CLEARSY
SYSTEM ENGINEERING

B Langage Keywords and Operators version 1.8.6

ASCII	Math.	Pri.	As.	Description
!	∀	250		For any
"				String or definition file
#	∃	250		There exists
$0				Value of data before substitution
%	λ	250		Lambda expression
&	∧	40	G	Conjunction (logical AND)
'		250	G	Access to a record field
(				Open bracket
)				Close bracket
*	×	190	G	Multiplication or Cartesian product
x ** y	x^y	200	D	Power of
+		180	G	Addition
+->	⇸	125	G	Partial function
+->>	⤔	125	G	Partial surjection
,		115	G	Comma
-		180	G	Subtraction
-		210		Unary minus
-->	→	125	G	Total function
-->>	↠	125	G	Surjection
->	→	130	G	Insert at the start of a sequence
.		220	D	Renaming or data separator used in the operators ∀, ∃, ∪, ∩, Σ, Π, λ
..		170	G	Interval
/		190	G	Integer division
/:	∉	60	G	Non-belonging
/<:	⊄	60	G	Non-inclusion
/<<:	⊄	60	G	Strict non-inclusion
/=	≠	50	G	Not equal
/\	∩	140	G	Intersection
/|	↑	150	G	Restriction of a sequence to the head
:	∈	60	G	Belonging
:		80	G	Record field
::	:∈		G	Becomes part of (belonging)
:=			G	Becomes equal to
;		80	G	Sequencing for substitution or composition of relations

ASCII	Math.	Pri.	As.	Description
<		50	G	Strictly less than
<+	⩤	90	G	Overload a relation
<->	↔	125	G	Set of relations
<-	←	130	G	Insert at end of sequence
<--	⟵		G	Operation output parameters
<:	⊆	60	G	Inclusion
<<:	⊂	60	G	Strict inclusion
<<|	⩤	130	G	Substraction to the domain
<=	≤	50	G	Less than or equal
<=>	⇔	30	G	Equivalence
<|	◁	130	G	Restriction to the domain
=		50	G	Equals
==				Definition
=>	⇒	30	G	Implies
>		50	G	Strictly greater than
>+>	⤔	125	G	Partial injection
>->	↣	125	G	Total injection
>->>	⤖	125	G	Total bijection
><	⊗	100	G	Direct product of relations
>=	≥	50	G	Greater than or equal
ABSTRACT_CONSTANTS				ABSTRACT_CONSTANTS clause
ABSTRACT_VARIABLES				ABSTRACT_VARIABLES clause
ANY				ANY substitution
ASSERT				ASSERT substitution
ASSERTIONS				ASSERTIONS clause
BE				LET substitution
BEGIN				BEGIN substitution
BOOL				Conversion of a predicate into a Boolean value
CASE				CASE substitution
CHOICE				CHOICE substitution
CONCRETE_CONSTANTS				CONCRETE_CONSTANTS clause
CONCRETE_VARIABLES				CONCRETE_VARIABLES clause
CONSTANTS				CONSTANTS clause
CONSTRAINTS				CONSTRAINTS clause

ASCII	Math.	Pri.	As.	Description
DEFINITIONS				DEFINITIONS clause
DO				WHILE substitution
EITHER				CASE substitution
ELSE				IF or CASE substitution
ELSIF				IF substitution
END				Terminator of clauses or of substitutions BEGIN, PRE, ASSERT, CHOICE, IF, SELECT, ANY, LET, VAR, CASE and WHILE
EXTENDS				clause EXTENDS
FALSE				Literal Boolean constant “false”
FIN	$\mathbb{F}$			Set of finite sub-sets
FIN1	$\mathbb{F}_1$			Set of finite non empty sub-sets
IF				Substitution IF
IMPLEMENTATION				IMPLEMENTATION clause
IMPORTS				IMPORTS clause
IN				BE or VAR substitution
INCLUDES				INCLUDES clause
INITIALISATION				INITIALISATION clause
INT				Set of implementable relative integers
INTEGER	$\mathbb{Z}$			Set of relative integers
INTER	∩			Quantified intersection
INVARIANT				INVARIANT clause or WHILE substitution
LET				LET substitution
LOCAL_OPERATIONS				LOCAL_OPERATIONS clause
MACHINE				MACHINE clause
MAXINT				Largest implementable integer
MININT				Smallest implementable integer
NAT				Set of implementable natural integers
NAT1	NAT_1			Set of non-empty implementable natural integers
NATURAL	$\mathbb{N}$			Set of natural integers
NATURAL1	$\mathbb{N}_1$			Set of non-empty natural integers
OF				CASE substitution
OPERATIONS				OPERATIONS clause

