Input: $\mathcal{O}$: $\mathcal{EL}^+$ ontology; **S**: signature
Output: $\mathcal{O}_\mathbf{S}$: reachability-based module for **S** in $\mathcal{O}$

1: $\mathcal{O}_\mathbf{S} \leftarrow \emptyset$
2: queue $\leftarrow$ active-axioms(**S**)
3: **while not** empty(queue) **do**
4:    $(\alpha_L \sqsubseteq \alpha_R) \leftarrow$ fetch(queue)
5:    **if** $\mathsf{Sig}(\alpha_L) \subseteq \mathbf{S} \cup \mathsf{Sig}(\mathcal{O}_\mathbf{S})$ **then**
6:       $\mathcal{O}_\mathbf{S} \leftarrow \mathcal{O}_\mathbf{S} \cup \{\alpha_L \sqsubseteq \alpha_R\}$
7:       queue $\leftarrow$ queue $\cup$ (active-axioms($\mathsf{Sig}(\alpha_R)$) $\setminus \mathcal{O}_\mathbf{S}$)
8: **return** $\mathcal{O}_\mathbf{S}$