in fits to 2−D images.
	cosh	slangrtl	Compute the hyperbolic cosine of an number
	cos	sherpa	Cosine function. Integration OFF.
	cos	slangrtl	Compute the cosine of an number
	covariance	sherpa	Computes covariance matrices, and provides an estimate of confidence intervals for selected thawed parameters.
	cplot	sherpa	Causes the specified 2−D data to be displayed, with a contour plot, via ChIPS.
	createparamset	sherpa	To be especially efficient, one may establish and assign a name to a model component, as well as set model parameters and their ranges, all at one time using a single command:
	create_delimited_string	slangrtl	Concatenate strings using a delimiter
	create_model	sherpa	Module functions to instantiate new source or instrument models.
	create	sherpa	Establishes a model component and its parameters, for use in the current Sherpa session.
	csmooth	tools	Adaptively smooth a 2−D image
	cstat	sherpa	A maximum likelihood function.
	ctime	slangrtl	Convert a calendar time to a string
	cumsum	slangrtl	Compute the cumulative sum of an array
	current_namespace	slangrtl	Get the name of the current namespace
	curve	chips	Plots a curve or change its attributes (PLOT is equivalent).
	c	chips	Defines the current curve.
D	dataspace	sherpa	Creates a data grid on which models may be evaluated.
	data	sherpa	Inputs the contents of one or more source data files.
	dates	proposaltools	DATES is an interactive calendar and time conversion tool.

dcounts	sherpa	Calculates the sum of observed counts data for source or background datasets.
define_case	slangrtl	Define upper−lower case conversion.
delete	chips	Deletes plotting objects (drawing area, curves, lines and labels) from a plot.
delta1d	sherpa	1−D delta function. Integration ON.
delta2d	sherpa	2−D delta function. Integration ON.
dered	sherpa	Dereddening function. Integration OFF.
describe	guide	Describe is a GUIDE command that prints out detailed information about either one or two energy levels and, if two levels are input, any atomic transitions between them.
destreak	tools	Remove streak events from ACIS data
devaucouleurs	sherpa	DeVaucouleurs profile. Integration OFF.
display	chips	Causes the specified 2−D data to be displayed, using the default imaging display tool (i.e. ds9)
dither_region	tools	Compute fraction of region area that covers chips
dmappend	tools	Append multiple blocks/extensions to an existing output file.
dmarfadd	tools	Add multiple ARF files together, weighting by exposure.
dmbinning	dm	The CIAO binning syntax
dmcols	dm	Selecting columns in a table
dmcontour	tools	Make contour regions from a 2−D image
dmcoords	tools	Convert between Chandra coordinate systems
dmcopy	tools	Filter and bin tables and images.
dmdiff	tools	Compare values in two FITS files.
dmextract	tools	Make a histogram table file (e.g. PHA file, lightcurve file) from a table column. Generate count histogram on supplied regions for a spatial table or image file.
dmfiltering	dm	The CIAO filtering syntax
dmfilth	tools	Replace pixel values in source regions of an image with values

		interpolated from surrounding background regions
dmgroupreg	tools	Translates DS9 regions and groups to CIAO format.
dmgroup	tools	Group a specified column in a table with various options
dmgti	tools	Create a Good Time Interval from limits placed on time−based files (event and Mission Time Line files).
dmhedit	tools	Edit datamodel file headers
dmhistory	tools	Extracts the tool history from the file header
dmimages	dm	Images in CIAO: logical and physical coordinate systems
dmimfiltering	dm	The CIAO filtering syntax for images
dmimg2jpg	tools	Make a color JPEG image (or EPS) from three image files
dmimgcalc	tools	Perform arithmetic on images
dmimghist	tools	Create a histogram of the pixel values in a 2−D image
dmimgpick	tools	Maps image values to rows in a table
dmimgthresh	tools	Set low (or high) intensity or exposure regions of an image to a constant value.
dmintro	dm	The Data Model library underlies most of the CXC tools.
dmjoin	tools	Join two files whose sampling is different.
dmkeypar	tools	Retrieve information about a keyword from an input file
dmlist	tools	List contents or structure of a file.
dmmakepar	tools	Write header keywords to a parameter file
dmmakereg	tools	Convert a region string to a CXC FITS region file
dmmerge	tools	Merge two or more compatible tables (e.g. event files) into one.
dmopt	dm	Controlling data model internal options
dmpaste	tools	Add new columns to a table.
dmreadpar	tools	Create header keywords from a parameter file
dmregions	dm	CIAO region filtering syntax

dmregrid	tools	Rebin a stack of 2−dimensional images.
dmsort	tools	Sort a table.
dmstat	tools	Compute statistics for images and columns in tables.
dmsyntax	dm	The Data Model syntax for filtering and binning files.
dmtcalc	tools	Modify and create columns in a table
dmtype2split	tools	Create a type 1 output file for specified rows of a type 2 file.
dm	dm	The CIAO Data Model
dollarsign	sherpa	Must precede any Unix command issued within Sherpa or ChIPS.
double	slangrtl	Convert an object to double precision
drawarea	chips	Specifies the location for a new drawing area.
ds9_center	ds9	Center image at position
ds9_clear	ds9	Erase a DS9 frame
ds9_get_array	ds9	Retrieve displayed image
ds9_get_cmap	ds9	Retrieve colormap from DS9
ds9_get_coords	ds9	Retrieve position of next mouseclick within any frame
ds9_get_crosshair	ds9	Retrieve position of crosshair cursor
ds9_get_file	ds9	Retrieve name of file being displayed
ds9_get_regions	ds9	Retrieve descriptions of regions applied to a displayed image
ds9_get_scale	ds9	Retrieve image scale
ds9_get_zoom	ds9	Retrieve zoom level
ds9_launch	ds9	Establish connection to a DS9 process
ds9_pan	ds9	Shift image position
ds9_put_array	ds9	Visualize an image pixel array
ds9_put_crosshair	ds9	Set position of crosshair cursor
ds9_put_file	ds9	Load FITS file
ds9_put_regions	ds9	Request that region descriptions be applied to the displayed image
ds9_put_wcs_keys	ds9	Apply WCS to displayed image, using pre−formatted FITS keywords
ds9_put_wcs_struct	ds9	Apply WCS to displayed image, using structure field values
ds9_put_wcs	ds9	Apply WCS to displayed image,

			using raw numeric or string values
	ds9_quit	ds9	Terminate a DS9 process
	ds9_set_cmap	ds9	Change colormap of DS9
	ds9_set_scale	ds9	Change image scale
	ds9_set_zoom	ds9	Zoom in or out
	ds9_view	ds9	Launch DS9 with file or image pixel array
	ds9	modules	A simple S−Lang interface to ds9
	dup_fd	slangrtl	Duplicate a file descriptor
	dup_struct	varmm	S−Lang function to duplicate a structured variable.
	dup	slangrtl	Duplicate the value at the top of the stack
	d	chips	Defines the current drawing area.
E	echo	sherpa	Turns on/off reporting of user keystrokes.
	edge	sherpa	Photoabsorption edge model. Integration OFF.
	eflux	sherpa	Calculates the unconvolved energy flux for source or background datasets.
	eqwidth	sherpa	Computes the equivalent width of an emission or absorption line in source or background data.
	erase	sherpa	Erases user inputs and settings, and/or model components.
	erfc	sherpa	A 1−D complementary error function. Integration OFF.
	erf	sherpa	A 1−D error function. Integration OFF.
	errno_string	slangrtl	Return a string describing an errno.
	errno	slangrtl	Error code set by system functions.
	errors	sherpa	Defines an expression to be used to specify the statistical errors for source data.
	error	slangrtl	Generate an error condition
	errs	chips	Specifies the appearance of errorbars.
	evalfile	slangrtl	Interpret a file containing S−Lang code.
	eval	slangrtl	Interpret a string as S−Lang code
	eventdef	chandra	Column definition in Chandra event files

	exch	slangrtl	Exchange two items on the stack
	exit	chips	Terminates the program. The command QUIT is equivalent.
	exp	slangrtl	Compute the exponential of an number
	extract_element	slangrtl	Extract the nth element of a string with delimiters
F	fakeit	sherpa	Creates a simulated 1−D dataset.
	farf2d	sherpa	A 2−D file−based ancillary response model. Alternate names include FEXPMAP and FEXPMAP2D.
	farf	sherpa	A 1−D file−based ancillary response model.
	fclose	slangrtl	Close a file
	fdopen	slangrtl	Convert a FD_Type file descriptor to a stdio File_Type object
	feffile	sherpa	Specifies the Fits Embedded Function (FEF) file whose contents will be displayed with FEFPLOT.
	fefplot	sherpa	Plots an instrument response stored in a Fits Embedded Function (FEF) file that is read in via FEFFILE.
	feof	slangrtl	Get the end−of−file status
	ferror	slangrtl	Determine the error status of an open file descriptor
	fflush	slangrtl	Flush an output stream
	fgetslines	slangrtl	Read all the lines from an open file
	fgets	slangrtl	Read a line from a file.
	fileno	slangrtl	Convert a stdio File_Type object to a FD_Type descriptor
	filtwin	gui	GUI to perform interactive filtering of data
	firstlook	gui	GUI to allow an efficient means of accessing Chandra data products
	fits_bitpix	varmm	Converts S−Lang variables and data types to FITS BITPIX values.
	fit	sherpa	Initiates fitting (optimization). The command [B]RUN is equivalent.
	flux	sherpa	Calculates the unconvolved photon flux for source or background datasets.
	font	chips	Changes the default global font.
	fopen	slangrtl	Open a file
	fprintf	slangrtl	

