Q3 : (Ambulance Case study)

i) [AMBULANCE]

limit : ℕ

N = 25

AmbulanceMonitor

atBase : ℙ AMBULANCE

onCall : ℙ AMBULANCE

(atBase ∪ onCall) ≤ limit

atBase ∩ onCall = ∅

Init

AmbulanceMonitor

atBase = ∅

onCall = ∅

addAmbulance

Δ AmbulanceMonitor

AmbIn? : Ambulance

AmbIn? ∉ (atBase ∪ onCall)

(atBase ∪ onCall) < limit

atBase' = atBase ∪ {AmbIn?}

IGotAnAmbulance

Δ AmbulanceMonitor

ambIn! : Ambulance

ambIn? ∈ (atBase ∪ onCall)

ambIn? ∉ atBase

atBase' = atBase \ {ambIn?}

SendOnCall

Δ AmbulanceMonitor

ambIn? : Ambulance

ambIn? ∈ atBase

ambIn? ∉ onCall

atBase' = atBase \ {ambIn?}

onCall' = onCall ∪ {ambIn?}

backToBase

Δ AmbulanceMonitor

ambIn? : Ambulance

ambIn? ∈ ~~atBase~~ onCall

ambIn? ∉ atBase

onCall' = onCall \ {ambIn?}

atBase' = atBase ∪ {ambIn?}

getAtBase

Ξ AmbulanceMonitor

output! : ℙ AMBULANCE

output! = atBase

AmbulanceAvailable

Ξ AmbulanceMonitor

query output! : BOOLEAN

(# (atBase) > 0 ∧ query = TRUE)