

# Burroughs

# APL / 700

## system commands

*session control*  
 )ON acct [password]\*  
 )OFF [key/lock]\*  
 )COFF [key/lock]\*  
  
*obfuscation*  
 )BLOT  
  
*terminal control*  
 )WIDTH 30-256\*  
 )TABS 0-99\*  
  
*clear-workspace control*  
 )CLEAR 16-1024\*  
 )ORIGIN 0/1\*  
 )FUZZ 0-1\*  
 )SEED 0-n\*  
 )SYMS 16-1024\*  
  
*run state*  
 )SI  
 )RESET  
  
*group control*  
 )ATTACH groupname nameset\*  
 )DETACH groupname nameset\*  
 )GRP groupname  
  
*name display*  
 )FNS name\*  
 )VARS name\*  
 )GRPS name\*  
 )WSID name\*  
  
*library control*  
 )LOAD workspace-i.d.  
 )SAVE workspace-i.d.\*  
 )COPY workspace-i.d. nameset\*  
 )PCOPY workspace-i.d. nameset\*  
 )DROP workspace-i.d.  
 )LIB  
 )FILES  
  
 workspace-i.d.  
 (account)\* workspace-name [password]\*

\* optional field

## transaction editing

*meaning of attention action*  
 initial: enter edit cycle  
 imbedded: correct typing mistake  
 terminal: terminate phrase entry

### edit control characters

/ delete  
 . insert

## specification function

## arithmetic primitive functions

A+B add  
 A-B subtract  
 A×B multiply  
 A÷B divide  
 +B identity  
 -B negate  
 ×B signum  
 ÷B reciprocate  
  
 A\*B power  
 A⊙B logarithm  
 \*B exponential  
 ⊙B natural logarithm  
  
 A⌈B maximum  
 A⌊B minimum  
 ⌈B ceiling  
 ⌊B floor  
  
 A|B residue  
 |B magnitude  
  
 A!B combinatorial  
 !B factorial  
  
 A⊙B circular  
 ⊙B pi  
  
 ~B not  
 A^B and  
 A∨B or  
 A\*B nand  
 A∨B nor  
  
 A<B less  
 A>B greater  
 A≤B less / equal  
 A≥B greater / equal  
 A=B equal  
 A≠B unequal

## arithmetic operators

*reduction*  
 f/B last dimension  
 f↑B first dimension  
 f/[K]B k-th from first dimension  
 f↑[K]B k-th from last dimension  
  
*scan*  
 f\B last dimension  
 f↖B first dimension  
 f\[K]B k-th from first dimension  
 f↖[K]B k-th from last dimension

Af.gB inner product

A°.gB outer product

Af+B modification

## structure primitive functions

ρB shape  
 AρB reshape  
 ,B ravel  
  
 A,B catenate / laminate  
 A,[K]B last dimension  
 k-th from first dimension  
  
 reverse  
 ϕB last dimension  
 ⊙B first dimension  
 ϕ[K]B k-th from first dimension  
 ⊙[K]B k-th from last dimension  
  
 rotate  
 AϕB last dimension  
 A⊙B first dimension  
 Aϕ[K]B k-th from first dimension  
 A⊙[K]B k-th from last dimension  
  
 ⊙B transpose dimensions  
 A⊙B permute dimensions  
  
 compress  
 A/B last dimension  
 A↑B first dimension  
 A/[K]B k-th from first dimension  
 A↑[K]B k-th from last dimension  
  
 expand  
 A\B last dimension  
 A↖B first dimension  
 A\[K]B k-th from first dimension  
 A↖[K]B k-th from last dimension  
  
 A+B take  
 A+B drop

## transformation primitive functions

A|B base value  
 A|B representation  
 ▼L implicit format  
 F▼L explicit format  
 ⍎C execute

## set primitive functions

A∈B membership  
 A∪B union  
 A∩B intersection  
 A~B exclusion  
 A⊂B subset  
 A⊃B superset

file primitive procedures

F create  
F destroy  
  
F open  
F close  
  
[K]F select k-th component  
[K]F insert k-th component  
[K]F nullify k-th component  
  
F first-out  
F first-in  
F last-out  
F last-in  
  
F value component map  
F empty component map  
  
F take  
F drop  
F reverse  
F rotate  
F compress  
F expand  
  
F hold  
F release  
  
F existence  
F file query  
B system query  
  
F use access matrix  
F set access matrix

shared variable functions

A SVO V shared variable offer  
SVO V degree of coupling  
 B SVC V shared variable control  
SVC V control vector  
SVR V shared variable retract  
SVQ V shared variable query

mixed primitive functions

B integers  
 AB index  
  
B matrix inverse  
 AB matrix divide  
  
B grade-up  
B grade-down  
  
B roll  
 AB deal

system functions

name  
 A NL N name list \*  
NC C name classification  
EX C expunge  
  
 diagnostic  
 I ST F set trace \*  
 I SS F set stop \*  
 I SM F set monitor \*  
 I RT F reset trace \*  
 I RS F reset stop \*  
 I RM F reset monitor \*  
QT F query trace  
QS F query stop  
QM F query monitor  
  
 execution control  
DL N delay  
ED C edit  
 B ED C phrase edit  
ER C error  
  
 status inquiry  
PT print tabs  
PW print width  
WI workspace identification  
AN account name  
AI account information  
LC line counter  
TS time stamp  
UL user load  
WA working availability  
NA name availability  
LA library availability  
FA file availability

character set

AV atomic vector  
B backspace  
L line-feed  
R return  
T tab  
N null  
A alphabet  
D digits

\* dyadic - selective  
 monadic - inclusive

system variables

IO index origin  
CT comparison tolerance  
RL random link  
PP print precision  
 evaluated i/o  
 prompted i/o

function editing

H define  
  
F open  
F open (locked)  
V close  
V close (locked)  
  
[A]T replace  
[+]T append (before)  
[+]T append (after)  
[+A]T insert (before)  
[+A]T insert (after)  
  
[εA] full edit  
[αA] prefix edit  
[ωA] suffix edit  
[ιA] immediate edit  
  
 ~ delete\*  
  
 display lines\*  
 display text\*  
 display controls\*  
? display addresses\*  
  
T set trace\*  
⊥ reset trace\*  
  
[ set stop\*  
L reset stop\*  
  
n set monitor\*  
u reset monitor\*  
  
 \* unqualified (all lines)  
[O] 0 thru N  
[AO] A thru N  
[OB] B only  
[AOB] A thru B  
  
 qualified (lines with X)  
[(OX)] 0 thru N  
[A(OX)] A thru N  
[(OX)B] B only  
[A(OX)B] A thru B

control structures

defined function reference  
f niladic  
f B monadic  
A f B dyadic  
  
 sequence of execution  
→N transfer  
+ terminate  
  
V[ ] name qualification  
 ( ) function precedence  
 ; list separation