			Create and write a formatted string to a file
	fpsf1d	sherpa	A 1−D file−based PSF instrument model.
	fpsf	sherpa	A 2−D file−based PSF instrument model.
	fputs	slangrtl	Write a string to an open stream
	fread	slangrtl	Read binary data from a file
	freeze	sherpa	Prohibits model parameter(s) from varying.
	frmf	sherpa	A 1−D file−based response matrix model.
	fseek	slangrtl	Reposition a stream
	ftell	slangrtl	Obtain the current position in an open stream
	ftest	sherpa	Computes significance using the F test.
	fullgarf	tools	Create a grating arf for a particular order and grating for a given observation.
	fwrite	slangrtl	Write binary data to a file
G	gauss1d	sherpa	1−D unnormalized Gaussian function. Integration ON.
	gauss2d	sherpa	2−D unnormalized Gaussian function. Integration OFF.
	getcwd	slangrtl	Get the current working directory
	getegid	slangrtl	Get the effective group id
	getenv	slangrtl	Get the value of an environment variable
	geteuid	slangrtl	Get the effective user−id of the current process
	getgid	slangrtl	Get the group id
	getpid	slangrtl	Get the current process id
	getppid	slangrtl	Get the parent process id
	getuid	slangrtl	Get the user−id of the current process
	getx	sherpa	Assigns x−axis values taken from a plot to model parameters.
	gety	sherpa	Assigns y−axis values taken from a plot to model parameters.
	get_analysis	sherpa	Module function to retrieve the current analysis setting.
	get_arf_axes	sherpa	Module functions to retrieve the

		energy/wavelength grid of an ARF associated with source and background data
get_axes	sherpa	Module functions to get the energy/wavelength/channel grid of source and background datasets.
get_coord	sherpa	Module function to retrieve the current coordinate setting for 2−D image data.
get_data	sherpa	Module functions to get the amplitudes of source and background datasets.
get_dcounts_sum	sherpa	Calculates the sum of observed counts in source and background datasets using module functions in Sherpa.
get_defined_models	sherpa	Module functions that return lists of defined Sherpa source and instrument models
get_dir	sherpa	Module function to retrieve the current path.
get_doc_string_from_file	slangrtl	Read documentation from a file
get_eflux	sherpa	Calculate the energy flux (unconvolved) for source or background datasets using module functions in Sherpa.
get_energy_axes	sherpa	Module functions to retrieve the energy grids of source and background datasets.
get_eqwidth	sherpa	Module functions that compute the equivalent width of an emission or absorption line in source or background data.
get_errors	sherpa	Module functions to get the error estimates of source and background datasets.
get_filename	sherpa	Module functions to retrieve filenames associated with a dataset.
get_filter_expr	sherpa	Module function to retrieve the strings describing filters applied to source and background datasets.
get_filter	sherpa	Module functions to get the filter arrays associated with source and background datasets.
get_fit	sherpa	Module functions to get information about the quality of a fit.
get_flux2d	sherpa	

		Module functions for computing fluxes/summing counts in 2−D images.
get_fluxed_spectrum	sherpa	Retrieve a fluxed spectrum (counts divided by ARF) using module functions in Sherpa.
get_flux_str	sherpa	Retrieves a default structure for use with get_pflux(), etc.
get_ftest	sherpa	Module function that returns the statistical significance computed with the F test
get_groups	sherpa	Module functions for retrieving a grouping or quality array from source and background files.
get_import_module_path	slangrtl	Get the search path for dynamically loadable objects
get_lfactorial	sherpa	Module function to compute the natural logarithm of the factorial of the input quantity
get_mcounts_sum	sherpa	Module functions for computing the sum of convolved model counts in source and background datasets.
get_metadata	sherpa	Module functions to retrieve metadata associated with source and background datasets.
get_method_expr	sherpa	Module function to retrieve the name of the current optimization method.
get_models	sherpa	Module functions that return lists of available source and instrument models
get_model_params	sherpa	Access to the default model and instrument parameters of Sherpa from S−Lang.
get_num_par	sherpa	Module functions that report the total number of parameters for all defined models, including instrument models
get_paramestint	sherpa	Module functions to retrieve the value and statistic arrays from the most recent run of a parameter estimation method
get_paramestlim	sherpa	Module functions to determine confidence intervals, and retrieve the parameter bounds.
get_paramestreg	sherpa	Module functions to retrieve the value and statistic arrays from the

		most recent run of a parameter estimation method
get_paramest	sherpa	Module functions to retrieve the output of parameter estimation methods.
get_par	sherpa	Module function for getting model parameter values, etc.
get_pflux	sherpa	get_flux(), get_pflux(), and get_bpflux() calculate the photon flux (unconvolved) for source and background datasets using the module functions in Sherpa.
get_photon_axes	sherpa	Module functions to retrieve photon−space grids over which models are evaluated.
get_photon_energy_axes	sherpa	Module functions to retrieve photon−space energy grids over which models are evaluated.
get_photon_wave_axes	sherpa	Module functions to retrieve photon−space wavelength grids over which models are evaluated.
get_qvalue	sherpa	Module function that returns the statistical significance computed as a q−value.
get_raw_axes	sherpa	Module functions to retrieve the raw channel number grids of source and background datasets.
get_record	sherpa	Module function to return a record of model parameter values at the end of each iteration of the fitting process.
get_sky_limits	tools	Find the region covered by an image in sky coordinates
get_slang_load_path	slangrtl	Get the value of the interpreter's load−path
get_source_components	sherpa	Return, as an array, the names of the model components in the source expression of a dataset.
get_source	sherpa	Module functions to retrieve predicted source and background model photon amplitudes.
get_src_region	tools	Outputs regions that have counts higher than background
get_stackexpr	sherpa	Module functions to retrieve a model stack expression.
get_statistic	sherpa	Module functions to get the current value of the statistic comparing

		source and background data and model values.
get_stats	sherpa	Module functions to retrieve predicted model counts, statistics, residuals, sigma residuals, and ratios from source and background datasets.
get_stat_expr	sherpa	Module function to retrieve the name of the current statistic.
get_struct_field_names	slangrtl	Retrieve the field names associated with a structure
get_struct_field	slangrtl	Get the value associated with a structure field
get_syserrors	sherpa	Module functions to get the systematic error estimates of source and background datasets.
get_verbose	sherpa	Module function to display Sherpa's current verbosity setting.
get_wave_axes	sherpa	Module functions to retrieve the wavelength grids of source and background datasets.
get_weights	sherpa	Module functions to get the statistical weights of source and background datasets.
get	sherpa	Summary of Sherpa/S−Lang module functions that retrieve settings or data.
gmtime	slangrtl	Break down a time in seconds to GMT timezone
goodness	sherpa	Reports information on the goodness−of−fit.
grid−powell	sherpa	A grid search utilizing the Powell method at each grid point.
gridmodel	sherpa	N−D user−specified amplitude model. Integration OFF.
grids	chips	Adds grid lines to a drawing area and/or changes grid attributes.
grid	sherpa	A grid search of parameter space, with no minimization.
groupByCounts	sherpa	Group a dataset by number of counts or signal−to−noise within Sherpa.
group	modules	The S−Lang interface to the CXC grouping library
group	sherpa	Causes Sherpa to apply a read−in bin grouping scheme to source or

			background data.
	grpAdaptiveSnr	group	Adaptively group an array by signal to noise.
	grpAdaptive	group	Group an array by the number of counts per group using an adaptive scheme.
	grpBinFile	group	Group an array using the grouping applied to another dataset.
	grpBinWidth	group	Group an array into a set of equal−width groups (by group width).
	grpBin	group	Group an array using low and high boundaries.
	grpGetChansPerGroup	group	Calculate the number of channels (elements) in each group.
	grpGetGroupSum	group	Apply the supplied grouping to an array.
	grpGetGrpNum	group	Calculate the group number for each element in the array.
	grpMaxSlope	group	Group an array so that its absolute gradient is above a user−defined limit.
	grpMinSlope	group	Group an array so that its absolute gradient is below a user−defined limit.
	grpNumBins	group	Group an array into a set of equal−width groups (by number of groups).
	grpNumCounts	group	Group an array by the number of counts per group.
	grpSnr	group	Group an array by signal to noise.
	guess	sherpa	Estimates initial parameter values and ranges, based on input data.
	guide	chandra	Grating User Interactive Data Extension (GUIDE)
	gui	gui	Graphical User Interface (GUI)
H	hrc_build_badpix	tools	Create observation−specific bad pixel file for HRC
	hrc_dtfstats	tools	Calculate statistics from hrc_calc_dead_time and a GTI
	hrc_process_events	tools	Correct HRC event positions, times, PHA, etc.
	hubble	sherpa	Hubble−Reynolds profile. Integration OFF. The REYNOLDS model is equivalent.

