MACHINE *scheduler*
SETS
$PID = \{process1, process2, process3, process4, process5\}$
VARIABLES
$active, ready, waiting$
INVARIANT
$active \in \mathcal{P}\ (PID) \wedge ready \in \mathcal{P}\ (PID) \wedge waiting \in \mathcal{P}\ (PID) \quad \wedge$
$active \subseteq PID \wedge$
$ready \subseteq PID \quad \wedge$
$waiting \subseteq PID \wedge$
$(ready \cap waiting) = \emptyset \wedge$
$active \cap (ready \cup waiting) = \emptyset \wedge$
$\mathbf{card}(active) \leq 1 \wedge$
$((active = \emptyset\ ) \quad \Rightarrow (ready = \emptyset\ ))$

INITIALISATION
$active := \emptyset \ ||\ ready := \emptyset \ ||\ waiting := \emptyset$
OPERATIONS
new$(pp) =$
PRE
$pp \in PID \quad \wedge$
$pp \notin (active \cup (ready \cup waiting))$
THEN
$waiting := (waiting \cup \{\ pp\ \})$
END;
delete$(pp) =$
PRE
$pp \in waiting$
THEN
$waiting := waiting$ - $\{\ pp\ \}$
END;
activate$(rr) =$
PRE
$rr \in waiting$
THEN
$waiting := (waiting$ - $\{rr\}) \ ||$
IF $(active = \emptyset\ )$ **THEN**
$active := \{rr\}$
ELSE
$ready := ready \cup \{rr\}$
END
END;
swap $=$
PRE
$active \neq \emptyset$
THEN
IF $(ready = \emptyset\ )$ **THEN**

```
            active := ∅
        ELSE
            ANY pp WHERE pp ∈ ready THEN
                active := {pp} ||
                ready := ready - {pp}
            END
        END
    END
END
```