

Z Paragraphs, Declarations		
L ^A T _E X input	Output	Meaning
[X]	[X]	given set
\begin{axdef}		
D	$\frac{D}{\quad}$	axiomatic box
\where	$\frac{P}{\quad}$	
\end{axdef}		
\begin{schema}{S}		
D	$\frac{S}{\frac{D}{\quad}}$	schema box
\where	$\frac{P}{\quad}$	
\end{schema}		
\begin{gendef}[X]		
D	$\frac{[X]}{\frac{D}{\quad}}$	generic box
\where	$\frac{P}{\quad}$	
\end{gendef}		
S \defs T	$S \hat{=} T$	horizontal schema definition
X == e	$X == e$	abbreviation definition
T ::=	$T ::=$	free type definition
A	$A $	
B\data E\rdata	$B\langle\langle E \rangle\rangle$	

Expressions		
L ^A T _E X input	Output	Meaning
(a, b)	(a, b)	tuple
\{a, b\}	$\{a, b\}$	set display
\power X	$\mathbb{P} X$	power set
X \cross Y	$X \times Y$	cross product
\{~D P @ E~\}	$\{ D \mid P \bullet$ $E \}$	set comprehension
(\lambda ST @ E)	$(\lambda ST \bullet$ $E)$	lambda expression
(\mu ST @ E)	$(\mu ST \bullet$ $E)$	definite description
(\LET V==E1 @ E2)	$(\text{let } V ==$ $E1$ $\bullet E2$	local definition
E1~E2	$E1 E2$	function application
a.b	$a.b$	selection
\theta S	θS	binding formation
\IF P	if P	conditional
\THEN E1	then E1	
\ELSE E2	else E2	
\langle E \rangle	$\langle E \rangle$	sequence display
\lbag E \rbag	$\llbracket E \rrbracket$	bag display
\neg n	\bar{n}	negative numeral
\lblet D \rblet	$\langle\langle D \rangle\rangle$	binding set
x!	$x!$	decoration
x?	$x?$	decoration
x'	x'	decoration
x_n	x_n	decoration (n a digit)
_	$_$	underscore (in opnames)

Predicates		
L ^A T _E X input	Output	Meaning
x = y	$x = y$	equality
x \in S	$x \in S$	membership
\not P	$\neg P$	negation
P \land Q	$P \wedge Q$	conjunction
P \lor Q	$P \vee Q$	disjunction
P \implies Q	$P \Rightarrow Q$	implication
P \iff Q	$P \Leftrightarrow Q$	equivalence
\forall ST @ P	$\forall ST \bullet P$	universal quantification
\exists ST @ P	$\exists ST \bullet P$	existential quantification
\exists ST @ P	$\exists_1 ST \bullet P$	unique quantification
\LET V==E @ P	let V == E $\bullet P$	local definition
\pre S	pre S	schema pre-condition
a \inrel{R} b	$a R b$	infix relation
\IF P	if P	conditional
\THEN Q	then Q	
\ELSE R	else R	

Schema Expressions		
L ^A T _E X input	Output	Meaning
\Delta S	ΔS	schema name prefix
\Xi S	ΞS	schema name prefix
\not S	$\neg S$	negation
S \land T	$S \wedge T$	conjunction
S \lor T	$S \vee T$	disjunction
S \implies T	$S \Rightarrow T$	implication
S \iff T	$S \Leftrightarrow T$	equivalence
\forall ST @ S	$\forall ST \bullet S$	universal quantification
\exists ST @ S	$\exists ST \bullet S$	existential quantification
\exists ST @ S	$\exists_1 ST \bullet S$	unique quantification
S \hide (a)	$S \setminus (a)$	hiding
S \project T	$S \upharpoonright T$	projection
\pre S	pre S	pre-condition
S \semi T	$S \textcircled{\circ} T$	sequential composition
S \pipe T	$S \gg T$	piping

Sets		
L ^A T _E X input	Output	Meaning
x \neq y	$x \neq y$	inequality
x \notin S	$x \notin S$	non-membership
\emptyset	\emptyset	empty set
S \subteq T	$S \subseteq T$	subset
S \subset T	$S \subset T$	proper subset
\power_1 X	$\mathbb{P}_1 X$	non-empty powerset
S \cup T	$S \cup T$	set union
S \cap T	$S \cap T$	set intersection
S \setminus T	$S \setminus T$	set difference
\bigcup S	$\bigcup S$	generalized union
\bigcap S	$\bigcap S$	generalized intersection
first~x	$first\ x$	first component of ordered pair
second~x	$second\ x$	second component of ordered pair

