Phase 17 Demo : Semicolon - Separated Bindings

Example 1 : Two bindings

Simple case with two binding groups:

$$\forall\, x\colon N \bullet \forall\, y\colon N \bullet x + y > 0$$

Example 2 : Three bindings

Three levels of nesting:

$$\forall\, x\colon T \bullet \forall\, y\colon U \bullet \forall\, z\colon V \bullet x = y$$

Example 3 : Mixed comma and semicolon

First quantifier has multiple variables with shared domain:

$$\forall\, x, y\colon N \bullet \forall\, z\colon N \bullet x + y = z$$

Example 4 : Real - world example from Solution 41

$$\forall\, r\colon \operatorname{ran} records \bullet \forall\, i1, i2\colon \operatorname{dom} r \bullet i1 \neq i2 \Rightarrow true$$

Example 5 : Conditional with semicolon bindings

Combining Phase 16 and Phase 17:

$$\forall\, x\colon N \bullet \forall\, y\colon N \bullet (\text{if } x > y \text{ then } x \text{ else } y)$$

Example 6 : Nested mu operator

Definite description with multiple bindings:

$(\mu\, p\colon \operatorname{ran} hd \bullet \mu\, q\colon \operatorname{ran} hd \bullet p \neq q\text{---} \text{p.2 ¿ q.2})$

Example 7 : With exists quantifier

Multiple bindings with exists:

$\exists\, x\colon N \bullet \exists\, y\colon N \bullet x > y \land y > 0$