

[String]

*EvtS*

*idEv*: String

*Patient*

*idP*: String

*Nurse*

*idN*: String

*PMS*

*subEvtS*:  $\mathbb{F}$  *EvtS*

*subPatient*:  $\mathbb{F}$  *Patient*

*subNurse*:  $\mathbb{F}$  *Nurse*

*PatientToEvtS*: *Patient*  $\leftrightarrow$  *EvtS*

*NurseToPatient*: *Nurse*  $\leftrightarrow$  *Patient*

*NurseToEvtS*: *Nurse*  $\leftrightarrow$  *EvtS*

*PatientToNurse*: *Patient*  $\leftrightarrow$  *Nurse*

*EvtSToPatient*: *EvtS*  $\leftrightarrow$  *Patient*

*EvtSToNurse*: *EvtS*  $\leftrightarrow$  *Nurse*

$\text{dom } \textit{NurseToEvtS} \subseteq \textit{subNurse}$

$\text{ran } \textit{NurseToEvtS} \subseteq \textit{subEvtS}$

$\text{dom } \textit{NurseToPatient} \subseteq \textit{subNurse}$

$\text{ran } \textit{NurseToPatient} \subseteq \textit{subPatient}$

$\text{dom } \textit{PatientToEvtS} \subseteq \textit{subPatient}$

$\text{ran } \textit{PatientToEvtS} \subseteq \textit{subEvtS}$

$\text{dom } \textit{PatientToNurse} \subseteq \textit{subPatient}$

$\text{ran } \textit{PatientToNurse} \subseteq \textit{subNurse}$

$\text{dom } \textit{EvtSToNurse} \subseteq \textit{subEvtS}$

$\text{ran } \textit{EvtSToNurse} \subseteq \textit{subNurse}$

$\text{dom } \textit{EvtSToPatient} \subseteq \textit{subEvtS}$

$\text{ran } \textit{EvtSToPatient} \subseteq \textit{subPatient}$

$\# \textit{subEvtS} \leq 3$

$\# \textit{subEvtS} > 0$

$\forall x: \textit{subEvtS} \bullet \# (\textit{EvtSToNurse} ( \{x\} )) \leq 3$

$\forall x: \textit{subEvtS} \bullet \# (\textit{EvtSToPatient} ( \{x\} )) \leq 15$

$\forall x: \textit{subPatient} \bullet \# (\textit{PatientToEvtS} ( \{x\} )) = 1$

$\forall x: \textit{subPatient} \bullet \# (\textit{PatientToNurse} ( \{x\} )) = 1$

$\forall x: \textit{subNurse} \bullet \# (\textit{NurseToEvtS} ( \{x\} )) = 1$

$\forall x: \textit{subNurse} \bullet \# (\textit{NurseToPatient} ( \{x\} )) \leq 2$

*InsertEvtS*

$\Delta \textit{PMS}$

*x?*: *EvtS*

$x? \notin \textit{subEvtS}$

$subEvtS' = subEvtS \cup \{x?\}$   
 $subNurse' = subNurse$   
 $subPatient' = subPatient$   
 $NurseToPatient' = NurseToPatient$   
 $PatientToNurse' = PatientToNurse$   
 $PatientToEvtS' = PatientToEvtS$   
 $EvtSToPatient' = EvtSToPatient$   
 $EvtSToNurse' = EvtSToNurse$   
 $NurseToEvtS' = NurseToEvtS$

#### *InsertNurse*

$\Delta PMS$   
 $x?: EvtS$   
 $y?: Nurse$

$x? \in subEvtS$   
 $y? \notin subNurse$   
 $subNurse' = subNurse \cup \{y?\}$   
 $subEvtS' = subEvtS$   
 $subPatient' = subPatient$   
 $NurseToPatient' = NurseToPatient$   
 $PatientToNurse' = PatientToNurse$   
 $PatientToEvtS' = PatientToEvtS$   
 $EvtSToPatient' = EvtSToPatient$   
 $EvtSToNurse' = EvtSToNurse \cup \{(x?, y?)\}$   
 $NurseToEvtS' = NurseToEvtS \cup \{(y?, x?)\}$

#### *InsertPatient*

$\Delta PMS$   
 $x?: EvtS$   
 $y?: Nurse$   
 $z?: Patient$

$x? \in subEvtS$   
 $y? \in subNurse$   
 $z? \notin subPatient$   
 $(x?, y?) \in EvtSToNurse$   
 $(y?, x?) \in NurseToEvtS$   
 $subEvtS' = subEvtS$   
 $subPatient' = subPatient \cup \{z?\}$   
 $NurseToPatient' = NurseToPatient \cup \{(y?, z?)\}$   
 $PatientToNurse' = PatientToNurse \cup \{(z?, y?)\}$   
 $PatientToEvtS' = PatientToEvtS \cup \{(z?, x?)\}$   
 $EvtSToPatient' = EvtSToPatient \cup \{(x?, z?)\}$   
 $subNurse' = subNurse$   
 $EvtSToNurse' = EvtSToNurse$   
 $NurseToEvtS' = NurseToEvtS$