Lecture 16 - Nov. 5

Bridge Controller

Invariant Establishment Deadlock Freedom

Announcements/Reminders

ProgTest2 tomorrow

Initializing the System

 <i>d</i> ∈ ℕ	$d \in \mathbb{N}$	$d \in \mathbb{N}$	<i>d</i> ∈ ℕ
$n \in \mathbb{N}$	<i>n</i> ∈ ℕ	<i>n</i> ∈ ℕ	<i>n</i> ∈ ℕ
 n≤d	n≤d	n≤d	n≤d
n < d	n < d	<i>n</i> > 0	<i>n</i> > 0
 ⊢		⊢	H
$n+1 \in \mathbb{N}$	$n+1 \leq d$	<i>n</i> – 1 ∈ ℕ	$n-1 \leq d$



PO of Invariant Establishment



Discharging PO of Invariant Establishment



Bridge Controller : REALTIVE SISTEM Ly there's always at least one event enabled for the sylstem to progress unacceptable: deadlock no event to occur 7 G (ML-out) N7G(ML-in) [deadlock condition] 7 (G(ML_art) V G(ML_TM)) G(MLont) V G(MLAN) [deadlock freedom Gord.]



TN. Pre.

NF

 $d \in \mathcal{N}$ $n \in \mathcal{N} \vdash n < d \lor n > 0$ $n \leq d \quad G(ML - out) \quad G(ML - tn)$

Example Inference Rules



