

APL/700 REFERENCE CARD

The syntactic summary contained on this card is based upon the B 6700/B 7700 APL/700 USER REFERENCE MANUAL, Form No. 5000813.

system commands

- session control
 -)ON acct [password]*
 -)OFF [oldp'word/newp'word]*
 -)COFF [oldp'word/newp'word]*
 -)BLOT
- terminal control
 -)WIDTH 30 thru 32767*
 -)TABS 0 thru 30*
- clear-workspace control
 -)CLEAR 16 thru 1024*
 -)SYMS 16 thru 1024*
 -)ORIGIN 0 or 1*
 -)DIGITS 1 thru 12*
 -)SEED 0 to n*
 -)FUZZ 0 to 1*
- library control
 -)FILES
 -)LIB
 -)LOAD wsid
 -)COPY wsid nameset*
 -)PCOPY wsid nameset*
 -)SAVE wsid*
 -)DROP own-wsid
 -)WSID name*
- group control
 -)ATTACH groupname nameset*
 -)DETACH groupname nameset*
 -)GRP groupname
- run state
 -)SI
 -)RESET
- name display
 -)FNS name*
 -)VARS name*
 -)GRPS name*
 -)ERASE nameset

wsid is (account)* name [password]*

* optional field

system functions

- function representations
 - CR F canonic represent
 - VR F vector represent
 - FX C fix
- 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 *
 - I MV F monitor values *
 - 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
- character set
 - B backspace
 - LZ linefeed
 - R return
 - T tab
 - N null
 - A alphabet
 - D digits
 - AV atomic vector
- status inquiry
 - PT print tabs
 - PW print width
 - WI workspace-i.d.
 - AN account name
 - AI account information
 - LC^c line counter
 - TS time stamp
 - UL user load
 - WA working availability
 - NA name availability
 - LA library availability
 - FA file availability
 - SA shares availability
 - NEWS sign-on news

* dyadic - selective
monadic - inclusive

system variables

- CT comparison tolerance
- IO index origin
- PP print precision
- RL random link
- + evaluated in, out
- + prompted in, set prompt

shared variable functions

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

control structures

template for defined function n
no result result

- n R + n niladic
- n B R + n B monadic
- A n B R + A n B dyadic

header

- template
- template local-names-list

call defined function n

- n niladic
- n B monadic
- A n B dyadic

sequence of execution

- + I branch
- + terminate
- L: label

() function precedence

; list separator

^ comment

constants

- 'don't' character
- ~1 1.2 3.4E-7 numeric

identifiers

letter, underscored letter, Δ or Δ,
followed by 0 or more of above, _
or digits.

transaction editing

- meaning of attention
- initial: enter edit cycle
- embedded: correct typing error
- terminal: display next phrase

- edit control characters
- / delete
- . mark phrase

function editing actions

- VH define
- VF open
- VF open (locked)
- V close
- VF close (locked)

- [A]T replace
- [+]T append (before)
- [+T]T append (after)
- [+A]T insert (before)
- [+AT]T insert (after)

- [eA] full edit
- [aA] prefix edit
- [wA] suffix edit
- [iA] inject edit

multiline group actions o

- T set trace*
- I reset trace*
- [set stop*
- L reset stop*
- n set monitor*
- U reset monitor*

- display lines*
- ? display addresses*

~ delete*

* unqualified (all lines)

- [o] 0 thru Y
- [AO] A thru Y
- [oB] B only
- [AOB] A thru B

qualified (lines with N)

- [(ON)] 0 thru Y
- [A(ON)] A thru Y
- [(ON)B] B only
- [A(ON)B] A thru B

selection and assignment

A[S] select
 A + B replace
 A[S]+B insert
 A f+ B modify*
 A[S] f+ B modified insert*

* f is scalar dyadic primitive function

scalar primitive functions

[B floor
 [B ceiling
 A[B minimum
 A[B maximum
 +B identity
 -B negate
 xB signum
 +B reciprocate
 |B magnitude
 A+B add
 A-B subtract
 AxB multiply
 A/B divide
 A|B residue
 *B base e power
 ●B base e logarithm
 A*B power
 A●B logarithm
 A<B less
 A≤B not greater
 A=B equal
 A≥B not less
 A>B greater
 A≠B unequal
 ~B not
 A^B and
 A∨B or
 A*B nand
 A*B nor

OB pi times
 AOB circular
 !B factorial
 A!B combinatorial

mixed primitive functions - structure

ρB shape
 AρB reshape
 ιB integers
 AιB index in
 ,B ravel
 A,B catenate / laminate
 A,[K]B last dimension
 A,[K]B Kth from first dim'n
 A,[D]B between dim'ns [D, [D
 reverse
 ϕB last dimension
 ϕB first dimension
 ϕ[K]B Kth from first dim'n
 ϕ[K]B Kth from last dim'n
 AϕB rotate last dimension
 AϕB rotate first dimension
 Aϕ[K]B rotate Kth from first dim'n
 Aϕ[K]B rotate Kth from last dim'n
 ϕB transpose dimensions
 AϕB permute dimensions
 compress
 A/B last dimension
 A#B first dimension
 A/[K]B Kth from first dim'n
 A#[K]B Kth from last dim'n
 expand
 A\B last dimension
 A\B first dimension
 A\[K]B Kth from first dim'n
 A\[K]B Kth from last dim'n
 A+B take
 A+B drop

mixed primitive functions - sets

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

mixed primitive functions - other

▲B grade up
 ▼B grade down
 ?B roll
 A?B deal
 AιB base value
 AιB represent
 ϕB matrix inverse
 AϕB matrix divide
 εB evaluate

format primitive functions

▼A implicit format
 V▼A numeric format
 V in pairs w d
 w width
 d decimal places
 <0 floating point
 =0 integer
 >0 fixed point
 F▼L character format
 L expression or (list)
 F format: s or s;...;s
 s segment: g or g,...,g
 g group: c or r(c)
 r replicator
 c clause: p or p,...,p
 p phrase: one of
 m j A w character
 m j E w.d floating point
 m l q F w.d r fixed point
 m l q I w r integer
 X w skip forward
 T n tab to n-th column
 <text> actual text
 m phrase replicator*
 w field width
 d decimal places
 l r left, right decorators:*
 -O+<text> sign selector(s)*
 j justifier: L*
 <text> background
 q qualifiers:
 L left justify in field*
 B skip if zero*
 C insert commas*
 Z insert leading zeros*

primitive operators

A .g B outer product*
 reduction
 f/B last dimension
 f#B first dimension
 f/[K]B k-th from first dim'n
 f#[K]B k-th from last dim'n
 scan
 f\B last dimension
 f^B first dimension
 f\[K]B k-th from first dim'n
 f^[K]B k-th from last dim'n

A f.g B inner product*
 * f, g are scalar dyadic primitive fns

file functions

⊠F create file
 N⊠F rename file
 ⊠F destroy file
 ⊠[K]F null Kth component
 A⊠[K]F write Kth component
 ⊠[K]F read Kth component
 ⊠F first-out component
 ⊠F last-out component
 A⊠F first-in component
 A⊠F last-in component
 ⊠F reverse components
 I⊠F rotate components
 I⊠F take components
 I⊠F drop components
 B⊠F compress components
 B⊠F expand components
 ⊠F hold file
 ⊠F free file
 ⊠F release file
 ⊠F value component map
 ⊠F null component map
 ⊠I interrogate system
 ⊠F test file status
 I⊠F query file

* optional field