Part V

APPENDIX

Appendix A

Command Names

A.1 Shell commands

Table A.1: Command Names

Commands	Objects
Commands on photometric data	
ubv	UBV photoelectric data
pgh	UBV photographic data
ccd	UBV CCD data
sit	UBV data from video cameras (SIT)
cmd	UBV data from the file *ubv.cmd*
hrd	UBV data with individual dereddening
rgu	RGU photographic photometry
uvby	uvby measurements
uvbym	uvby mean values
egg	uvby data from Eggen
ccdy	uvby CCD data
beta	Hβ measurements
betam	Hβ mean values
gen	Catalogue of magnitudes in the Geneva system
mpg	Photographic and photovisual data
prm	Geneva parameters
ric	RI (Cousins) data
rie	RI (Eggen) data
rij	RI (Johnson) data
rik	RI (Kron) data
jhk	JHK measurements
ddo	DDO measurements
wal	Walraven measurements
cmt	Washington measurements
vil	Vilnius measurements

Commands	Objects
smi	Measurements in the system of Lindsey Smith
Commands on spectroscopic data	
mk	MK spectral types
mks	Selected MK types
spt	One dimensional spectral types (HD format)
vsn	projected rotational velocities Vsini
irv	Individual radial velocities
mrv	Mean radial velocities
gpo	Objective prism radial velocities
rfs	Radial velocities from Geyer et Nelles
orb	Orbital elements of spectroscopic binaries
Commands on identifications, positions and proper motions	
idm	Identifications BS, HD, DM, GCVS, ...
idm1	Identifications BS, HD, DM, NLS, LSS, GCVS
idm2	Identifications IDS, ADS, SAO, misc.
ids	Identifications of components in the IDS catalogue
tab	Cross-reference tables
coo	Full coordinates
pos	Rounded off coordinates
hpd	Positions (x,y) from the file *hipad.xy*
apm	Absolute proper motions
rpm	Relative proper motions
Miscellanous commands	
aud	Provide other types of data for a sample
prob	Membership probabilities
rem	Remarks
ref	References
bib	Bibliography (A.A.A)
bdp	Bibliography of Alter et al. and Ruprecht et al.
lyn	Lyngå's catalogue
gk	Red giants in cluster fields
multi	Multiple types of data
sysno	Give the adopted reference for each cluster
Selection of clusters	
slm	Display the number of available data per cluster for a given type of data
ocl	Select clusters according to their parameters: distance, reddening, age and position.

Commands	Objects
stcn	Display the total number of measurements and stars for a given type of data
Menus	
go	General menu for interrogating BDA
dsc	Choice of the descriptions of BDA
doc	Documentation on BDA
apl	Description of coded applications
dia	Description of graphical capabilities
ans	Description of open cluster analysis
anl	Description of data analysis
msj	Description of up-dating processes
ncm	Names and objects of commands
atp	Astrophysical study of clusters
ana	Analysis of the data
avr	Handling of radial velocities
cbr	Calibrations
sbs	Spectrocpic binaries
trc	Handling the coordinates
ttr	Cross-references
xy	Working with the x,y positions
maj	Update of the database
diaphot	Plot photometric diagram
testenv	Test the setting of BDA environment variables
Commands on compressed files	
scl	Display a scale and 10 lines of a file
zex	Cat a compressed file
zp	List a compressed file page after page
zhd	List the first 15 lines of a compressed file
ztl	List the last 15 lines of a compressed file
zpr	Print a compressed file with `lpr`
vz	Edit a compressed file with `vi`
wz	Count the number of lines of a compressed file
Help commands	
emploi	Describe the capabilities of commands
man	Display the command manual pages
mnl	Display the command manual pages (French)
doc	Display the menu of BDA descriptions
xhelp	Hypertext command description

Commands	Objects
dtype	Display the data type summary
ncm	Access to descriptions of the command names
option	Display the option description
nfile	Display the filename related to a datatype
fichier	Display the file content description
field	Display the field names of a datatype
form	Display the format of the datatype specified

