Corrigendum to "Exact and Approximate Methods for Proving Unrealizability of Syntax-Guided Synthesis Problems," by Hu et al., Proc. ACM SIGPLAN Conf. on Programming Language Design and Implementation (PLDI), 1128–1142, 2020

In Proc. 41st ACM SIGPLAN PLDI, 1128–1142, 2020 (Hu et al., Exact and Approximate Methods for Proving Unrealizability of Syntax-Guided Synthesis Problems), the following corrections should be made:

1. Equation (13) should be replaced by

$$(\{\langle \vec{u}_i, V_i\rangle\}_i)^{\circledast} = \bigotimes_i \langle \vec{u}_i, V_i\rangle^{\circledast} \tag{13}$$

   where $\langle \vec{u}, V\rangle^{\circledast} = \left\{\langle \vec{0}, \emptyset\rangle, \langle \vec{u}, \{\vec{u}\} \cup V\rangle\right\}$.

2. The implementation of NAY used in the evaluation presented in §8 is based on the original Equation (13), and hence does not implement a decision procedure for SyGuS-with-examples. Instead, the method used in NAY computes an over-approximation of the value of a regular expression interpreted over semi-linear sets (i.e., it returns a superset of the true set of vectors). The NAY implementation produces sound results for unrealizability, but leaves open the question of what the performance of an implementation of the decision procedure would be (i.e., one based on the correction to Equation (13)).

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