I	identify	guide	List emission lines near given wavelength.
	ignore	sherpa	Specifies a data portion to be excluded, for 1− or 2−D data.
	image	sherpa	Causes the specified 2−D data to be displayed, via ds9.
	Imag	slangrtl	Compute the imaginary part of a number
	implements	slangrtl	Name a private namespace
	import	slangrtl	Dynamically link to a specified module
	info	chips	Prints summary information about the current plotting objects.
	init_char_array	slangrtl	Initialize an array of characters
	instrument	sherpa	Defines an expression to be used for modeling the instrument in source or background data analysis. The command RESPONSE is equivalent.
	integer	slangrtl	Convert a string to an integer
	integrate	sherpa	Controls the integration of model components.
	interval−projection	sherpa	Plots the fit statistic as a function of parameter value, using the PROJECTION algorithm. The commands INT−PROJ and INTPROJ are abbreviated equivalents.
	interval−uncertainty	sherpa	Plots the fit statistic as a function of parameter value, using the UNCERTAINTY algorithm. The commands INT−UNC and INTUNC are abbreviated equivalents.
	int	slangrtl	Typecast an object to an integer
	ionbal	guide	Calculate collisional ionization equilibrium ion balance.
	isatty	slangrtl	Determine if an open file descriptor refers to a terminal
	isdigit	slangrtl	Tests for a decimal digit character
	isis	chandra	Interactive Spectral Interpretation System (ISIS)
	is_defined	slangrtl	Indicate whether a variable or function defined.
	is_list_element	slangrtl	Test whether a delimited string contains a specific element

	is_paramset	sherpa	Module functions to determine if whether the specified parameter(s) are thawed or frozen.
	is_struct_defined	varmm	S−Lang function to see if a structure or field in a structure is defined
	is_struct_type	slangrtl	Determine whether or not an object is a structure
	is_substr	slangrtl	Test for a specified substring within a string.
	is_subtracted	sherpa	Module function to determine if whether the specified dataset is background−subtracted.
	is	sherpa	Summary of Sherpa/S−Lang module query functions.
J	jdpileup	sherpa	A CCD pileup model developed by John Davis of MIT.
	jointmode	sherpa	Joint−mode models define the function argument, on which a model expression is evaluated, to be a particular data axis.
	journal	sherpa	Turns on/off the writing of all commands to a file.
K	kernel	sherpa	Defines an expression to be used as a kernel in 1D source model convolution.
	kill	slangrtl	Send a signal to a process
L	label	chips	Adds a label to a drawing area and/or changes label attributes.
	lc_clean	tools	lc_clean.sl − Clean a lightcurve to match the ACIS "blank−sky" datasets
	length	slangrtl	Get the length of an object
	levels	chips	Sets the contour levels in a contour plot.
	level	chandra	Describes the amount of processing performed to create a given product.
	levenberg−marquardt	sherpa	The Levenberg−Marquardt optimization method.
	lightcurve	tools	Bin source and background events by specified time intervals
	limits	chips	Sets the ranges to be displayed in the axes.

linear	chips	Changes one or more axes to linear scale.
linebroad	sherpa	Line broadening profile. Integration ON.
lineid	sherpa	Sets a user−defined line identification (or general model description) for the model in the MDL output.
line	chips	Adds a line to a drawing area and/or changes line attributes.
linkparam	sherpa	Parameter expressions are used to link model component parameters:
listdir	slangrtl	Get a list of the files in a directory
list_paramest	sherpa	Module functions listing the current and default values of the parameters used to configure each Sherpa parameter estimation method.
list_par	sherpa	Module function that lists information about all defined model parameters.
list	chips	Lists the contents of datafiles using the CIAO tool dmlist.
list	sherpa	Summary of Sherpa/S−Lang module list functions.
ln	chips	Defines the current line.
load_arf	sherpa	Module function to load data from an ARF file into Sherpa
load_ascii	sherpa	Module function to load ASCII data into Sherpa
load_backset	sherpa	Module function to load background data into Sherpa
load_back_from	sherpa	Module function to load background from a PHA file into Sherpa
load_dataset	sherpa	Module function to load data into Sherpa
load_fitsbin	sherpa	Module functions to load source and background data from a FITS binary table into Sherpa
load_image	sherpa	Module functions to load source and background data from a FITS image into Sherpa
load_inst_from	sherpa	Module function to load data from ARF and RMF files into Sherpa source or background instrument models.
load_inst	sherpa	Module function to load data from

			ARF and RMF files into Sherpa. load_instrument is an alternate name.
	load_pha2	sherpa	Module function to load source data from PHA Type II files into Sherpa
	load_pha	sherpa	Module function to load source and background data from PHA Type I files into Sherpa
	load_rmf	sherpa	Module function to load data from an RMF file into Sherpa
	load	sherpa	Summary of Sherpa/S−Lang module functions that load data into Sherpa
	localtime	slangrtl	Break down a time in seconds to local timezone
	location	chips	Specifies the location for an existing drawing area.
	log10	slangrtl	Compute the base−10 logarithm of an number
	log	chips	Changes one or more axes to logarithmic scale.
	log	slangrtl	Compute the logarithm of an number
	lorentz1d	sherpa	1−D normalized Lorentzian function. Integration ON.
	lorentz2d	sherpa	2−D unnormalized Lorentzian function. Integration OFF.
	lplot	sherpa	Causes the specified 1−D data to be displayed, via ChIPS.
	lseek	slangrtl	Reposition a file descriptor's file pointer
	lstat_file	slangrtl	Get information about a symbolic link
	l	chips	Defines the current label.
M	make_printable_string	slangrtl	Format a string suitable for parsing
	math	slang	Mathematical operations in S−Lang.
	max	slangrtl	Get the maximum value of an array
	mcounts	sherpa	Calculates the sum of convolved model amplitudes for source or background datasets.
	mdl2latex	guide	Output latex table of fitted emission lines and fluxes.
	mdl	sherpa	A Model Descriptor List (MDL) file stores a collection of datasets and

		model(s) in a structured format that can be read or written by Sherpa.
merge_all	tools	Combine any number of observations. If desired, create corresponding exposure maps and exposure−corrected images.
merging_rules	concept	A description of the merging rules used when combining header information.
message	slangrtl	Print a string onto the message device
method	sherpa	Specifies the optimization method. The command SEARCHMETHOD is equivalent.
min	slangrtl	Get the minimum value of an array
mkacisrmf	tools	Generate an RMF for Chandra imaging data
mkarf	tools	Generate an ARF for Chandra imaging data (and grating 0−th order)
mkbgreg	tools	Creates a stack of background regions for a given source list
mkdir	slangrtl	Create a new directory
mkexpmap	tools	Generate a Chandra imaging exposure map (effective area vs. sky position)
mkfifo	slangrtl	Create a named pipe
mkgarf	tools	Generate a Chandra Grating ARF for one detector element.
mkgrmf	tools	Generate an RMF for Chandra grating data
mkinstmap	tools	Generate a Chandra instrument map (effective area vs. detector position)
mkoif	tools	Create an OIF (observation index file) for a dataset
mkpsf	tools	Extract a point spread function (PSF) from the PSF library.
mkrmf	tools	Generate an RMF for Chandra imaging data
mksubbgreg	tools	Subtracts source regions from background regions
mkwarf	tools	Generate a weighted ARF for Chandra ACIS data
mlr	sherpa	Computes significance using the Maximum Likelihood Ratio test.
modelexpr	sherpa	

