Input: Initial path X_0

$X^{\mathrm{o}} \leftarrow X_0$

for `trial < n_trials` **do**

  Draw uniform $\hat{k}^{\mathrm{o}} \in [1, L(X^{\mathrm{o}})]$: **return** $\hat{k}^{\mathsf{o}}$
  $x^{\mathrm{SP}} \leftarrow X^{\mathrm{o}}$ at $\hat{k}^{\mathrm{o}}$

  $X^{\mathrm{fwd}} \leftarrow \texttt{IntegrateToState}(x^{\mathrm{SP}})$
  $X^{\mathrm{rv}} \leftarrow \texttt{IntegrateToState}(\bar{x}^{\mathrm{SP}})$
  $X^{\mathrm{n}} \leftarrow \texttt{ConcatenatePath}(\bar{X}^{\mathrm{rv}}, X^{\mathrm{fwd}})$

  $p_{\mathrm{acc}}(X^{\mathrm{o}} \rightarrow X^{\mathrm{n}}) \leftarrow H_{\mathrm{AB}}(X^{\mathrm{n}}) \min\left[1, \frac{L(X^{\mathrm{o}})}{L(X^{\mathrm{n}})}\right]$
  if $\texttt{rand}() < p_{\texttt{acc}}(X^{\mathtt{o}} \rightarrow X^{\mathtt{n}})$ **then**
    $X^{\mathrm{o}} \leftarrow X^{\mathrm{n}}$
  end

  Add X^{o} to the ensemble
  `trial` $\leftarrow$ `trial`$+1$

end