Table A.2: Further commands

Name	Action
carte	Plot a cluster chart from (x,y) data
cmpv	Compare V magnitudes
cmpbv	Compare colour indices
compar	Compare UBV photometric data
dbms	prompt mode query program
diag	Plot photometric diagrams for UBV data
diagen	Plot photometric diagrams in the Geneva system
detail	Display the detailed file content
detref	Display the content and references
ecasy	Display the difference in the UBV data
extrf	Select data from the source reference
list	List a file
meas	Extract data for a list of stars
moyen	compute average for UBV data
nbmeas	Number of entries for a star
nbsrc	Number of data source per stars
olps	Keep one line per star
post	Prepare data for sending by E-mail
slct	Make a selection
total	Total number of measurements and stars
xhelp	Hypertext help with NCSA Mosaic
ximage	Display the scanned maps
xprimage	Print the scanned maps

A.2 Program names

Table A.3: Program names

Name	Action
Fortran programs	
ana_ddo	calibration in the DDO system
astrom	transformation from (x,y) in " of arc to RA Dec
beta_eca	comparaison of Hβ indices
bibg	bibliographic search
cbr_uvby	calibration for uvby
ccd_eca	comparaison of CCD data, a link to ubv_eca
chgtno	change of numbering system
cintf	compute integrated colours and magnitudes
cogxy	transformation from (x,y) in arbitrary units to RA Dec
cordn1	transformation from the type coo to pos
corresp	search for cross-identifications
decon_bv	perform a photometric deconvolution of a binary
degrah	transformation from RA in degrees to RA in hours
dered	code to deredden UBV colours
efem	ephemeris for spectroscopic binaries
gould	transformation from (x,y) in minute of time and degrees
hyad	compute the distance of Hyades stars from proper motions
lucke	determine an orbit for a spectroscopic binary
magV_eca	comparaison of V magnitudes
moy_ubv	compute mean values for UBV data
moy_vr	compute mean radial velocites
prepost	compute precession (B system)
prepxy	prepare the (x,y) file for plotting cluster chart
retab	use of cross-reference tables
rgl	compute regressions
rgu_ubv	transform RGU into UBV
sref	interactive query of the references
sysxy	transformation of a (x,y) system into another one
ubv_eca	comparaison of two sources of UBV data
ubv_moy	compute mean values for UBV data
wal-john	compute Johnson's V and B-V from Walraven V and V-B
xystd	compute (x,y) from RA and Dec
C programs	
ajzero	format coordinates
b2v1_bvj	transform B2-V1 into B-V Johnson
cinte	compute integrated colours
diaphot	menu (with curses) for photometric diagrams

Name	Action
fparam	compute Geneva parameters
maj	menu (with curses) for updating the database
notab	preparation of a new cross-reference table
param	compute Geneva parameters
sysexp	expert system for membership determination
test_env	program to test the settings of environment variables
C programs using SM libraries	
diag	plot diagrams in the UBV system
diagen	plot diagrams in the Geneva system
Histo	make histrograms
plt_eca.ubv	plot the results of UBV data comparaisons
splt_irv	plot the spectroscopic binary orbits
User interface	
xbda	user interface

Appendix B

Option Names

Table B.1: Option Description

Option	Meaning	Action
Data query		
-m stars	multiple	: several star numbers at the same time
-r star	reference	: give the reference as well as the data
-q id	quelconque	: query with any identification
-a star	average	: compute also the average value (ubv)
-u ref star	uniq	: select "star" in the reference "ref"
Forming samples		
-gt lim	greater than	: stars with parameter $>$ lim
-lt lim	less than	: stars with parameter $<$ lim
-i lim1 lim2	interval	: stars with lim1 $<$ parameter $<$ lim2
-eq ref	equal to	: data from the reference "ref"
-ne ref	non equal	: data not belonging to "ref"
-k string		: stars corresponding to "string"
Information on files		
-d [lim]	detail	: count the number of stars per reference
-dr [lim]	detail/ref	: same as above, but adds the list of ref.
-nb [lim]	number	: number of measures per star [$\geq$ lim]
-t	total	: count the number of measures and stars
Help		
-h	help	: display the usage description

