An Event-B Specification of

TypingTests

I assume that typing can be made arbitrarily smart, however I do not yet know the limits of how much typing Rodin can do.

For sure both evbt and Rodin does explicit typing based on statements like: 'x \in N' 'alfa \in N \rightarrow BOOL' or 'p \in STAFF'

But Rodin also does implicit typing based on operations. For example:

The disjunction forces the type of beta to be the same as the type of ran(alfa) ie \mathbb{N} .

"' @inv3 x \in N @inv4 x+y=7 "'

The addition forces Rodin the type of y to be \mathbb{Z} (not $\mathbb{N}!!$)

This projects tests the extent of implicit typing implemented so far in evbt.

1	MACHINE MoreTyping			
	1.1	alfa beta x y	2	
	1.2	gamma(b)	2	

```
1
MACHINE MoreTyping
                                                                                                        1.1
VARIABLES
 alfa
 beta
 \boldsymbol{x}
INVARIANTS
 inv1: alfa \in \mathbb{N} \rightarrow BOOL
 inv2: beta \cap ran(alfa) = \emptyset
                                   The type of ran(alfa) will propagate to
                                   beta.
 inv3: x \in \mathbb{N}
                                   The type of y is deduced to \mathbb{Z}.
 inv4: x + y = 7
EVENT INITIALISATION
THEN
 init1: alfa := \emptyset
 init2: beta := \emptyset
 init3: x := 14
 init4: y := 7
END
                                                                                                        1.2
EVENT gamma
ANY
 b
WHERE
 grd11: b \in beta
THEN
```

 $beta := beta \setminus \{b\}$

act11:

END

alfa, 2

beta, 2

gamma, 2

INITIALISATION, 2

More Typing, 2

x, 2

y, 2