			Model components can be used to create model expressions, in conjunction with the SOURCE and BACKGROUND commands (which then are used to fit the data), or with model stacks:
	modelstack	sherpa	A model stack assigns an arbitrary name to a model expression, for subsequent use in parameter expressions and/or nested models.
	models	sherpa	Summary of Available Models
	monitor_photom	tools	Generate a photometric lightcurve from ACA monitor data
	monte−lm	sherpa	A Monte Carlo search utilizing the Powell method at each selected point.
	monte−powell	sherpa	A Monte Carlo search utilizing the Powell method at each selected point.
	montecarlo	sherpa	A Monte Carlo search of parameter space.
	mtl_build_gti	tools	Create Good Time Interval from Mission Time Line and limits
	mtl	chandra	A description of the Mission Time Line (MTL)
	mul2	slangrtl	Multiply a number by 2
N	nbeta	sherpa	1−D normalized beta function. Integration ON.
	nestedmodel	sherpa	Nested models define the function argument on which a model expression is evaluated to be another model expression. A nested model, <nested_model>, appears as an element of a model expression, <modelExpr>.
	ngauss1d	sherpa	1−D normalized Gaussian function. Integration ON.
	noise	sherpa	Defines an expression to be used for modeling detector noise in source and background datasets.
	notice	sherpa	Specifies a data portion to be included, for 1− or 2−D data.
	numbersign	sherpa	Denotes a comment. The symbol % also denotes a comment.

O	obsvis	proposaltools	Observation Visualizer
	open	sherpa	Opens the image display window.
	open	slangrtl	Open a file
	oplot	sherpa	Causes multiple data curves to be displayed in the same drawing area, via ChIPS.
	overview	slang	Overview of the S−Lang programing language
P	paccess	paramio	Returns the path to the specified parameter file.
	paccess	tools	Gives the location of a tool's parameter file
	pack	chips	Renumbers plotting objects after a delete operation.
	pack	slangrtl	Pack objects into a binary string
	pad_pack_format	slangrtl	Add padding to a pack format
	pagesize	chips	Sets the page dimensions for hardcopy plots.
	paramclose	paramio	Close a parameter file opened by paramopen.
	paramest	sherpa	An interactive interface to the parameter estimation routines in Sherpa.
	parameter	concept	Describes the parameter interface used by CIAO.
	paramio	modules	The S−Lang interface to the CXC parameter system
	paramopen	paramio	Open a parameter file.
	paramprompt	sherpa	Turns on/off prompting for model parameter values.
	paramset	sherpa	The model components that have been established in the current Sherpa session, and their parameter information, may be listed with the command SHOW MODELS. Values for these established model component parameters may be set individually using one of the following command syntax options:
	path_basename	slangrtl	Get the basename part of a pathname
	path_concat	slangrtl	Combine elements of a pathname
	path_dirname	slangrtl	Get the directory name part of a pathname

path_extname	slangrtl	Return the extension part of a pathname
path_get_delimiter	slangrtl	Get the value of a search−path delimiter
path_is_absolute	slangrtl	Determine whether or not a pathname is absolute
path_sans_extname	slangrtl	Strip the extension from a pathname
pclose	slangrtl	Close an object opened with popen
pdump	tools	Dumps the values of the parameters, with one parameter per line.
peg	gui	Parameter Editor Gui (for CXCDS parameter interface)
pgets	paramio	Read/write individual parameter values from S−Lang.
pget	paramio	Get a parameter value within S−Lang.
pget	tools	Get parameter values
pickpoints	chips	Starts the interactive cursor mode, which reads out the cursor position.
pileup	chandra	An overview of pileup in the Chandra ACIS detector.
pileup	sherpa	Defines the pileup model expression to be used for fitting a 1D dataset.
pimms	proposaltools	PIMMS (Portable, Interactive Multi−Mission Simulator) converts source fluxes and count rates between missions.
pixlib	modules	The S−Lang interface to the CXC pixlib library
pix_apply_aspect	pixlib	Convert from FPC to Sky tangent coordinates by applying an aspect solution.
pix_chip_to_fpc	pixlib	Convert from the Chip to Focal Plane coordinate (FPC) system.
pix_chip_to_gdp	pixlib	Convert from the Chip to Grating Dispersion Plane (GDP) coordinate system.
pix_chip_to_tdet	pixlib	Convert from the Chip to Tiled Detector (TDET) coordinate system.
pix_close_pixlib	pixlib	Convert between different Chandra coordinate systems in S−Lang
pix_deapply_aspect	pixlib	Convert from Sky tangent coordinates to FPC by reversing the aspect solution.
pix_disp_config	pixlib	Display the current settings of the pixlib module.

pix_dmTanPixToWorld	pixlib	Convert from FPC to World (celestial) coordinates by applying an aspect solution.
pix_dmTanWorldToPix	pixlib	Convert from World (celestial) to FPC coordinates by applying an aspect solution.
pix_fpc_to_chip	pixlib	Convert from the Focal Plane (FPC) to Chip coordinate system.
pix_fpc_to_gdp	pixlib	Convert from the Focal Plane (FPC) to Grating Dispersion Plane (GDP) coordinate system.
pix_fpc_to_msc	pixlib	Convert from the Focal Plane (FPC) to Mirror Spherical (MSC) coordinate system.
pix_gac_to_gdp	pixlib	Convert from the Grating diffracted Angular coordinates (GAC) to Grating Dispersion Plane (GDP) coordinate system.
pix_gdp_to_gac	pixlib	Convert from the Grating Dispersion Plane (GDP) to Grating diffracted Angular coordinates (GAC) system.
pix_get_energy	pixlib	Return the photon energy corresponding to a given grating dispersion (GAC) value.
pix_get_flength	pixlib	Return the value of the telescope focal length used by the pixlib module.
pix_get_grating_angle	pixlib	Return the grating angle of the currently−selected grating arm.
pix_get_grating_period	pixlib	Return the grating period of the currently−selected grating arm.
pix_get_grating_wavelength	pixlib	Return the photon wavelength corresponding to a given grating dispersion (GAC) value.
pix_get_rowland	pixlib	Return the value of the Rowland Circle diameter used by the pixlib module.
pix_init_pixlib	pixlib	Initialize the pixlib library.
pix_set_aimpoint	pixlib	Set the aim point to be used by the pixlib module.
pix_set_detector	pixlib	Set the detector to use in the pixlib routines.
pix_set_fpsys	pixlib	Set the focal plane system for the pixlib module.
pix_set_gdpsys	pixlib	Set the grating dispersion plane (GDP) system for the pixlib module.

pix_set_grating	pixlib	Set the grating arm and order to use in the pixlib module.
pix_set_gzo	pixlib	Set the grating zero−order position for the pixlib module.
pix_set_simoffset	pixlib	Set the stage position for the pixlib module.
pix_set_tdetsys	pixlib	Set the tiled detector plane system for the pixlib module.
pix_tdet_to_chip	pixlib	Convert from the Tiled Detector (TDET) to Chip coordinate system.
pline	tools	Display the parameter values, with all parameters on a single line
plist_names	paramio	List parameter names for a single tool from S−Lang.
plist	tools	List the contents of a parameter file.
plotx	sherpa	[REMOVED AS OF CIAO 3.0.2] Sets the unit type for the x−axis of a plot.
ploty	sherpa	Sets the unit type for the y−axis of a plot.
plot_eprof	sherpa	Display a radial profile (elliptical annuli) of 2D data, fit, and residuals.
plot_rprof	sherpa	Display a radial profile (circular annuli) of 2D data, fit, and residuals.
poisson	sherpa	Poisson function. Integration OFF.
polynom1d	sherpa	1−D polynomial function. Integration ON.
polynom2d	sherpa	2−D polynomial function. Integration ON.
polynom	slangrtl	Evaluate a polynomial
popen	slangrtl	Open a process
pop	slangrtl	Discard an item from the stack
powell	sherpa	The Powell optimization method.
powlaw1d	sherpa	1−D power law. Integration ON.
pquery	paramio	Query a parameter value from S−Lang.
pquery	tools	Query whether a parameter exists and, if so, get and return its value.
precess	proposaltools	Interactive astronomical coordinate conversion program that provides precession of equatorial coordinates and conversion between equatorial, ecliptic, galactic, and supergalactic coordinates
prepend_to_slang_load_path	slangrtl	Prepend a directory to the load−path