Option	Meaning	Action
Applications		
-c [type]	comparaison	: run the comparaison program
-dn [lim]	detail night	: give the number of stars per night
-v star	voir	: select the measures and plots them
-bin star	binary	: start the code for orbit computing
-bin2 star	binary	: start the code for orbit computing
-sb1 star	SB1	: plot the orbit of a SB1 binary
-sb2 star	SB2	: plot the orbit of a SB1 binary
-sort param	sort	: sort the output according to "param"
Results		
-y		: display the results of the analysis
-histo	histo	: plot a histogram of BDA content
-info	information	: technical information
Use of the files		
-f filename	file	: use the file given
-s	sortie	: use the file sortie.out
-l	liste	: use the file liste.noet

Appendix C

Data types

Table C.1: Data types

Type	Data
apm	: absolute proper motion
beta	: measurements in the Hβ system
betam	: mean Hβ data
ccd	: CCD measurements in the UBV system
ccdric	: CCD measurements in Cousins's RI system
ccdy	: measurements CCD in the uvby system
cmd	: mean values UBV for plotting the HR diagram
cmt	: measurements in the system of Washington
coo	: coordinates (1950) from astrometric sources
ddo	: meaurements in the DDO system
egg	: measurements uvby in Eggen's modified system
gen	: mean values from the Geneva catalogue
gk	: list of red giants in the cluster field
gpo	: objective prism radial velocities (GPO)
hpd	: rectangular x,y positions
idm1	: identifications (IDAM), first part
idm2	: identifications (IDAM), second part
ids	: identifications of double star components (IDS)
irv	: individual radial velocities
jhk	: measurements in the JHK photometric system
mk	: MK spectral types
mks	: selected MK types
mpg	: measurements in the m_{pv}, m_{pg} system
mrv	: mean radial velocities from the literature
orb	: orbital elements of spectroscopic binaries
pgh	: measurements UBV photographic
pghm	: mean values UBV photographic
pos	: rounded off coordinates (1950)
prm	: Geneva parameters

Type	Data
prob	: membership probabilities (proper motion)
probr	: membership probabilities (radial velocity)
rem	: remarks
rgu	: measurements in the RGU photographic system
ric	: measurements in Cousins's RI system
rie	: measurements by Eggen in Kron's RI system
rij	: measurements in Johnson's RI system
rik	: measurements in Kron's RI system
rpm	: relative proper motion
sit	: measurements UBV from video (SIT) cameras
spt	: unidimensional spectral types (HD format)
tref	: references for cross-reference tables
tab	: cross-reference tables
ubv	: measurements UBV photoelectric
ubvm	: mean value UBV photoelectric
uvby	: measurements uvby
uvbym	: mean uvby values
vic	: VI measurements in Cousins's system
vie	: VI measurements in Kron's system
vil	: measurements in the Vilnius system
vsn	: projected rotational velocities
wal	: measurements in the Walraven system

Appendix D

Files Names

Table D.1: Data file names and content

Name	Content
adel.and	: coordinates (1950) from Andersen and Reiz
adel.coo	: coordinates (1950) from astrometric sources
adel.pos	: rounded off coordinates (1950)
baas.dat	: information on ongoing work
beta.mes	: measurements in the Hβ system
beta.moy	: mean Hβ data
bdp.cat	: Budapest bibliography
cmt.mes	: measurements in the system of Washington
ddo.mes	: meaurements in the DDO system
elem.orb	: orbital elements of spectroscopic binaries
gen.cat	: mean values from the Geneva catalogue
gen.prm	: Geneva parameters
gK	: list of red giants in the cluster field
hipad.xy	: rectangular x,y positions
idam.id1	: identifications (IDAM), first part
idam.id2	: identifications (IDAM), second part
idam.ids	: identifications of double star components (IDS)
jhk.mes	: measurements in the JHK photometric system
lyn.dat	: information from Lyngå's 5th catalogue
mem.fin	: membership estimates according to mu,vr,phot
mkk.don	: MK spectral types
mkk.sel	: selected MK types
mpg.mes	: measurements in the m_{pv}, m_{pg} system
prob.mu	: membership probabilities (proper motion)
prob.vr	: membership probabilities (radial velocity)
rem.txt	: remarks
pm.abs	: absolute proper motions
pm.rel	: relative proper motions
ric.ccd	: CCD measurements in Cousins's RI system
ric.mes	: measurements in Cousins's RI system

