Re: linalg[leastsqrs] in Maple V R4

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- *From*: israel@xxxxxxxxxxx (Robert Israel)

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In article <1154264326.861799.211040@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
lcw1964 <leslie.wright@xxxxxxxxxxxxx> wrote:

> I know that I am using an admittedly ancient version of the software,
> but it suits my modest personal purposes for the most part.
>
> I am wondering if anyone has has any experience with the leastsqrs
> procedure, in either older or newer incarnations, only to discover that
> it seems painfully inaccurate on repeat application.
>
> I have tried to use linalg[leastsqrs] to find the least squares
> solution of an fairly hefty sized overdetermined system, about 80
> equatons in 16 unknowns. Repeat application on the exact same
> matrix/vector input combination yields different results with the loss
> of many if not most of the significant digits. I am not talking just a
> few digits lost to accumulated rounding error, I am talking a couple of
> dozen digits when Digits is set pretty high. The problem gets worse the
> larger the linear system is, and using the 'optimize' argument seems to
> slow things down and doesn' add any value.
>
> This is driving me wonky. Is this a bug or a feature? Is it present in
> newer versions of Maple? Would I be better off using Svd() and
> computing the least squares solution myself from that output? I really
> don't mind "black box" routines if they give reproducible results, and
> linalg[leastsqrs] in my hands does not.

The LinearAlgebra package in more recent versions of Maple should be
quite a bit better than linalg at most number−crunching applications.
But I didn't see any significant difference between linalg[leastsqrs]
and LinearAlgebra[LeastSquares] on a random 80 x 16 problem. Could
you provide a specific example of the problem you're experiencing?

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