	printf	slangrtl	Create and write a formatted string to stdout
	print	chips	Creates a hardcopy of the current plot.
	print	varmm	S−Lang functions to print variables, arrays and structures
	prism	gui	Format−independent file browsing GUI
	projection	sherpa	Estimates confidence intervals for selected thawed parameters.
	prompt	sherpa	Changes the Sherpa prompt.
	prop−coords	proposaltools	Defines available coordinate systems for Chandra Proposal Tools
	prop−time	proposaltools	Defines available calendars and timescales for Chandra Proposal Tools
	prop−tools	proposaltools	Tools that aid in the preparation and submission of Chandra proposals
	provide	slangrtl	Declare that a specified feature is available
	pset	paramio	Set a parameter value within S−Lang.
	pset	tools	Set parameter values on the command line
	psextract	tools	Extract source and background ACIS spectra for point−like sources and build associated ARFs and RMFs.
	psf_project_ray	tools	Project rays generated by ChaRT onto a semi−infinite detector plane.
	ptsrc1d	sherpa	A 1−D file−based point−source fitting model.
	ptsrc2d	sherpa	A 2−D file−based point−source fitting model.
	punlearn	paramio	Restore the system defaults for a parameter file from S−Lang.
	punlearn	tools	Restore system default parameter values
	putenv	slangrtl	Add or change an environment variable
Q	quizcaldb	tools	Find calibration files in the CALDB
R	readarf	varmm	S−Lang function to read an Ancillary Response File (ARF)

readascii	varmm	S−Lang function to read in an ASCII data file.
readbintab	varmm	S−Lang function to read a FITS binary table.
readfile	varmm	S−Lang functions to read a data file into a S−Lang variable.
readimage	varmm	S−Lang function to read a FITS image.
readlink	slangrtl	Get the value of a symbolic link
readpha	varmm	S−Lang function to read a spectrum in PHA format (both type I and II)
readrdb	varmm	S−Lang function to read a file in RDB format.
readrmf	varmm	S−Lang function to read a Redistribution Matrix File (RMF)
read	sherpa	Inputs the contents of one or more files.
read	slangrtl	Read from an open file descriptor
Real	slangrtl	Compute the real part of a number
record	sherpa	Controls output of parameters values and statistics to an ASCII file.
redo	chips	Redoes the most recently undone plotting command.
redraw	chips	Redraws the plot or sets the redraw mode
regArea	region	Calculate the area enclosed by a region.
regExtent	region	Calculate the bounding box of a region.
regInsideRegion	region	Is a point (or set of points) inside a region?
region−projection	sherpa	Creates a contour plot of confidence regions using the PROJECTION algorithm. The commands REG−PROJ and REGPROJ are abbreviated equivalents.
region−uncertainty	sherpa	Creates a contour plot of confidence regions using the UNCERTAINTY algorithm. The commands REG−UNC and REGUNC are abbreviated equivalents.
regions	tools	regions.sl − Display the FEF regions covered by a source
region	modules	The S−Lang interface to the CXC region library

regParse	region	Parse a region for use by the routines in the region library
regPrintRegion	region	Print out details about a region.
regRegionString	region	Print out details about a region.
relativesize	chips	Alters the relative size of drawing areas. The command RELSIZE is equivalent.
remove	slangrtl	Delete a file
rename	sherpa	Changes the name that has been given to a model component by the user.
rename	slangrtl	Rename a file
reproject_aspect	tools	Modify aspect solution file RA, Dec, and roll or updfile WCS to minimize position differences between two source lists.
reproject_events	tools	Regrid an event file (or stack) to a common tangent point
reproject_image_grid	tools	Projects image from one WCS to another
reproject_image	tools	Projects image from one WCS to another
require	slangrtl	Make sure a feature is present, and load it if not
reset	sherpa	Restores settings and/or parameter values.
reshape	slangrtl	Reshape an array
restore_paramest	sherpa	Module functions to restore the default values of the parameters used to configure each Sherpa parameter estimation method.
restore	chips	Restores a plot with all attributes.
reverse	varmm	S−Lang function to reverse a 1D array
rmdir	slangrtl	Remove a directory
rmfimg	tools	Create a simple image of an RMF or ARF file
rsp2d	sherpa	A 2−D instrument model utilizing an exposure map and point−spread function.
rsp	sherpa	A 1−D instrument model.
run_fit	sherpa	Module function to fit datasets, and retrieve information about the final fit.
run_paramestint	sherpa	Module functions to display statistics as a function of parameter

			value, and to retrieve the value and statistic arrays
	run_paramestlim	sherpa	Module functions to determine confidence intervals, and retrieve the parameter bounds.
	run_paramestreg	sherpa	Module functions to display contours of statistics as a function of parameter values, and to retrieve arrays of values and statistics
	run_paramest	sherpa	Module functions to run parameter estimation routines and retrieve information.
	run	sherpa	Summary of Sherpa/S−Lang module run functions.
S	save_state	sherpa	The save_state() function
	save	sherpa	Saves information to an ASCII file.
	schechter	sherpa	Schechter function. Integration OFF.
	session	concept	A session is a conceptual notion of how various CIAO applications interact with each other to form an integrated data analysis environment.
	setback	sherpa	Sets attributes of a background dataset.
	setdata	sherpa	Sets attributes of a source dataset.
	setgid	slangrtl	Set the group−id of the current process
	setpgid	slangrtl	Set the process group−id
	setplot	sherpa	An alternative interface to the Sherpa plot customisation variables
	setuid	slangrtl	Set the user−id of the current process
	set_analysis	sherpa	Module function to set the units for 1−D spectral analysis.
	set_axes	sherpa	Module functions for creating new source or background dataspaces.
	set_backscale	sherpa	Module functions for setting source and background extraction region areas.
	set_coord	sherpa	Module function to set the coordinate system for 2−D image analysis.
	set_dataspace	sherpa	An alternative form of DATASPACE and set_axes().

set_data	sherpa	Set source and background data using the S−lang module function in Sherpa.
set_dir	sherpa	Module function to change directories.
set_erroff	sherpa	Switch off the drawing of error bars in Sherpa plots
set_erron	sherpa	Switch on the drawing of error bars in Sherpa plots
set_errors	sherpa	Module functions for assigning source and background error estimates.
set_exptime	sherpa	Module functions for setting source and background exposure times.
set_filter	sherpa	Module functions for assigning source and background filters from an array.
set_float_format	slangrtl	Set the format for printing floating point values.
set_groups	sherpa	Module functions for grouping and setting quality to source and background files from an array.
set_ignore2d	sherpa	Module functions for ignoring source and background regions in 2−D datasets.
set_ignore_all	sherpa	Module functions for ignoring all source and background data.
set_ignore_bad	sherpa	Module functions for ignoring bad (quality > 0) channels.
set_ignore	sherpa	Module functions for ignoring source and background filter ranges in 1−D datasets.
set_import_module_path	slangrtl	Set the search path for dynamically loadable objects
set_lin	sherpa	Switch plotting axis to linear scale in Sherpa plots
set_log	sherpa	Switch axis to log in Sherpa plots
set_notice2d	sherpa	Module functions for noticing source and background regions in 2−D datasets.
set_notice_all	sherpa	Module functions for noticing all source and background data.
set_notice	sherpa	Module functions for noticing source and background filter ranges in 1−D datasets.
set_paramset	sherpa	Module functions to thaw or freeze

		the specified parameter(s).
set_par	sherpa	Module function for setting model parameter values, etc.
set_slang_load_path	slangrtl	Set the value of the interpreter's load−path
set_stackexpr	sherpa	Module functions to set a model stack expression.
set_state_defaults	varmm	Restore the default values of state (configuration) variables
set_state	varmm	Set multiple fields of a state (configuration) variable
set_struct_fields	slangrtl	Set the fields of a structure
set_struct_field	slangrtl	Set the value associated with a structure field
set_subtract	sherpa	Module functions to subtract background from a source dataset, or to undo subtraction.
set_syserrors	sherpa	Module functions for assigning source and background systematic error estimates.
set_verbose	sherpa	Module function to reset Sherpa's verbosity.
set_weights	sherpa	Module functions for assigning source and background statistical weights.
set	sherpa	Summary of Sherpa/S−Lang module functions that change settings or data.
sherpa−module	sherpa	Accessing data with the Sherpa/S−Lang module functions.
sherpa−plot−hooks	sherpa	Customizing Sherpa plots using the prefunc and postfunc fields of Sherpa State Objects
sherpa.cov	sherpa	Configure COVARIANCE in Sherpa.
sherpa.dataplot	sherpa	Configure appearance of Sherpa plots.
sherpa.fitplot	sherpa	Configure appearance of Sherpa plots.
sherpa.intproj	sherpa	Configure INTERVAL−PROJECTION in Sherpa.
sherpa.intunc	sherpa	Configure INTERVAL−UNCERTAINTY in Sherpa.
sherpa.multiplot	sherpa	

