Installation of GDL

The software package GNU Data Language (GDL) can be downloaded at the project's homepage (link), then follow the instructions for Win / Mac / Linux to install. In common Linux distibutions (Ubuntu, Debian, ...) one can use the package management, too:

```
sudo apt-get install gnudatalanguage
```

For the use in the Laboratory Courses the IDL Astro Library is also required. It can be downloaded at:

http://idlastro.gsfc.nasa.gov/homepage.html

In the next step the following directories

```
/home/betreuer/opt/gdl-astrolib/astron/
```

should be created. Afterwards the archive (*astron*) can be unpacked there. Furthermore, it is necessary to change the following lines of the file *readfits.pro* in the directory `pro`:

```
Line:              ndata = product(dims,/integer)
replace by:        ndata = dims[0]
```

Additionally create a file *fitsconvert.pro* with the following content:

```
function fitsconvert,image
if n_elements(image) eq 0 then begin
  print,'Usage: converted_image=fitsconvert,original_image'
  return,0
endif
erg=(long(image)+65536) mod 65536
return,erg
end
```

in the directory `/home/betreuer/opt/gdl-astrolib/`. Moreover, all routines that are additionally required for C7 and N2 (*correl_images.pro*, *newremove.pro*, *newsrcor.pro*, *la_cosmic.pro*, *mxaddpar.pro*, and *datatype.pro* which all can be found in the SVN) should be placed here. To use the AstroLib, create an additional start-up script that exports the paths of the libraries. This script can e.g. be saved as hidden file in the home directory (e.g. `$HOME/.gdl_startup`). If the directory `astron` and the file *fitsconvert.pro* are placed in `/home/praktikum/opt/gdl-astrolib`, the start-up script would look like:

```
!PATH=!PATH + ':/usr/bin/'
!PATH=!PATH + ':/home/betreuer/opt/gdl-astrolib/astron/pro'
!PATH=!PATH + ':/home/betreuer/opt/gdl-astrolib'
loadct,0, ncolor=255;
!P.BACKGROUND=255;
!P.COLOR=0;
!X.STYLE=1;
!Y.STYLE=1;
```

```
!Z.STYLE=1
print,'';
print, '*********************************************';
print, '** Personal settings are loaded and active **';
print, '*********************************************';
print,'';
```

The first line contains the link to the executable gdl file. The second/third line contains the path to the *.pro* files in the `astron` directory and the file *fitsconvert.pro* (adjust paths as needed).

If the start-up script is in the directory `/home/betreuer/`, prepare it for the usage in the Bash-Shell by adding the following line

```
export GDL_STARTUP=/home/betreuer/.gdl_startup
```

to the *.bashrc* script in the home directory (on a12 the last step needs to be repeated for the `/home/praktikum/` directory).

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