

Phase 9 : Generic Parameters

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

$$[X, Y, Z]$$

Basic generic abbreviation for a Pair type:

$$[X] \text{ Pair} == X$$

Generic abbreviation with two type parameters:

$$[X, Y] \text{ Product} == X$$

Generic axiomatic definition with constraints:

$$\frac{}{[T] \text{identity} : T}$$
$$\frac{}{\text{identity} = \text{identity}}$$

Generic schema for a Stack data structure:

$$\frac{\text{Stack}[X] \quad \text{items} : X \text{ top} : X}{\text{top} \in \text{items}}$$

Generic schema with multiple parameters:

$$\frac{\text{Relation}[X, Y] \quad \text{domain} : X \text{ range} : Y}{\text{domain} \in X \text{ range} \in Y}$$

Non-generic definitions still work as before:

Naturals == N

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