

## Test : Predicate Logic Advanced Features

(a)

Test ASCII sequence brackets and pattern matching:

$[Entry, Status]$

$$\frac{\begin{array}{l} viewed : \text{seq } Entry \rightarrow \text{seq } Entry \\ yes : Status \end{array}}{viewed(\langle \rangle) = \langle \rangle}$$

(b)

Test conditional expressions:

$$\frac{abs : \mathbb{Z} \rightarrow \mathbb{N}}{\forall x : \mathbb{Z} \bullet abs(x) = \text{if } x \geq 0 \text{ then } x \text{ else } -x}$$

(c)

Test multi-word identifiers with underscore:

$$\frac{\begin{array}{l} cumulative\_total : \text{seq } \mathbb{N} \rightarrow \mathbb{N} \\ cumulative\_total(\langle \rangle) = 0 \end{array}}{\forall x : \mathbb{N} \bullet \forall s : \text{seq } \mathbb{N} \bullet cumulative\_total(\langle x \rangle \cap s) = x + cumulative\_total(s)}$$

(d)

Test all three features combined:

$[Play, User, UserStatus]$

$$\frac{\begin{array}{l} premium\_plays : \text{seq } Play \rightarrow \text{seq } Play \\ user\_status : User \rightarrow UserStatus \\ premium : UserStatus \end{array}}{premium\_plays(\langle \rangle) = \langle \rangle}$$