		Configure appearance of Sherpa plots.
sherpa.output	sherpa	A Description of the sherpa.output State Object
sherpa.plot	sherpa	Configure appearance of Sherpa plots.
sherpa.proj	sherpa	Configure PROJECTION in Sherpa.
sherpa.regproj	sherpa	Configure REGION−PROJECTION in Sherpa.
sherpa.regunc	sherpa	Configure REGION−UNCERTAINTY in Sherpa.
sherpa.resplot	sherpa	Configure appearance of Sherpa plots.
sherpa.unc	sherpa	Configure UNCERTAINTY in Sherpa.
sherpa_eval	sherpa	Call Sherpa commands from S−Lang
sherpa_plotfns	sherpa	Plot−related functions for Sherpa.
sherpa_utils	sherpa	Provides a number of S−Lang functions useful for Sherpa.
sherpa	sherpa	Command summary of Sherpa, CIAO's modeling and fitting engine.
shexp10	sherpa	Exponential function, base 10. Integration OFF.
shexp	sherpa	Exponential function. Integration OFF.
shift	slangrtl	Shift the elements of a 1−d array
shlog10	sherpa	Logarithm function, base 10. Integration OFF.
shloge	sherpa	Natural logarithm function. Integration OFF.
show_tgain_corr	tools	Display the time−dependent gain correction for a given chip location.
show_wgt	tools	show_wgt.sl − Examine the weights file created by mkwarf
show	sherpa	Reports current status.
sigma−rejection	sherpa	The SIGMA−REJECTION optimization method for fits to 1−D data. Alternate names are SIG−REJ and SR.
sign	slangrtl	Compute the sign of a number
simplex	sherpa	A simplex optimization method.
simspec	sherpa	Create and fit a simulated PHA spectrum.

simul−ann−1	sherpa	A simulated annealing search, with one parameter varied at each step.
simul−ann−2	sherpa	A simulated annealing search, with all parameters varied at each step.
simul−pow−1	sherpa	A combination of SIMUL−ANN−1 with POWELL.
simul−pow−2	sherpa	A combination of SIMUL−ANN−2 with POWELL.
sinh	slangrtl	Compute the hyperbolic sine of an number
sin	sherpa	Sine function. Integration OFF.
sin	slangrtl	Compute the sine of an number
sizeof_pack	slangrtl	Compute the size implied by a pack format string
skip	chips	Skips the designated number of lines from subsequent input files.
skyfov	tools	Make a field−of−view region in sky coordinates
slangrtl	slangrtl	S−Lang Run Time Library
slang	slang	The S−Lang programing language
sleep	slangrtl	Pause for a specified number of seconds
slsh	slang	Evaluate and run S−Lang code.
slxpa_errno	xpa	This variable stores the error status for the XPA commands.
source	sherpa	Defines the source model expression to be used for fitting a dataset. The command SRC is an abbreviated equivalent.
specextract	tools	Extract source and background ACIS spectra for point−like and extended sources and build associated WMAPs, ARFs and RMFs.
spectrum	tools	spectrum.sl − Calculate spectral weights for creating an instrument map
split	chips	Creates multiple drawing areas and/or arranges their locations.
splot	sherpa	Causes the specified 2−D data to be displayed, with a surface plot, via ChIPS.
sprintf	slangrtl	Format objects into a string
sqrt	sherpa	Square root function. Integration OFF.

sqrt	slangrtl	Compute the square root of an number
sqr	slangrtl	Compute the square of a number
sscanf	slangrtl	Parse a formatted string
sso_freeze	tools	Reproject sky x and y coordinates into a Solar System Object centered reference frame.
sstats	tools	sstats.sl− Calculate statistics of images
stackio	modules	The S−Lang interface to the CXC stack library
stack	concept	How to set a parameter to more than one value using a stack.
staterrors	sherpa	Defines an expression or file to be used to specify the statistical errors for source data.
statistic	sherpa	Specifies the fitting statistic.
stat_file	slangrtl	Get information about a file
stat_is	slangrtl	Parse the st_mode field of a stat structure
stephi1d	sherpa	1−D step function. Integration OFF. The command HIGHPASS is equivalent.
steplo1d	sherpa	1−D step function. Integration OFF. The command LOWPASS is equivalent.
stk_append	stackio	Add an item (or items) to a stack.
stk_build	stackio	Build a stack from text input (file name or regular expression).
stk_build	tools	stk_build is used to build a stack from a user−defined string. The output is to stdout, stderr, or a file.
stk_change_current	stackio	Change the current element of a stack.
stk_change_num	stackio	Change the given element of a stack.
stk_close	stackio	Close a stack.
stk_count	stackio	Returns the number of elements in a stack.
stk_count	tools	stk_count is used to count the number of items in a stack. The output is to the stk_count parameter file.
stk_current	stackio	Returns the current position of the stack.

stk_delete_current	stackio	Deletes the current element from the stack.
stk_delete_num	stackio	Deletes the specified element from the stack.
stk_disp	stackio	Display the contents of a stack.
stk_expand_n	stackio	Create a numbered stack of N elements.
stk_read_next	stackio	Returns the next element from a stack.
stk_read_num	stackio	Returns the selected element from a stack.
stk_read_num	tools	stk_read_num is used to read one element of a user−defined stack. The output is to the outelement field of the stk_read_num parameter file.
stk_rewind	stackio	Rewind the stack to its starting position.
stk_set_current	stackio	Sets the current position of the stack.
stk_where	tools	stk_where finds the location of an item in a stack
store	chips	Saves a plot with all attributes.
strcat	slangrtl	Concatenate strings
strchopr	slangrtl	Chop or split a string into substrings.
strchop	slangrtl	Chop or split a string into substrings.
strcmp	slangrtl	Compare two strings
strcompress	slangrtl	Remove excess whitespace characters from a string
string_match_nth	slangrtl	Get the result of the last call to string_match
string_match	slangrtl	Match a string against a regular expression
string	slangrtl	Convert an object to a string representation.
strjoin	slangrtl	Concatenate elements of a string array
strlen	slangrtl	Compute the length of a string
strlow	slangrtl	Convert a string to lowercase
strncmp	slangrtl	Compare the first few characters of two strings
strong	guide	List "strong" emission lines at a given temperature, within specified wavelength bounds.

	strreplace	slangrtl	Replace one or more substrings
	strsub	slangrtl	Replace a character with another in a string.
	strtok	slangrtl	Extract tokens from a string
	strtrans	slangrtl	Replace characters in a string
	strtrim_beg	slangrtl	Remove leading whitespace from a string
	strtrim_end	slangrtl	Remove trailing whitespace from a string
	strtrim	slangrtl	Remove whitespace from the ends of a string
	strup	slangrtl	Convert a string to uppercase
	str_delete_chars	slangrtl	Delete characters from a string
	str_quote_string	slangrtl	Escape characters in a string.
	str_replace	slangrtl	Replace a substring of a string
	str_uncomment_string	slangrtl	Remove comments from a string
	subspace	concept	Describes the filtering applied to a file
	substr	slangrtl	Extract a substring from a string
	subtract	sherpa	Performs background subtraction.
	sum	slangrtl	Sum over the elements of an array
	surface	chips	Adds a surface plot to a drawing area.
	symbol	chips	Specifies the appearance of symbols in a curve.
	syntax	tools	Syntax used for writing mathematical operations in dmtcalc, dmimgcalc, and dmgti
	syserrors	sherpa	Defines an expression or file to be used to specify the systematic errors for source data.
	system	slangrtl	Execute a shell command
T	tanh	slangrtl	Compute the hyperbolic tangent of an number
	tan	sherpa	Tangent function. Integration OFF.
	tan	slangrtl	Compute the tangent of an number
	taskmonitor	gui	GUI to run a task as a background process and display the output
	tgdetect	tools	Detect and centroid the zero order image in a spatial sub−region of a grating event list.
	tgextract	tools	Bin event list grating wavelengths column into a one−dimensional

		counts histogram, by source, grating part, and diffraction order.
tgidselectsrc	tools	Filter an input source list based upon a SNR threshold.
tgmatchsrc	tools	Match sources between two source lists by their 2−D separation files.
tg_bkg	tools	Creates a PHA background file for use in XSPEC
tg_create_mask	tools	Create a region file to define spectrum sky boundaries
tg_osort_img	tools	Create an image that shows the density of events in different orders
tg_resolve_events	tools	Assign grating events to spectral orders; use detector energy resolution for order separation, if available.
tg_scale_reg	tools	Create a region file that labels distances along the grating arm
thaw	sherpa	Allows model parameter(s) to vary.
ticks	chips	Specifies the spacing of tick marks.
tickvals	chips	Controls the appearance of numerical tick mark labels.
tic	slangrtl	Start timing
times	chandra	"Times" used in Chandra datasets and Chandra data analysis
times	slangrtl	Get process times
time	slangrtl	Return the current data and time as a string
tips	slang	S−Lang tips and example functions
title	chips	Adds a title and/or changes the title attribute.
toc	slangrtl	Get elapsed CPU time
tolower	slangrtl	Convert a character to lowercase.
toupper	slangrtl	Convert a character to uppercase.
tpsf1d	sherpa	A 1−D TCD−model−based instrument model.
tpsf	sherpa	A 2−D TCD−model−based instrument model.
transpose	slangrtl	Transpose an array
truncate	sherpa	Resets negative model amplitudes to zero.
typecast	slangrtl	Convert an object from one data type to another.
typeof	slangrtl	Get the data type of an object.
type	chips	

