Input : $A, B : C_N$; $\mathcal{T}_S$: static, $\mathcal{T}_D$: dynamic

Output: minimal subset $S \subseteq \mathcal{T}_D$ such that $A \sqsubseteq_{\mathcal{T}_S \cup S} B$

1 If $|\mathcal{T}_D| = 1$ then return $\mathcal{T}_D$
2 $\mathcal{T}_1, \mathcal{T}_2$:= halve $\mathcal{T}_D$
3 If $A \sqsubseteq_{\mathcal{T}_S \cup \mathcal{T}_1} B$ then return extract–MinA(A, B, $\mathcal{T}_S$, $\mathcal{T}_1$)
4 If $A \sqsubseteq_{\mathcal{T}_S \cup \mathcal{T}_2} B$ then return extract–MinA(A, B, $\mathcal{T}_S$, $\mathcal{T}_2$)
5 S_1 := extract–MinA(A, B, $\mathcal{T}_S \cup \mathcal{T}_2$, $\mathcal{T}_1$)
6 S_2 := extract–MinA(A, B, $\mathcal{T}_S \cup S_1$, $\mathcal{T}_2$)
7 return $S_1 \cup S_2$

faulty variant of line 6: S_2' := extract-MinA(A,B,$\mathcal{T}_S \cup \mathcal{T}_1$,$\mathcal{T}_2$)

Example-Call such that both variants differ:

extract-MinA(A,D,$\emptyset$,$\mathcal{T}_\epsilon$)

$\mathcal{T}_\epsilon := \{A \sqsubseteq B, C \sqsubseteq D, A \sqsubseteq C, B \sqsubseteq D\}$

halve $\mathcal{T}_\epsilon \to \mathcal{T}_1 := \{A \sqsubseteq B, C \sqsubseteq D\}, \mathcal{T}_2 := \{A \sqsubseteq C, B \sqsubseteq D\}$. $A \sqsubseteq D$ doesn't follow from $\emptyset \cup \mathcal{T}_1$ or $\emptyset \cup \mathcal{T}_2$

$S_1 := extract - MinA\,(A, D, \mathcal{T}_S = \{A \sqsubseteq C, B \sqsubseteq D\}, \mathcal{T}_D = \{A \sqsubseteq B, C \sqsubseteq D\}) \to \{A \sqsubseteq B\}$

$S_2 := extract - MinA\,(A, D, \mathcal{T}_S = \{A \sqsubseteq B\}, \mathcal{T}_D = \{A \sqsubseteq C, B \sqsubseteq D\})$. halve $\mathcal{T}_D \to \{A \sqsubseteq C\}, \{B \sqsubseteq D\}$, because of line 4 $extract - MinA\,(A, D, \{A \sqsubseteq B\}, \{B \sqsubseteq D\})$ is returned and we have $S_2 = \{B \sqsubseteq D\}$ (line 1)

$S_2' := extract - MinA\,(A, D, \mathcal{T}_S = \{A \sqsubseteq B, C \sqsubseteq D\}, \mathcal{T}_D = \{A \sqsubseteq C, B \sqsubseteq D\})$. halve $\mathcal{T}_D \to \{A \sqsubseteq C\}, \{B \sqsubseteq D\}$, because of line 3 $extract - MinA\,(A, D, \{A \sqsubseteq B, C \sqsubseteq D\}, \{A \sqsubseteq C\}) = \{A \sqsubseteq C\}$ is returned.

The output is $S_1 \cup S_2 = \{A \sqsubseteq B, B \sqsubseteq D\}$ which is correct and $S_1 \cup S_2' = \{A \sqsubseteq B, A \sqsubseteq C\}$ which is not correct because it is not a MinA. One can see that for the computation of S_2, S_1 has to be a in the static part, because S_1 is already fixed as a part of the MinA (line 7).