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ASCII	Math.	Pri.	As.	Description
OR				CHOICE or CASE substitution
PI	Π			Quantified integer product
POW	$\mathbb{P}$			Set of sub-sets
POW1	$\mathbb{P}_1$			Set of non-empty sub-sets
PRE				Precondition substitution
PROMOTES				PROMOTES clause
PROPERTIES				PROPERTIES clause
REFINES				REFINES clause
REFINEMENT				REFINEMENT clause
SEES				SEES clause
SELECT				SELECT clause
SETS				SETS clause
SIGMA	Σ			Quantified product
STRING				Set of character strings
THEN				Precondition substitution, ASSERT, IF or CASE
TRUE				Literal Boolean constant “true”
UNION	$\bigcup$			Quantified union
USES				USES clause
VALUES				VALUES clause
VAR				VAR substitution
VARIANT				WHILE substitution
VARIABLES				VARIABLES clause
WHEN				SELECT substitution
WHERE				ANY substitution
WHILE				WHILE substitution
[				Start of sequence
[]				Empty sequence
\/	$\cup$	140	G	Union
|/	$\downarrow$	150	G	Restrict a sequence to the end
]				End of sequence
^	$\frown$	110	G	Concatenate sequences
arity				Tree node arity
bin				Binary tree in extension
bool				Predicate boolean cast
btree				Binary trees

ASCII	Math.	Pri.	As.	Description
card				Cardinal
closure(R)	R^*			Reflexive closure of a relation
closure1(R)	R^+			Closure of a relation
conc				Concatenation of a succession
const				Tree constructor
dom				Domain of a function
father				Father of a tree node
first				First element in a sequence
fnc				Transformed into a function
front				Front of a sequence
id				Function identity
infix				Infix formulae of a tree
inter				General intersection
iseq				Set of injective sequences
iseq1	iseq_1			Set of injective non-empty sequences
iterate(R, n)	R^n			Iteration of a relation
last				Last element in a sequence
left				Left tree
max				Maximum in a set of integers
min				Minimum in a set of integers
mirror				Mirror of a tree
mod		190	G	Modulo
not	$\neg$			Logical no
or	$\vee$	40	G	Disjunction (logical OR)
perm				Set of permutations (bijective sequences)
postfix				Postfix formulae of a tree
pred				Predecessor of an integer
prefix				Prefix formulae of a tree
prj1	prj_1			First projection of a relation
prj2	prj_2			Second projection of a relation
ran				Range of a relation
rank				Rank of a tree node
rec				Record in extension
rel				Set of relations

ASCII	Math.	Pri.	As.	Description
rev				Reverse of a sequence
right				Right tree
seq				Set of sequences
seq1				Set of non-empty sequences
size				Size of a sequence
sizet				Size of a tree
skip				Null substitution
son				i^{th} son of a tree
sons				Sons of a tree node
struct				Set of records
subtree				Subtree of a tree
succ				Successor
tail				Tail of a sequence
top				Top of a tree
tree				Trees
union				Generalized union
{				Start of set
{}	$\emptyset$			Empty set
|		10	G	Vertical bar used in $\forall$, $\exists$, $\cup$, $\cap$, Σ, Π, λ
|->	α	160	G	Maplet
|>	$\rhd$	130	G	Restriction to the range
|>>	$\Rightarrow$	130	G	Substraction to the range
||		100	G	Simultaneous substitutions parallel product of relations
}				End of set
r~	r^{-1}	230	G	Reverse relation