Subject: Re: m choose n
Posted by pgrigis on Wed, 29 Jul 2009 13:38:03 GMT
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On Jul 28, 7:09 pm, Rob <rob.webina...@gmail.com> wrote:
> Has anyone implemented the combinatorial function which the "n choose
> k" combinations of an input vector, like Matlab's nchoosek? I'm not
> talking about just the binomial coefficient n!/(m!*(n-m)!). I'm
> interested in getting the "n choose k" combinations. Matlab's
> function:
>
> http://www.mathworks.com/access/helpdesk/help/techdoc/index. html?/acc...
>
> Example:
> octave-3.0.5:2> nchoosek([1,2,3,4],2)
> ans =
>
> 1 2
> 1 3
> 1 4
> 2 3
> 2 4
> 3 4
>
> If not, I will just codify Matlab/Octave's nchoosek() and submit to
> ITT Vis or something like that.
>
> R

Yes, I posted this function to the newsgroup a few years ago.

http://tinyurl.com/nra4d8

I report it below.

To reproduce your result:
a=[1,2,3,4]
combind=pgcomb(4,2)
print,a[combind]
or
print,pgcomb(4,2)+1 if you are lazy :)

It's a nice example of a routine that would be
somewhat harder to write without a BREAK statement :)

Ciao,
Paolo

```
FUNCTION pgcomb,n,j
;;number of combinations of j elements chosen from n
nelres=long(factorial(n)/(factorial(j)*factorial(n-j)))

res=intarr(j,nelres);array for the result
res[*,0]=indgen(j);initialize first combination

FOR i=1,nelres-1 DO BEGIN;go over all combinations
   res[*,i]=res[*,i-1];initialize with previous value

   FOR k=1,j DO BEGIN;scan numbers from right to left

    IF res[j-k,i] LT n-k THEN BEGIN;check if number can be increased

       res[j-k,i]=res[j-k,i-1]+1;do so

       ;if number has been increased, set all numbers to its right
       ;as low as possible
       IF k GT 1 THEN res[j-k+1:j-1,i]=indgen(k-1)+res[j-k,i]+1

       BREAK;we can skip to the next combination

      ENDIF

   ENDFOR

ENDFOR

RETURN,res

END
```