

Z Examples Found on the Internet

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1 Introduction

1.1 Z section heading

section *gearsystem* parents *standard_toolkit*

1.2 Free types paragraph

gearing ::= *Single* | *Hub* $\langle\langle\mathbb{N}\rangle\rangle$ | *Deraillleurs* $\langle\langle\mathbb{N} \times \mathbb{N}\rangle\rangle$

1.3 Horizontal definition paragraph

Wellgeared == [*gears* : *gearing* | *gears* \in ran *Deraillleurs*]

1.4 Generic axiomatic description paragraph

$[X, Y]$	
<i>First</i> : $X \times Y \rightarrow X$	
<i>Second</i> : $X \times Y \rightarrow Y$	
$\forall x : X; y : Y \bullet$	
<i>First</i> (x, y) = $x \wedge$	
<i>Second</i> (x, y) = y	

1.5 Schema definition paragraph

<i>Gear</i>	
<i>Wellgeared</i>	
<i>ingear</i> : $\mathbb{N} \times \mathbb{N}$	
$\exists r, s : \mathbb{N} \mid \text{gears} = \text{Deraillleurs}(r, s) \bullet$	
<i>First ingear</i> < $r \wedge$ <i>Second ingear</i> < s	

1.6 Generic schema definition paragraph

$\models Bicycle [G]$
$gears : \mathbb{P} G$

1.7 Axiomatic description paragraph

$numgears : gearing \rightarrow \mathbb{N}$
$\forall g : gearing \bullet$ $(g = Single \Rightarrow numgears\ g = 1) \wedge$ $(\exists x : \mathbb{N} \bullet g = Hub\ x \Rightarrow numgears\ g = x) \wedge$ $(\exists r, s : \mathbb{N} \bullet g = Derailleurs\ (r, s) \Rightarrow numgears\ g = r * s)$

1.8 Conjecture paragraph

Lemma1 ==

$$\vdash? numgears(Derailleurs(3, 7)) = 21$$