			Reports the data that are associated with a curve.
U	umask	slangrtl	Set the file creation mask
	uname	slangrtl	Get the system name
	uncertainty	sherpa	Estimates confidence intervals for selected thawed parameters.
	undo	chips	Undoes the most recently executed plotting command.
	ungroup	sherpa	Causes Sherpa to undo a grouping scheme that had been applied to source or background data.
	unlink	sherpa	Removes a link between model parameters.
	unpack	slangrtl	Unpack Objects from a Binary String
	unsubtract	sherpa	Undoes background subtraction.
	usage	slangrtl	Generate a usage error
	usermethod	sherpa	A user−defined method.
	usermodel	sherpa	User implemented model. Integration OFF.
	usermodel	slang	Creating Sherpa Usermodels with S−Lang
	username	varmm	Returns the login name of the owner of the current process.
	userstat	sherpa	User implemented statistic.
	use_namespace	slangrtl	Change to another namespace
	use	sherpa	Calls and executes a Sherpa script.
V	variables	slang	Variables in S−Lang
	varmmrl	modules	The Varmm readline module for S−Lang
	varmm_rl_blink	varmmrl	Sets the "blink" mode of the ChIPS and Sherpa command line.
	varmm_rl_editmode	varmmrl	Set the editing mode ("emacs" or "vi") of the ChIPS and Sherpa command line.
	varmm	modules	The Variable, Math and Macro S−Lang library
	verbose	chips	Regulates reporting of error and informational messages.
	verror	slangrtl	Generate an error condition
	version	sherpa	Reports the Sherpa version that is in use.

	viewpoint	chips	Controls the rotation angle of a surface plot.
	vmessage	slangrtl	Print a formatted string onto the message device
	vtpdetect	tools	Voronoi Tessellation and Percolation (VTP) source detection
W	wavdetect	tools	Mexican−Hat Wavelet source detection (wtransform+wrecon)
	wcs_match	tools	Create a frame transformation to minimize the aspect difference between data from the same sky region.
	wcs_update	tools	Modify aspect solution file RA, Dec, and roll or infile WCS based on a transformation matrix.
	where	slangrtl	Get indices where an integer array is non−zero
	wrecon	tools	Combine wavelet transform coefficients into sources
	writeascii	varmm	S−Lang function to create an ASCII output file from S−Lang arrays
	writefits	varmm	S−Lang function to create a FITS output file.
	write	sherpa	Causes the specified information to be written to the screen or to a file.
	write	slangrtl	Write to an open file descriptor
	wtransform	tools	Obtain wavelet transform coefficients for poisson image data
X	xlabel	chips	Adds a label along the X−axis of a drawing area and/or changes X−axis label attributes.
	xpaaccess	xpa	Find out how many XPA access points are available that match a given name.
	xpaclose	xpa	Close a persistent XPA connection created by XPAOpen().
	xpagetb	xpa	Retrieve binary data from one or more XPA servers.
	xpagettofile	xpa	Retrieve data from one or more XPA servers and write the results to a file.
	xpaget	xpa	Retrieve data from one or more XPA servers.

xpaopen	xpa	Create a persistent connection for XPA calls.
xpaset	xpa	Send a command or data to one or more XPA servers.
xpa_maxhosts	xpa	This variable stores the maximum number of hosts to be contacted in a XPA call.
xpa_version	xpa	The version of the XPA library being used by the S−Lang module.
xpa	modules	The S−Lang interface to the XPA library.
xsabsori	sherpa	Ionized absorber. XSpec model.
xsacisabs	sherpa	Decay in the ACIS quantum efficiency. XSpec model.
xsapec	sherpa	APEC thermal plasma model. XSpec model.
xsbapec	sherpa	APEC thermal plasma model with velocity broadening as a free parameter. XSpec model.
xsbbodyrad	sherpa	Blackbody spectrum with norm proportional to surface area. XSpec model.
xsbbody	sherpa	Blackbody spectrum. XSpec model.
xsbexrav	sherpa	E−folded broken power law reflected from neutral matter. XSpec model.
xsbexriv	sherpa	E−folded broken power law reflected from ionized matter. XSpec model.
xsbknpower	sherpa	Broken power law. XSpec model.
xsbmc	sherpa	Comptonization by relativistically moving matter. XSpec model.
xsbremss	sherpa	Thermal bremsstrahlung. XSpec model.
xsbvapec	sherpa	APEC thermal plasma model with variable abundances and velocity broadening as a free parameter. XSpec model.
xsc6mekl	sherpa	6th−order Chebyshev polynomial DEM using mekal. XSpec model.
xsc6pmekl	sherpa	Exponential of 6th−order Chebyshev polyn. DEM using mekal. XSpec model.
xsc6pvmkl	sherpa	Variable abundance version of c6pmekl. XSpec model.
xsc6vmekl	sherpa	

		Variable abundance version of c6mekl. XSpec model.
xscabs	sherpa	Compton scattering (non−relativistic). XSpec model.
xscemekl	sherpa	Multi−temperature mekal. XSpec model.
xscevmkl	sherpa	Multi−temperature vmeka. XSpec model.
xscflow	sherpa	Cooling flow model. XSpec model.
xscompbb	sherpa	Comptonized blackbody spectrum after Nishimura et al. (1986). XSpec model.
xscompls	sherpa	Comptonization spectrum after Lamb and Sanford (1979). XSpec model.
xscompst	sherpa	Comptonization spectrum after Sunyaev and Titarchuk (1980). XSpec model.
xscomptt	sherpa	Comptonization spectrum after Titarchuk (1994). XSpec model.
xsconstant	sherpa	Energy−independent multiplicative factor. XSpec model.
xscutoffpl	sherpa	Power law with high energy exponential cutoff. XSpec model.
xscyclabs	sherpa	Cyclotron absorption line. XSpec model.
xsdiskbb	sherpa	Multiple blackbody disk model. XSpec model.
xsdiskline	sherpa	Line emission from relativistic accretion disk. XSpec model.
xsdiskm	sherpa	Disk model with gas pressure viscosity. XSpec model.
xsdisko	sherpa	Modified blackbody disk model. XSpec model.
xsdiskpn	sherpa	Accretion disk around a black hole. XSpec model.
xsdisk	sherpa	Disk model. XSpec model.
xsdust	sherpa	Dust scattering out of the beam. XSpec model.
xsedge	sherpa	Absorption edge. XSpec model.
xsequil	sherpa	Equilibrium ionization collisional plasma model from Borkowski. XSpec model.
xsexpabs	sherpa	Low−energy exponential cutoff. XSpec model.

