EECS3342 Winter 2023
Notes on Discharging POs of Refinement
(New Events: Invariant Preservation & Deadlock Freedom)
Bridge Controller: Initial Model vs. 1st Refinement

CHEN-WEI WANG

Contents

1 Discharing the PO of Invariant Preservation: IL_in/inv1_4/INV

$$
\begin{array}{l}
d \in \mathbb{N} \\
d \vee 0 \\
n \in \mathbb{N} \\
n \mid\!> d \\
a \in \mathbb{N} \\
b \in \mathbb{N} \\
c \in \mathbb{N} \\
a + b + c = n \\
a = 0 \vee c = 0 \\
a \vee 0 \\
\vdash \\
(a - 1) + (b + 1) + c = n
\end{array}
\quad \textbf{MON} \quad
\begin{array}{l}
a + b + c = n \\
\vdash \\
(a - 1) + (b + 1) + c = n
\end{array}
\quad \textbf{ARI} \quad
\begin{array}{l}
a + b + c = n \\
\vdash \\
a + b + c = n
\end{array}
\quad \textbf{HYP}
$$

2 Discharing the PO of Invariant Preservation: IL_in/inv1_5/INV

3 Discharing the PO of Relative Deadlock Freedom