Theorema 2.0: A First Tour

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

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.

Proposition : First Test, 2014

$((\forall x\ (P[x] \vee Q[x]) \wedge \forall y\ (P[y] \rightarrow Q[y])) \iff \forall x\, Q[x])$

2 Computing

2.1 [?]

$\forall ab\ (LessTM_{lex}\,(a)\,b :\iff \exists\ (a_i < b_i \wedge \forall\, a_j = b_j))$

2.2 [?]

$\forall Km2 \left(Mon[K]_{TimesTM}(m1, m2) := \left(K_{TimesTM}(m1_1, m2_1), _{[, PlusTM](m1_{2i}, m2_{2i})} \right) \right)$

2.3 [?]

$\forall Km2 \left(Mon[K]_{LessTM}(m1, m2) :\Longleftrightarrow LessTM_{lex}(m1_2)\, m2_2 \right)$

3 Set Theory

3.1 [?]

$\forall xy \left(x \subseteq y := \forall z \left(zx \to zy \right) \right)$

Proposition : TRANSITIVITY OF
$\forall ac \left(\left(a \subseteq b \wedge b \subseteq c \right) \to a \subseteq c \right)$