Errata

Last updated February 24, 2020


This list is a work in progress. Some of the following corrections are tentative and may be revised, and additional corrections will probably be added.

**Section 2.3.2.** Figure 2.8 should be as shown below. The dashed lines indicate situations where an assertion in an r-state $\hat{s}_i$ is used to r-satisfy the goal $\hat{g}_{i+1}$ of a later iteration.

**Section 2.3.3.** In Step 1 of RPG-landmark, replace the phrase “and the only landmark is $\phi$ itself, so return $\phi$” with “and there are no intermediate states, so return $\emptyset$."

**Exercise 3.19.** Part (a) should be

What sequence of commands will Refine-lookahead, Refine-lazy-lookahead, and Refine-concurrent-lookahead execute?

**Definition 4.4.** The first sentence of the definition should be

A ground instance of $(T', C')$ of $(T, C)$ is consistent if $T'$ satisfies $C'$ and does not specify two different values for a state variable at the same time.

**Example 4.5.** The second paragraph should be

The assertions $[t_1, t_2] loc(r1) = loc1$ and $[t_2, t_3] loc(r1); (loc1, loc2)$ are nonconflicting: they have no inconsistent instances.
Section 4.2.1, near the end of the section.
Let \((\mathcal{T}, \mathcal{C}) = (\mathcal{T}_1, \mathcal{C}_1) \cup \ldots \cup (\mathcal{T}_k, \mathcal{C}_k)\). If (i) each timeline \((\mathcal{T}_i, \mathcal{C}_i)\) is secure and (ii) no pair of timelines \((\mathcal{T}_j, \mathcal{C}_j)\) and \((\mathcal{T}_j, \mathcal{C}_j)\) have any unground variables in common, then \((\mathcal{T}, \mathcal{C})\) is secure. The book omits part (ii).

Exercise 4.8. The reference to Exercise 4.4 should instead be a reference to Exercise 4.3.

Section 5.2.3.
The definition of a reachability graph should be this:
\[
\text{Graph}(s, \pi) = (\hat{\gamma}(s, \pi), \{(s', s'') \mid s' \in \hat{\gamma}(s, \pi) \text{ and } s'' \in \gamma(s', \pi(s'))})
\]
or perhaps more clearly,
\[
\text{Graph}(s, \pi) = (V, E), \text{ where}
V = \hat{\gamma}(s, \pi),
E = \{(s', s'') \mid s' \in \hat{\gamma}(s, \pi) \text{ and } s'' \in \gamma(s', \pi(s'))}
\]

Section 5.2.3. The last line before Example 5.5 should be
We let \(\hat{\Gamma}(s)\) be the set of all states that are reachable from \(s\), i.e.,
\(\Gamma(s) = \bigcup \hat{\gamma}(s, \pi)\).

Exercise 5.7(b). Remove the words “by drawing the And/Or search tree.”

Section 6.2.1.
Where definition 6.3 says \(\text{leaves}(s_0, \pi) \cap S_g \neq \emptyset\), it should instead say \(\hat{\gamma}(s_0, \pi) \cap S_g \neq \emptyset\).

Section 6.2.3.
The paragraph after Equation 6.3 should be
A closed policy \(\pi'\) dominates a close policy \(\pi\) if and only if \(V^{\pi'}(s) \leq V^\pi(s)\) at every state \(s\) where both \(\pi\) and \(\pi'\) are defined. A closed policy \(\pi^*\) is optimal if it dominates all other closed policies. At every state \(s\) where \(\pi^*\) is defined, it has a minimal expected cost: \(V^*(s) = \min_{\pi} V^\pi(s)\). Under our assumption of probabilistic planning in a domain without dead ends, \(\pi^*\) is guaranteed to exist.

Algorithm 6.8. \(V, \pi, \text{ and Envelope}\) should be global variables. Also, the following line should be added at the beginning of the algorithm:
\[V_0(s_0) \leftarrow V(s_0)\]

Section 6.4.2 RFF, Algorithm 6.16, should be as follows:
Algorithm 1: A determinization planning algorithm.

\begin{algorithm}
\caption{A determinization planning algorithm.}
\begin{algorithmic}
\State \textbf{RFF}(\Sigma, s_0, S_g, \theta)
\State \pi \leftarrow \text{Det-Plan}(\Sigma_d, s_0, S_g)
\If {\pi = \text{failure}} \Return \text{failure} \EndIf
\While \exists s \in \mathcal{\hat{\gamma}}(s_0, \pi) \setminus (\text{Dom}(\pi) \cup S_g) \text{ such that } \Pr(s|s_0, \pi) \geq \theta,
\Do
\pi' \leftarrow \text{Det-Plan}(\Sigma_d, s, S_g \cup \text{Targets}(\pi, s))
\If {\pi = \text{failure}} \Return \text{failure} \EndIf
\pi \leftarrow \pi \cup \{(s, a) \in \pi' \mid s \not\in \text{Dom}(\pi)\}
\EndWhile
\Endalgorithmic
\end{algorithm}