Name	Content
rie.mes	: measurements by Eggen in Kron's RI system
rij.mes	: measurements in Johnson's RI system
rik.mes	: measurements in Kron's RI system
rgu.mes	: measurements in the RGU photographic system
spt.don	: unidimensional spectral types (HD format)
trans.ref	: references for cross-reference tables
trans.tab	: cross-reference tables
ubv.ccd	: CCD measurements in the UBV system
ubv.cmd	: mean values UBV for plotting the HR diagram
ubv.eca	: differences between two sources of UBV data
ubv.sit	: measurements UBV from video (SIT) cameras
ubv.peg	: merge of the corrected pe and pg UBV data
ubv.peo	: measurements UBV photoelectric
ubv.pem	: mean value UBV photoelectric
ubv.pgo	: measurements UBV photographic
ubv.pgm	: mean values UBV photographic
uvby.ccd	: measurements CCD in the uvby system
uvby.egg	: measurements uvby in Eggen's modified system
uvby.mes	: measurements uvby
uvby.moy	: mean uvby values
vic.mes	: VI measurements in Cousins's system
vie.mes	: VI measurements in Kron's system
vil.mes	: measurements in the Vilnius system
vrad.gpo	: objective prism radial velocities (GPO)
vrad.irv	: individual radial velocities
vrad.mrv	: mean radial velocities from the literature
vsini.don	: projected rotational velocities
vsini.moy	: mean or selected rotational velocities
wal.mes	: measurements in the Walraven system

Appendix E

Data file fields

Table E.1: Data file fields

Datatype	Filename	Fields
apm	pm.abs	no ref mux muy ex ey
beta	beta.mes	no ref hb
betam	beta.moy	no ns hb
ccd	ubv.ccd	no ref v b-v u-b
ccdric	ric.ccd	no ref v v-r r-i
ccdy	uvby.ccd	no ref v b-y m1 c1
cmd	ubv.cmd	no ns v b-v u-b
cmt	cmt.mes	no ref t1 c-m t1-t2 m-t2
coo	adel.coo	no ref ah am as dd dm ds
ddo	ddo.mes	no ref c4548 c4245 c4142
egg	uvby.egg	no ref v b-y M1 C1 nm
gen	gen.cat	no q sv v p sc u v b1 b2 v1 g
gk	gK	no p M V P vr ph cl v b-v ts
hpd	hipad.xy	no v x y
hrd	ubv.hrd	no ref v b-v u-b ebv
irv	vrad.irv	no ref jd cp rv nl me disp tech
idm1	idam.id1	no bs hd dm nls lss gcvs
idm2	idam.id2	no ids ads sao misc
ids	idam.ids	no ids ads mult theta sep ma mb
jhk	jhk.mes	no ref k j-k h-k
mk	mkk.don	no ref ts cl
mks	mkk.sel	no ref ts cl
mrv	vrad.mrv	no ref rv sig
ocl	ocl.dat	cat no ah am dd dm l b d m-M ebv t ts z D
orb	elem.orb	no ref p t0 e omg v0 k1 k2 omc
pgh	ubv.pgo	no ref v b-v u-b
pghm	ubv.pgm	no ns v b-v u-b
pos	adel.pos	no ref ah am as dd dm
prob	prob.mu	no ref p
prm	gen.prm	no v u-b b-v u-b1 b2-v1 d delta m2 g

