Theorema 2.0: A First Tour

NB reached List of cells reached CellGroupData reached List of cells reached Null Cell 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[x, Or[P[x], Q[x]]], Forall[y, Implies[P[y], Q[y]]]], Forall[x, Q[x]]]

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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[unexpected number of arguments, IffDef[Tma2tex‘Private‘tmaToTeXable[Theorema‘Language‘Annotated$TM[Theorema‘Language‘Less$TM, Theorema‘Language‘SubScript$TM[Theorema‘Knowledge‘lex$TM]]]unexpected number of arguments, Exists[STEPRNG$unexpectednumberofarguments$, $And[Less[Subscript[a, i], Subscri$ number of arguments, Equal[Subscript[a, j], Subscript[b, j]]]]]]]

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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 [?]

EqualDef[Tma2tex‘Private‘tmaToTeXable[Theorema‘Language‘DomainOperation$TM[Theorema‘Knowled$ Theorema‘Language‘TimesTM]]$unexpectednumberofarguments$, $Tuple[Tma2tex‘Private‘tmaToTeXable[$ number of arguments, TupleOf[STEPRNG$unexpectednumberofarguments$, $Tma2tex‘Private‘tmaToTeXa$ number of arguments]]]

2.3 [?]

IffDef[Tma2tex‘Private‘tmaToTeXable[Theorema‘Language‘DomainOperationTM[$Theorema‘Knowledge‘M$
Theorema‘Language‘LessTM]]$unexpectednumberofarguments, Tma2tex‘Private‘tmaToTeXable[Theoren$

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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[unexpected number of arguments, EqualDef[SubsetEqual[x, y], Forall[z, Implies[Element[z, x], Element[z, y]]]]]

■Cell reached

3.2 Proposition (transitivity of $\subseteq$)

Forall[unexpected number of arguments, Implies[And[SubsetEqual[a, b], SubsetEqual[b, FrontEnd‘FileName[$RootDirectory, C$: $, Users, jackh, git, repository, tma2tex, FirstTour.nb, CharacterEncoding- >$ $UTF - 8]]], SubsetEqual[a, FrontEnd‘FileName$[RootDirectory, C:, Users, jackh, git, repository, tma2tex, FirstTour.nb, CharacterEncoding -¿ UTF-8]]]]

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