Algorithm Two-phase parameter space exploration
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with: $\overrightarrow{\lambda}^{cv}, \overrightarrow{\lambda}^{cs}$

$s \leftarrow 0.04$
$n \leftarrow 500$

Phase 1

$L \leftarrow \{\}$
for each $\theta^{cv} \in \{0.0001, 0.1, 0.2, \ldots, 2\}$ **do**
  for each $\theta^{cs} \in \{0.0001, 0.1, 0.2, \ldots, 2\}$ **do**
    $\overrightarrow{\lambda} \leftarrow \theta^{cv} \overrightarrow{\lambda}^{cv} + \theta^{cs} \overrightarrow{\lambda}^{cs}$
    $L \leftarrow L \cup \{\overrightarrow{\lambda}\}$
  end for
end for

while `No coalescence of clouds of points in the projection plane` (g_{cv}, g_{cs}) **do**
  $\overrightarrow{\lambda} \leftarrow \mathbf{Sample}(L)$
  for each $\lambda_i \in \overrightarrow{\lambda}$ **do**
    if $\lambda_i \notin$ `Upstream Module Parameter Subset` **then**
      $x \sim Normal(0, s)$
      $\epsilon \leftarrow e^x$
    else
      $\epsilon \leftarrow 1$
    end if
    $\lambda_i \leftarrow \lambda_i \times \epsilon$
  end for
  $L \leftarrow L \cup \{\overrightarrow{\lambda}\}$
end while

Phase 2

$L_{Sel} \leftarrow \{\}$
$L_{Uns} \leftarrow \{\}$
for each $\overrightarrow{\lambda} \in L$ **do**
  if $\overrightarrow{\lambda}$ `is Coherent with Observed Data (Sec. 4.4)` **then**
    $L_{Sel} \leftarrow L_{Sel} \cup \{\lambda\}$
  end if
end for

while `No stable clustering in projection plane` (g_{cv}, g_{cs}) **do**
  $iter \leftarrow 0$
  repeat
    increment $iter$
    $\overrightarrow{\lambda} \leftarrow \mathbf{Sample}(L_{Sel})$
    for each $\lambda_i \in \overrightarrow{\lambda}$ **do**
      if $\lambda_i \notin$ `Upstream Module Parameter Subset` **then**
        $x \sim Normal(0, s)$
        $\epsilon \leftarrow e^x$
      else
        $\epsilon \leftarrow 1$
      end if
      $\lambda_i \leftarrow \lambda_i \times \epsilon$
    end for
    if $\overrightarrow{\lambda}$ `is Coherent with Observed Data (Sec. 4.4)` **then**
      $L_{Sel} \leftarrow L_{Sel} \cup \{\overrightarrow{\lambda}\}$
    else
      $L_{Uns} \leftarrow L_{Uns} \cup \{\overrightarrow{\lambda}\}$
    end if
  until $iter = n$
end while

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