Using the Data Browser

Introduction

The Data Browser is another TS gui tool which allows you to plot a piece of TSdata and scroll through it. It is most useful when your experiment involves a set of continuous data, such as the position of a subject. It is not useful when your data consists only of a series of event codes, if your experiment falls into that category, we recommend using TSraster and its gui component. The data browser also allows you to insert markers on an event-code basis into the continuous data plot, and generally helps you visualize your data. It is particularly suited for use on a very large matrix of TSdata which you would like to view as a whole and then zoom in on and browse through over small time slices. To bring it up, either use the button in the Experiment Browser (see above) on a piece of TSdata, or call TSdatabrowser in the command line, with some TSdata as its single argument.

TSdatabrowser(TSdata);

The browser window will popup. A large white graph window will appear in the middle. 2 slider bars will appear at the bottom, used for controlling the time range being plotted, several checkboxes will appear on the right side, and a configure button will appear below them.

[Picture of Data Browser]

Scrolling

The sliders control the time window displayed on the graph and are used to scroll through the data. The top slider controls the position within the data. All the way to the left on this bar is the very start of the data. All the way to the right on this bar is the end. The actual position being determined is the left side of the plotting window. If your data lasted for 2 hours, and the slider position is 25% from the left, then the X-min for your viewing window will be 30 minutes into the file.

[Appropriate picture]

The bottom slider controls the size of your viewing window in terms of time. It is on the same scale as the top slider; all the way to the right is a viewing window the size of the entire tsdata matrix. All the way to the left is a viewing window as small as it can be without causing an error. You can use this to adjust how zoomed in on the data you are. If you bring the slider more to the left, your viewing window will appear to zoom in because the amount of time being viewed is smaller. If you

bring the slider to the right, your viewing window will appear to zoom out because the amount of time being viewed is larger.

[1 picture with smaller window, 1 with larger window]

Because of the way the system is set up, it is possible to go "off the end" of the data, if you move both sliders all the way to the right. This is because the Xmin would then be at the last time stamp, and the size of the window would be the size of the file, so Xmax would be much larger than the end of the file. This is not really a problem, but if you don't see any data when you do that, that's the reason. Typically, users only consider a small window at any given time and then scroll through it with the top slider.

[Appropriate picture]

Markers

The checkboxes at the right activate and deactivate the markers. Markers can be things like highlighting the data whenever a certain light or trigger is on, inserting a vertical line whenever a door is opened or a feeder is activated, placing a horizontal line for reference of position data, or other such things. Markers are defined using event codes from the tsdata. You can turn them on or off individually by checking the appropriate checkbox.

Configuring the Markers

Press the configuration button to modify the markers. You will see a window with many options. At the top, you can dictate how the data browser translates event codes into Y-values on the graph. Ymin and Ymax determine the range of the browser window along the Y-axis. Data values and Y values are arrays that map event codes onto Y values. They must be the same length. The strings are evaluated, so you can use colon notation if you want.

The buttons are configured in the large table below. First check the box to activate a marker slot. The first textbox in that row is the name of the marker. The second textbox is the match code. The two popup menus specify the color and style of the marker. Help can be obtained from the help button, but I will explain the different style types here as well.

Vertical markers are vertical lines placed where matches are found for given match codes. For the Vertical style, you must specify a TSmatch style match code or codes. If you don't know what this is, read the documentation on TSmatch. An

example would be {[1308 1309]}. This would match all 1308s which are followed by 1309s, and place vertical lines at both. You can specify as many codes as you like. If your code was {[112 113 114]}, that would find all 112's followed by 114's with 113's in between. If your code was {[112 113 114 115]}, it would require the codes in that order, not just any order. If you specify a negative code, that means that the code cannot appear at that position in the order. If your code was {[112 –113 114]} that would be all 112s followed by 114s with no 113s in between. If your code was {[112 113 –114 115]}, the 114 could not appear between 113 and 115, but it could appear between 112 and 113. If you want no 114s anywhere, you can type {[112 –114 113 –114 115]}. Positive codes can also repeat, and you can even have a code start and end with the same code. {[242 242]} would put vertical lines at all 242's. You CANNOT specify only 1 code; the program will freeze if you do so.

Horizontal markers are horizontal lines placed at a constant Y value. You specify only one scalar value.

Highlight Plot markers highlight the plot at regions bounded by the matches found by TSmatch. This is one of the most useful marker styles. For example, if 018 is the on-code for a light in your experiment, and 019 is the off-code for that light, you can create a Highlight markers with the matchcode {[018 019]} and then all places where the light is on will be highlighted. TSmatch style match codes are required.

Range markers place a large braces over the function at regions bounded by the matches found by TSmatch. This is most useful for marking where individual trials started and ended. TSmatch style codes are required.

Point markers place a point marker symbol, either a dot, star, circle, or square, at all points whose code matches one of the codes specified in the match code array. Point markers take an array of event codes, not a TSmatch code. Anywhere that the event code on a point matches one of the codes in the array, the point is marked with the symbol. If the array is empty, then all points are marked. This can be useful if you want to see where your actual data points are, not just where the lines are interpolated, because it gives you a better sense of how good your data is.

Click done when you are done modifying your markers. There will be a pause, because the browser has to match all the codes against the whole TSdata. Then you will be free to browse again.

Loading and Saving Configurations

In the main data browser window, you can go to the file menu to load and save configurations. Configurations are saved in mat files. There is no default file. The default path for the file selection windows is the current Matlab path.

You can exit the browser simply by clicking the X. Any unsaved configurations will be lost.