Datatype	Filename	Fields
rem	rem.txt	no text
rgu	rgu.mes	no ref g u-g g-r
ric	ric.mes	no ref v v-r r-i nm
rie	rie.mes	no ref v v-r r-i nm
rij	rij.mes	no ref v v-r r-i nm
rik	rik.mes	no ref v v-r r-i nm
rpm	pm.rel	no ref mux muy ex ey
smi	smi.mes	no ref v b-v u-b nm
spt	spt.don	no ref ts
ubv	ubv.peo	no ref v b-v u-b nm
ubvm	ubv.pem	no ns v b-v u-b
uvby	uvby.mes	no ref v b-y m1 c1 nm
uvbym	uvby.moy	no ns v b-y m1 c1
vic	vic.mes	no ref v v-i
vik	vik.mes	no ref v v-i
vil	vil.mes	no ref v u-p p-x x-y y-z z-v v-s
vsn	vsini.don	no ref vsn
wal	wal.mes	no ref vj v v-b b-u u-w b-l

Appendix F

SM macro names

Table F.1: SM macro names

Name	Object
carte 2	plot a (x,y) map
chk 1	check the cross-identifications
diag	plot for a user defined file
hsg	plot a histogram from a user defined file
plt_Dddo 2	plot the DDO C(45-48) vs C(42-45) diagram
plt_eca.BV 3	plot the colour-index comparaisons
plt_eca.magV 1	plot the differences on V magnitudes
plt_nrv 3	plot the diagram Vrad vs JDs
plt_uvby 2	plot the β vs c_o diagram
plt_vrv 3	plot the diagram Vrad vs time for one JD
sundim 4	define the plot dimension in [cm]
ttr	check the cross-identifications
vvv 1	comparaison of V magnitudes

Appendix G

Cluster names

Table G.1: SM macro names

Name	Acronym	Name	Acronym
Basel	bas	Berkeley	be
Biurakan	biu	Collinder	cr
Blanco	bl	Melotte	mel
Bochum	bo	Ruprecht	rup
Czernik	cz	Bergh-Hagen	vdbh
Dolidze	do		
Feinstein	fei		
Haffner	haf		
Harvard	ha		
Havlen-Moffat	hm		
Hogg	ho		
King	ki		
Lynga	Ly		
Markarian	ma		
Pismis	pis		
Roslund	ros		
Sher	sh		
Stephenson	ste		
Stock	st		
Tombaugh	to		
Trumpler	tr		
Turner	tu		
Upgren	up		
van den Bergh	vdb		
Waterloo	wat		
Westerlund	wes		

Appendix H

Alias

Table H.1: Useful aliases

Alias	Action
alias hyades	cd $BDA/anon/mel025
alias pleiades	cd $BDA/anon/mel022
alias coma	cd $BDA/anon/mel111
alias alpha	cd $BDA/anon/mel020
alias orion	cd $BDA/ngc/1976
alias praesepe	cd $BDA/ngc/2632
alias m44	cd $BDA/ngc/2632
alias m67	cd $BDA/ngc/2682
alias m11	cd $BDA/ngc/6705

Appendix I

Catalogues

I.1 The Catalogue of Red Giant in open clusters

The catalogue of red giants in the field of open clusters collects the red stars candidates for cluster membership from photometric studies. It results from the work made to prepare the systematic observations undertaken with the Coravel scanners. Each file, called *gK* is located in the clusetr directory and summarizes the available data for each star. The information has been coded and the keys to the codes is described below. Further information is provided by the hypertext description. (`xhelp gk`).

Each record of the files *gK* gives:

- the star identification,
- the membership probability from proper motion
- the estimated membership from proper motion (M), radial velocity (V) and photometry (P).
- the code for photometric system in which the stars have been observed:
  1. UBV photoelectric
  2. UBV photographic
  3. Geneva system
  4. DDO system
  5. Washington system
  6. RI
  7. Eggen's uvby
  8. UBViyz
  9. Wing's system
- a classification type from the evolutionary state:

  - A: asymptotic
  - B: branch (ascending)
  - C: clump
  - S: supergiant
  - F: field (non-member)
  - D: composite (double)
  - B: binary (SB)

- the V magnitude (pe or pg, acoording to the UBV code)
- the B-V index
- the spectral type