Relations		
L ^A T _E X input	Output	Meaning
X \rel Y	$X \leftrightarrow Y$	relation
x \mapsto y	$x \mapsto y$	maplet (ordered pair)
\dom X	$\text{dom } X$	domain
\ran X	$\text{ran } X$	range
\id X	$\text{id } X$	identity relation
Q \comp R	$Q \circ R$	relational composition
R \circ Q	$R \circ Q$	backward relational composition
S \dres R	$S \triangleleft R$	domain restriction
R \rres T	$R \triangleright T$	range restriction
S \ndres R	$S \triangleleft R$	domain anti-restriction
R \nrres T	$R \triangleright T$	range anti-restriction
R \inv	R^{\sim}	relational inversion
R \ling S \ring	$R \langle S \rangle$	relational image
Q \oplus R	$Q \oplus R$	overriding
R \plus	R^+	transitive closure
R \star	R^*	reflexive transitive closure

Functions		
L ^A T _E X input	Output	Meaning
X \pfun Y	$X \twoheadrightarrow Y$	partial function
X \fun Y	$X \rightarrow Y$	total function
X \pinj Y	$X \twoheadrightarrow Y$	partial injection
X \inj Y	$X \hookrightarrow Y$	total injection
X \psurj Y	$X \twoheadrightarrow Y$	partial surjection
X \surj Y	$X \twoheadrightarrow Y$	total surjection
X \bij Y	$X \xrightarrow{\sim} Y$	bijection

Sequences		
L ^A T _E X input	Output	Meaning
\seq X	$\text{seq } X$	finite sequence
\seq_1 X	$\text{seq}_1 X$	non-empty finite sequence
\iseq X	$\text{iseq } X$	injective sequence
s \cat t	$s \frown t$	concatenation
rev~s	$\text{rev } s$	reversal
head~s	$\text{head } s$	first element
last~s	$\text{last } s$	last element
tail~s	$\text{tail } s$	all but the first element
front~s	$\text{front } s$	all but the last element
U \extract s	$U \upharpoonright s$	extraction
s \filter V	$s \upharpoonright V$	filter
squash~f	$\text{squash } f$	compaction
s \prefix t	$s \text{ prefix } t$	prefix relation
s \suffix t	$s \text{ suffix } t$	suffix relation
s \inseq t	$s \text{ in } t$	segment relation
\dcat q	\frown / q	distributed concatenation
\disjoint S	$\text{disjoint } S$	disjointness
S \partition T	$S \text{ partition } T$	partition

Numbers and Finiteness		
L ^A T _E X input	Output	Meaning
\nat	\mathbb{N}	natural numbers
\num	\mathbb{Z}	integers
a + b	$a + b$	addition
a - b	$a - b$	subtraction
a * b	$a * b$	multiplication
a \div b	$a \text{ div } b$	division
a \mod b	$a \text{ mod } b$	modulus
a < b	$a < b$	less than
a \leq b	$a \leq b$	less than or equal to
a \geq b	$a \geq b$	greater than or equal to
a > b	$a > b$	greater than
\nat_1	\mathbb{N}_1	positive integers
succ~a	$\text{succ } a$	successor
a \upto b	$a .. b$	number range
R~{k}	R^k	iteration
R \bsup k \esup	R^k	iteration
\finset	\mathbb{F}	finite set
\finset_1	\mathbb{F}_1	non-empty finite set
\# X	$\#X$	number of members of a finite set
X \ffun Y	$X \twoheadrightarrow Y$	finite partial function
X \finj Y	$X \twoheadrightarrow Y$	finite partial injection
min~S	$\text{min } S$	minimum of a set of numbers
max~S	$\text{max } S$	maximum of a set of numbers

Bags		
L ^A T _E X input	Output	Meaning
\bag	bag	bags
count~B~x	$\text{count } B x$	multiplicity
B \bcount x	$B \# x$	multiplicity
n \otimes B	$n \otimes B$	bag scaling
x \inbag B	$x \text{ in } B$	bag membership
B \subbageq C	$B \sqsubseteq C$	sub-bag relation
B \uplus C	$B \uplus C$	bag union
B \uminus C	$B \uplus C$	bag difference
items~s	$\text{items } s$	bag of sequence elements

Miscellaneous, Spacing		
L ^A T _E X input	Output	Meaning
\spot, @	•	separator
\mid,		separator
p \bind x	$p \rightsquigarrow x$	variable binding
\\		newline
\!	xx	negative thin space
\ (a space)	xx	normal space
\,	xx	thin space
~	xx	thin space
\:	xx	medium space
\;	xx	thick space
\ (a space)	xx	interword space
\tn	$x \quad x$	n quad spaces (n a digit)