Theorema 2.0: A First Tour

NB reached List of cells reached CellGroupData reached List of cells reached NullCell reached

We consider “proving”, “computing”, and “solving” as the three basic mathematical activities.

CellGroupData reached List of cells reached

1 Proving

We want to prove

$$(\underset{x}{\forall}(P[x] \vee Q[x])) \wedge (\underset{y}{\forall}(P[y] \Rightarrow Q[y])) \Leftrightarrow (\underset{x}{\forall} Q[x]).$$

To prove a formula like the above, we need to enter it in the context of a Theorema environment.

1.1 Proposition (First Test, 2014)

Iff And Forall RNG$SIMPRNG$ **x** Or P[**x**] Q[**x**] Forall RNG$SIMPRNG$ **y** Implies P[**y**] Q[**y**] Forall RNG$SIMPRNG$ **x** Q[**x**]

Cell reached CellGroupData reached List of cells reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached Cell reached CellGroupData reached List of cells reached

2 Computing

CellGroupData reached List of cells reached Cell reached

2.0.1 Global Declaration

$$\underset{\substack{a,b \\ a=b}}{\forall}$$

2.1 [?]

Forall RNG$unexpectednumberofargumentsIffDefTma2tex`Private`tmaToTeXable[Theorema`Languag$
STEPRNG$unexpectednumberofargumentsAndLessSubscript$**ai**$Subscript$**bi**$ForallRNG$
STEPRNG$unexpectednumberofargumentsEqualSubscript$**aj**$Subscript$**bj**

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2.1.1 Global Declaration

$$\underset{K}{\forall}$$

2.1.2 Global Declaration

Mon[K]:=$\underset{M}{\Delta}$

2.1.3 Global Declaration

$$\underset{m1,m2}{\forall}$$

2.2 [?]

Forall RNG$unexpectednumberofargumentsEqualDefTma2tex`Private`tmaToTeXable[Theorema`Langu$
Theorema`Language`TimesTM]]$unexpectednumberofargumentsTupleTma2tex`Private`tmaToTeXable[T$
number of arguments TupleOf RNG$STEPRNG$unexpected number of arguments Tma2tex`Private`tmaToTeXable[Theorema`Language`DomainOperation$TM[Theorema`Language`$
Infinity, True, False], Theorema`Language`PlusTM]]$unexpectednumberofarguments$

2.3 [?]

Forall RNG$unexpectednumberofargumentsIffDefTma2tex`Private`tmaToTeXable[Theorema`Languag$
Theorema`Language`LessTM]]$unexpectednumberofargumentsTma2tex`Private`tmaToTeXable[Theorem$

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3 Set Theory

CellGroupData reached List of cells reached Cell reached

3.0.1 Global Declaration

$$\underset{x,y}{\forall}$$

3.1 [?]

Forall RNG$unexpectednumberofargumentsEqualDefSubsetEqual\mathbf{xy}ForallRNG$
SIMPRNG$\mathbf{z}ImpliesElement\mathbf{zx}Element\mathbf{zy}$

■Cell reached

3.2 Proposition (transitivity of $\subseteq$)

Forall RNG$unexpectednumberofargumentsImpliesAndSubsetEqual\mathbf{ab}SubsetEqual\mathbf{bc}SubsetEqual\mathbf{ac}$

Cell reached CellGroupData reached List of cells reached Cell reached Cell reached CellGroupData reached List of cells reached Cell reached Cell reached