Hi Mark,

The options structure looks much better now. This is really an improvement!

I mainly tried to get testbruss\_HP0 and by doing that I found a few minor errors.

In the end I only made three small changes.

a) CISinit, line 47, cds.NUnstable was not defined (and does not need to be)

b) eigschurs\_transform, line 14-30, changed the logic for setting the shift for the cayley transform. With the previous implementation the shift was always 1.

c) equilibriumL, line 65. contopts.CIS\_NSub contains the initial guess for the subspace size, not the actual subspace size

I do not precisely understand your remarks, but these are my thoughts on the options.

As far as I can see, all user defined options should be in contopts and the values in the contopts struct should only be changed through contset.m. Internal variables should be in the cds or eds struct.

Values in the contopts structure can be copied to the cds or eds struct if they are a starting value that will be modified during continuation (so they are starting values for in internal variable, for example line 33 in contL)

With this idea in mind, only lines 34-37 seem to be unnesseary duplication in contL.

(I do not have a problem with copying the options to local variables, because this makes the code easier to read and easier to change the name of an option)

I think it is now relatively easy to add new options, you only need to add one line with the name and default value in contset.m. This is also necessary to check that the user specifies only existing options. contset.m now also contains an overview of all options and their default values, which much clearer than in matcont6p11 whereit it is very hard to find the default values. In that sense I think the current implementation of the options is pretty good. I do not see a way to improve upon that.

Best,

Daniel

**Van:** Mark Pekker (a.k.a. Mark Friedman) [friedmam@uah.edu]  
**Verzonden:** zaterdag 2 juni 2018 14:12  
**Aan:** Veldman, D.W.M.  
**Onderwerp:** FW: cl\_matcontL\_2018\_4\_15a.zip

**From:** Mark Pekker (a.k.a. Mark Friedman) [mailto:[friedmam@uah.edu](mailto:friedmam@uah.edu" \t "_blank)]   
**Sent:** Friday, June 01, 2018 6:14 PM  
**To:** 'Veldman, D.W.M.'  
**Subject:** cl\_matcontL\_2018\_4\_15a.zip

Hi Daniel,

Attached is cl\_matcontL\_2018\_4\_15a.zip. i did some cleaning/revision of options only in the following folders: Continuer (contL), MultilinearForms (as needed), Equilibrium (equilibriumL, init\_EP\_EP\_L), CIS (all of them), Options (contset).

1)      Now all options are defined in contL and the internal ones for equilibriumL (and equilibriumL\_hom, not updated yet) in  init\_EP\_EP\_L. This is definitely not ideal. Note,  i am not sure how to avoid duplication between contL and contest.

2)      I think, only standard matcont11 options and additional contL ones (with distinct names) should be defined in contL.

**3)** Ideally (i think) options for different curves should be defined as independent as possible with clear (for user!) distinction between internal ones and the ones modified by user (may be this should be in tutorial?). **The idea is to make it easy to debug, revise and add additional curve folders.**

1)      testbruss\_HP0 gives error msg:

>> testbruss\_HP0

S                                                                                                                   ID      PT:  p(4)            ||u||          ||f||

contL: Evaluation of test functions failed at start point.

One or more output arguments not assigned during call to "varargout".

2)       testbruss\_BP0, testbruss\_BP1, testbruss\_LP0, testbruss\_U0, testbruss\_U1 run normally

3)      testadapt runs normally, but does not create log file

4)      testFFL1\_6D\_SH runs normally with equilibriumL and with equilibriumL\_hom (the letter, which is (equilibriumL + some more things) is not updated yet)

it would be great if you could improve/finish what i started (and do additional things, we discussed, if you have any time left). You could also make suggestions of revisions to me –thanks!.

Best regards,

Mark.