procedure General VNS (x)   [long version]

begin
  $x \leftarrow$ initial solution;
  repeat:
    $k \leftarrow 1$;
    repeat:
      shaking: generate a random $x' \in N_k(x)$;
      $l \leftarrow 1$;
      repeat:
        find an x'' with $f(x'') \leq f(x''')$, $\forall x''' \in \mathcal{N}_l(x')$;
        if $f(x'') < f(x')$ **then**
          $x' \leftarrow x''$; $l \leftarrow 1$;
        else
          $l \leftarrow l + 1$;
      until $l > l_{\max}$;
      if $f(x') < f(x)$ **then**
        $x \leftarrow x'$;
        $k \leftarrow 1$;
      else
        $k \leftarrow k + 1$;
    until $k > k_{\max}$;
  until stopping criteria satisfied;
  return x;
end