Subject: Comparing tabulated functions
Posted by jameskuyper on Thu, 03 Jan 2008 15:47:18 GMT
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I've got two functions of time, each of which is tabulated at thousands of different monotonically increasing time values; in the worst case, there may be as many as 14,400 time values. I want to estimate the difference between these functions. Unfortunately, the two functions will not, in general, be tabulated at the same time values. A simple approach that works fairly well is to use spline interpolation to interpolate both of them to a common grid, and then difference the interpolated the values. However, occasionally one or the other of the two functions have data gaps. For any time value that is more than 1 second away from the nearest tabulated time for either function, I want to fill in the difference array with !VALUES.D_NAN. I believe this will cause the PLOT command to skip that point - if not, I need to find some other approach that will have this effect.

I can write simple, highly efficient C code that does exactly what I want; translating that code into IDL would make heavy use of loops, and therefore wouldn't be very efficient. I can write simple IDL code that takes no advantage of the fact that the arrays are monotonically increasing, calculating the difference of every point on the output grid from every point on either of the two input tables, and finding the minimum, but that seems extremely inefficient (and a memory hog!). Is there a simpler way to do this?