Algorithm 1 Building the conditioned trajectory graph

Require: $\Gamma = \langle \Lambda, p \rangle, \mathcal{IC}$

Ensure: $G = \langle N, E, p_N, \vec{p}_E \rangle$ over Γ and $\mathcal{IC}$

$SN \leftarrow$ *sourceNodes*(Γ)
$N \leftarrow SN$
$\forall\, n = \langle 0, l, \cdot, \cdot \rangle \in N, p_N(n) \leftarrow p(\langle 0, l \rangle)$
$Q \leftarrow \emptyset$
for all $\tau \in [0..\tau_f - 1]$ **do**
    for all $n \in N$ s.t. $n[\lambda][time] = \tau$ **do**
        $\mathcal{S} \leftarrow buildSuccessors(n, \Gamma, \mathcal{IC})$
        for all $n' \in \mathcal{S}$ **do**
            let $n' = \langle \tau + 1, l', \delta', TL' \rangle$
            $N \leftarrow N \cup \{n'\}$, $E \leftarrow E \cup \{\langle n, n' \rangle\}$
            $p_E^n(\langle n, n' \rangle) \leftarrow p(\langle \tau + 1, l' \rangle)$
        $n.loss = 1 - \sum_{\langle n, n' \rangle \in E} p_E^n(\langle n, n' \rangle)$
        if $n.loss > 0$ **then**
            in(Q, n)
while Q is not empty **do**
    $n \leftarrow$ *out*(Q)
    if $n.loss < 1$ **then**
        for all $\langle n, n' \rangle \in E$ **do**
            $p_E^n(\langle n, n' \rangle) \leftarrow \frac{p_E^n(\langle n, n' \rangle)}{(1 - n.loss)}$
    for all $\langle n', n \rangle \in E$ **do**
        $old \leftarrow p_E^{n'}(\langle n', n \rangle)$
        $p_E^{n'}(\langle n', n \rangle) \leftarrow p_E^{n'}(\langle n', n \rangle) - n.loss \times old$
        $n'.loss \leftarrow n'.loss + n.loss \times old$
        if $n' \notin Q$ **then**
            in(Q, n')
        if $n.loss = 1$ **then**
            $E \leftarrow E - \{\langle n', n \rangle\}$
    if $n.loss = 1$ **then**
        $N \leftarrow N - \{n\}$
for all $n \in (N \cap SN)$ **do**
    $p_N(n) \leftarrow \frac{p_N(n)}{\sum_{n' \in (N \cap SN)} p_N(n')}$
return G consisting of $\langle N, E, p_N, \vec{p}_E \rangle$