xsexpdec	sherpa	An exponential decay. XSpec model.
xsexpfac	sherpa	Exponential factor. XSpec model.
xsgabs	sherpa	A multiplicative gaussian absorption line. XSpec model.
xsgaussian	sherpa	Simple gaussian line profile. XSpec model.
xsgnei	sherpa	Generalized single ionization NEI plasma model. XSpec model.
xsgrad	sherpa	GR accretion disk around a black hole. XSpec model.
xsgrbm	sherpa	Gamma−ray burst model. XSpec model.
xshighecut	sherpa	High energy cutoff. XSpec model.
xshrefl	sherpa	Simple reflection model good up to 15 keV. XSpec model.
xslaor	sherpa	Line from accretion disk around a black hole. XSpec model.
xslorentz	sherpa	Lorentzian line profile. XSpec model.
xsmekal	sherpa	Mewe−Kaastra−Liedahl thermal plasma (1995). XSpec model.
xsmeka	sherpa	Mewe−Gronenschild−Kaastra thermal plasma (1992). XSpec model.
xsmkcflow	sherpa	Cooling flow model based on mekal. XSpec model.
xsnei	sherpa	Simple nonequilibrium ionization plasma model. XSpec model.
xsnotch	sherpa	Notch line absorption. XSpec model.
xsnpshock	sherpa	Plane−parallel shock with ion and electron temperatures. XSpec model.
xsnsa	sherpa	Spectra in the X−ray range (0.05−10 keV) emitted from a hydrogen atmosphere of a neutron star. XSpec model.
xsnteea	sherpa	Pair plasma model. XSpec model.
xspcfabs	sherpa	Partial covering fraction absorption. XSpec model.
xspecabundan	sherpa	Performs the XSPEC command abund.
xspecxsect	sherpa	Performs the XSPEC command xsect.

xspegpwrlw	sherpa	Power law with pegged normalization. XSpec model.
xspexrav	sherpa	Exponentially cutoff power law reflected from neutral matter. XSpec model.
xspexriv	sherpa	Exponentially cutoff power law reflected from ionized matter. XSpec model.
xsphabs	sherpa	Photo−electric absorption. XSpec model.
xsplabs	sherpa	Absorption model with power law dependence on energy. XSpec model.
xsplcabs	sherpa	Cutoff power law observed through dense, cold matter. XSpec model.
xsposm	sherpa	Positronium continuum. XSpec model.
xspowerlaw	sherpa	Simple photon power law. XSpec model.
xspshock	sherpa	Constant temperature, plane−parallel shock plasma model. XSpec model.
xspwab	sherpa	An extension of partial covering fraction absorption into a power−law distribution of covering fraction. XSpec model.
xsraymond	sherpa	Raymond−Smith thermal plasma. XSpec model.
xsredden	sherpa	IR/optical/UV extinction from Cardelli et al. (1989). XSpec model.
xsredge	sherpa	Recombination edge. XSpec model.
xsrefsch	sherpa	E−folded power law reflected from an ionized relativistic disk. XSpec model.
xssedov	sherpa	Sedov model with electron and ion temperatures. XSpec model.
xssmedge	sherpa	Smoothed absorption edge. XSpec model.
xsspline	sherpa	Spline multiplicative factor. XSpec model.
xssrcut	sherpa	Synchrotron radiation from cutoff electron distribution. XSpec model.
xssresc	sherpa	Synchrotron radiation from escape−limited electron distribution. XSpec model.
xssssice	sherpa	Einstein Observatory SSS ice

		absorption. XSpec model.
xsstep	sherpa	Step function convolved with gaussian. XSpec model.
xstbabs	sherpa	Calculates the absorption of X−rays by the ISM. XSpec model.
xstbgrain	sherpa	Calculates the absorption of X−rays by the ISM with variable hydrogen to H2 ratio and grain parameters. XSpec model.
xstbvarabs	sherpa	Calculates the absorption of X−rays by the ISM, allowing user to vary all abundances, depletion factors, and grain properties. XSpec model.
xsuvred	sherpa	UV reddening. XSpec model.
xsvapec	sherpa	APEC thermal plasma model with variable abundances. XSpec model.
xsvarabs	sherpa	Photoelectric absorption with variable abundances. XSpec model.
xsvbremss	sherpa	Thermal bremsstrahlung spectrum with variable H/He. XSpec model.
xsvequil	sherpa	Ionization equilibrium collisional plasma model with variable abundances. XSpec model.
xsvgnei	sherpa	Non−equilibrium ionization collisional plasma model with variable abundances. XSpec model.
xsvmcflow	sherpa	Cooling flow model based on vmekal. XSpec model.
xsvmekal	sherpa	M−K−L thermal plasma with variable abundances. XSpec model.
xsvmeka	sherpa	M−G−K thermal plasma with variable abundances. XSpec model.
xsvnei	sherpa	Non−equilibrium ionization collisional plasma model with variable abundances. XSpec model.
xsvnpshock	sherpa	Plane−parallel shock plasma model with separate ion and electron temperatures and variable abundances. XSpec model.
xsvphabs	sherpa	Photoelectric absorption with variable abundances. XSpec model.
xsvpshock	sherpa	Constant temperature, plane−parallel shock plasma model with variable abundances. XSpec model.
xsvraymond	sherpa	Raymond−Smith thermal plasma

		with variable abundances. XSpec model.
xsvsedov	sherpa	Sedov model with separate ion and electron temperatures and variable abundances. XSpec model.
xswabs	sherpa	Photoelectric absorption (Morrison and McCammon). XSpec model.
xswndabs	sherpa	Photoelectric absorption with low energy window. XSpec model.
xsxion	sherpa	Reflected spectra of a photo−ionized accretion disk or ring. XSpec model.
xszbbody	sherpa	Redshifted blackbody. XSpec model.
xszbremss	sherpa	Redshifted thermal bremsstrahlung. XSpec model.
xszedge	sherpa	Redshifted absorption edge. XSpec model.
xszgauss	sherpa	Redshifted gaussian. XSpec model.
xszhighect	sherpa	Redshifted high energy cutoff. XSpec model.
xszpcfabs	sherpa	Redshifted partial covering absorption. XSpec model.
xszphabs	sherpa	Redshifted photoelectric absorption. XSpec model.
xszpowerlw	sherpa	Redshifted power law. XSpec model.
xsztbabs	sherpa	Calculates the absorption of X−rays by the ISM for modeling redshifted absorption. Does not include a dust component. XSpec model.
xszvarabs	sherpa	Redshifted photoelectric absorption with variable abundances. XSpec model.
xszvfeabs	sherpa	Redshifted absorption with variable iron abundance. XSpec model.
xszvphabs	sherpa	Redshifted photoelectric absorption with variable abundances. XSpec model.
xszwabs	sherpa	Redshifted "Wisconsin absorption." XSpec model.
xszwndabs	sherpa	Redshifted photoelectric absorption with low energy window. XSpec model.
xs	sherpa	XSpec model functions.

Y	ylabel	chips	Adds a label along the Y−axis of a drawing area and/or changes Y−axis label attributes.
Z	zlabel	chips	Adds a label along the Z−axis of a drawing area and/or changes Z−axis label attributes.
_	_apropos	slangrtl	Generate a list of functions and variables
	_auto_declare	slangrtl	Set automatic variable declaration mode
	_clear_error	slangrtl	Clear an error condition
	_debug_info	slangrtl	Configure debugging information
	_featurep	slangrtl	Test whether or not a feature is present
	_function_name	slangrtl	Returns the name of the currently executing function
	_get_namespaces	slangrtl	Returns a list of namespace names
	_isnull	slangrtl	Check array for NULL elements
	_NARGS	slangrtl	The number of parameters passed to a function
	_pop_n	slangrtl	Remove objects from the stack
	_print_stack	slangrtl	print the values on the stack.
	_push_struct_field_values	slangrtl	Push the values of a structure's fields onto the stack
	_reshape	slangrtl	Copy an array to a new shape
	_slangtrace	slangrtl	Turn function tracing on or off.
	_slang_doc_dir	slangrtl	Installed documentation directory
	_slang_guess_type	slangrtl	Guess the data type that a string represents.
	_slang_version_string	slangrtl	The S−Lang library version number as a string
	_slang_version	slangrtl	The S−Lang library version number
	_slxpa_version	xpa	The version of the S−Lang XPA module.
	_stkdepth	slangrtl	Get the number of objects currently on the stack.
	_stk_reverse	slangrtl	Reverse the order of the objects on the stack.
	_stk_roll	slangrtl	Roll items on the stack
	_time	slangrtl	Get the current time in seconds
	_traceback	slangrtl	Generate a traceback upon error
	_trace_function	slangrtl	Set the function to trace

__typeof	slangrtl	Get the data type of an object
__class_id	slangrtl	Return the class−id of a specified type
__class_type	slangrtl	Return the class−type of a specified type
__eqs	slangrtl	Test for equality between two objects
__exit	varmm	S−Lang function to abort applications.
__get_defined_symbols	slangrtl	Get the symbols defined by the preprocessor
__get_reference	slangrtl	Get a reference to a global object
__is_initialized	slangrtl	Determine whether or not a variable has a value
__pop_args	slangrtl	Remove n function arguments from the stack
__push_args	slangrtl	Remove n function arguments onto the stack
__uninitialize	slangrtl	Uninitialize a variable

URL: http://cxc.harvard.edu/ciao3.4/index_alphabet.html
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