Subject: Re: Help setting up an array
Posted by Peter Thorne on Thu, 29 Mar 2001 14:58:57 GMT
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Jaco van Gorkom wrote:

> Just out of curiosity: did you create this little puzzle just to test
> our
> brain cells, or is there a real-world application for this problem?

It is a real world problem, believe it or not! We have a number of observational parameters which we wish to regress against possible modelled causes in a system containing "noise". Output from this regression is effectively a cloud of potential solution points, an n-dimensional PDF (probability density function) ellipsoid. Previously we have only considered ellipsoids as single pieces of data. However, in this system we wish to assess the consistency of the model system and therefore need to intercompare m n-dimensional ellipsoids (where m distinct realisations are made through the regression analysis). Effectively we need to set up a system whereby the null hypothesis is that all m fields gained are equivalent (are sub-sampled from some true population). To gain a quantitative measure of this statistic it is required to integrate the fields over the n-dimensional phase space which is common to the m fields and gain the maximum probability function from the m fields for this integral. Maximum because the ellipsoids are not expected to have equal variance, distributions or orientation in the regression phase space.

Well, you did ask ...