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Subject: Inner product of multi-dimensional arrays  
Posted by [Fergus Gallagher](#) on Mon, 06 Feb 1995 10:03:47 GMT  
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I want to form a matrix multiplication of the form

$$C(i,j,k) = B(i,j,r) A(r,k) \text{ (summed over } r)$$

With some index cleverness, I could form a 4-D intermediate array and sum this over one index, but this intermediate array wouldn't fit into memory in my case.

Does anyone have a suitable (fast) algorithm for this sum. Even better would a generalized procedure for

$$C = A(\dots r \dots) B(\dots r \dots)$$

Thanks

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