

MACHINE GLOBAL_PROGRESS_ENUM

REFINES GLOBAL_ENUM

SEES Network

VARIABLES

enum

enumeration

max_id

INVARIANTS

inv1 : $max_id \in 0 \dots card(ND)$

inv2 : $enum \in ND \rightarrow 0 \dots max_id$

inv3 : $enum \triangleright \{0\} = \emptyset \Rightarrow enum \in ND \rightarrow 1 \dots max_id$

inv4 : $enum \triangleright \{0\} \neq \emptyset \Rightarrow enum \in ND \rightarrow 0 \dots max_id$

inv5 : $\exists x, y. \{x, y\} \subseteq ND \wedge x \neq y \wedge enum(x) = enum(y) \Rightarrow max_id < card(ND)$

inv6 : $min(ran(enum)) \in \{0, 1\}$

inv7 : $enumeration \in ND \rightarrow 0 \dots card(ND)$

EVENTS

Initialisation

begin

act1 : $enum : \in ND \rightarrow \{0\}$

act2 : $max_id := 0$

act3 : $enumeration : \in ND \rightarrow \{0\}$

end

Event $enum' \hat{=}$

refines *enum*

when

grd1 : $max_id = card(ND)$

grd2 : $min(ran(enum)) = 1$

then

act1 : $enumeration : \in ND \rightarrow 1 \dots card(ND)$

end

Event $enum_Progress \hat{=}$

any

x

n

where

grd1 : $x \in ND$

grd2 : $(enum(x) = 0) \vee (enum \triangleright \{0\} = \emptyset \wedge (\exists y. y \in ND \setminus \{x\} \wedge enum(x) = enum(y)))$

grd3 : $max_id < card(ND)$

grd4 : $n \in enum(x) + 1 \dots max_id + 1$

then

act1 : $enum(x) := n$

act2 : $max_id := max(\{max_id, n\})$

end

END