# 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

$$( \begin{tabular}{l} (\forall (P[x] \lor Q[x])) \land (\forall (P[y] \Rightarrow Q[y])) \Leftrightarrow (\forall Q[x]). \end{tabular}$$

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

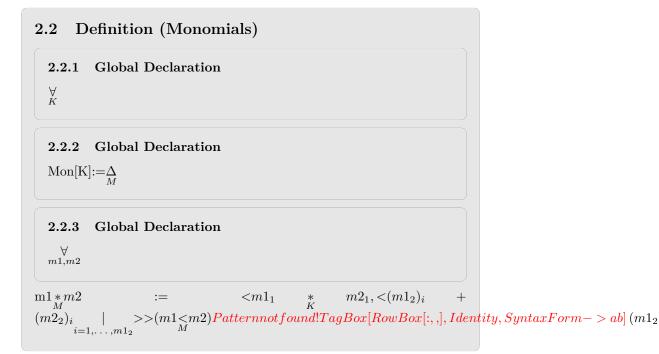
$$\left( \left( \bigvee_{x} \left( P[x] \vee Q[x] \right) \right) \wedge \left( \bigvee_{y} \left( P[y] \Rightarrow Q[y] \right) \right) \right) \Leftrightarrow \left( \bigvee_{x} Q[x] \right) \blacksquare$$

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

## 2 Computing

# 2.1 Definition (Lexical Ordering) 2.1.1 Global Declaration $\forall a,b \\ a=b$ $a <_{lex}b \to \left(\exists a_i < b_i \land \left(\exists b_i \lor a_j \lor a_j = b_j\right)\right)$

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



Cell reached Cell reached CellGroupData reached List of cells reached

# 3 Set Theory

### 3.1 Definition (subset)

### 3.1.1 Global Declaration

$$\forall x, y$$

$$\mathbf{x} := \left( \mathbf{x} \left( z \Rightarrow z \right) \right) \blacksquare$$

Cell reached

# 3.2 Proposition (transitivity of $\subseteq$ )

$$\mathop{\forall}_{a,b,c} ((a \land b) \Rightarrow a) \blacksquare$$

Cell reached CellGroupData reached List of cells reached Cell reached