S2 Algorithm. Self-training loop.

Input: max_steps = 600; num_texts = 200; $r_{\text{pt\_augm}} = 0.4$; decoding_parameters;
for step = 1 **to** max_steps **do**
  sen_list ← ∅ ;
  `// 1. generate texts and retain well-formed sentences`
  for $t = 1$ **to** *num_texts* **do**
    `// 1.1. prompt construction`
    prompt ← construct prompt with sentences the model believes to be true ;
    `// 1.2. text generation`
    texts, scores ← query model with prompt (text completion task, beam sampling with decoding_parameters) ;
    `// 1.3. split texts and retain well-formed sentences`
    sentences ← split texts into sub-sequences of length 3 ;
    sentences ← remove mis-formed sentences from sentences ;
    sen_list ← append sentences and corresp. scores to sen_list
  end
  `// 2. filter well-formed sentences`
  sen_list ← remove sentences originating from texts with less than 6 well-formed sentences ;
  sen_list ← remove sentences originating from texts with score below 85th score percentile ;
  `// 3. construct denoising training data`
  train_data ← mask predicate letter in each sentence from sen_list ;
  `// 4. augment self-generated data with pre-training examples`
  train_data ← sample and append denoising examples from pre-training (with ratio $r_{\text{pt\_augm}}$) ;
  `// 5. train model`
  model ← train model on augmented train_data for 1 epoch
end

decoding_parameters: To generate texts during self-training, we use beam sampling decoding as implemented by [1] with the following parameters:

number of beams	5
number of return sequences	5
do_sample	True
top_p	.7
max_length	60
no_repeat_ngram_size	3

References

[1] Wolf T, Debut L, Sanh V, Chaumond J, Delangue C, Moi A, et al. Transformers: State-of-the-Art Natural Language Processing. In: Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: System Demonstrations. Online: Association for Computational Linguistics; 2020. p. 38–45. Available from: `https://www.aclweb.org/anthology/2020.emnlp-demos.6`.