

Phase 9 : Generic Parameters

This example demonstrates Z notation definitions with generic (polymorphic) type parameters.

Basic generic abbreviation for a Pair type:

$$\textit{Pair}[X] == X \times X$$

Generic abbreviation with two type parameters:

$$\textit{Product}[X, Y] == X \times Y$$

Generic axiomatic definition with constraints:

$\frac{[T] \quad \textit{identity} : T}{\textit{identity} = \textit{identity}}$

Generic schema for a collection:

$\frac{\textit{Collection}[X] \quad \textit{items} : \textit{seq } X \quad \textit{count} : \mathbb{N}}{\textit{count} = \# \textit{items}}$
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Generic schema with multiple parameters:

$\frac{\textit{Tuple}[X, Y] \quad \textit{first} : X \quad \textit{second} : Y}{}$
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Non-generic definitions still work as before:

$$\textit{Naturals} == \mathbb{N}$$

$\frac{\textit{zero} : \mathbb{N}}{\textit{zero} = 0}$
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$\frac{\textit{Counter} \quad \textit{value} : \mathbb{N}}{\textit{value} \geq 0}$
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