input : vectors with $L(t_i)$, t_i and $V_0(t_i)$, arranged by their appearance time t_i, N grid points x_k
output: $\tau_{num}(x_k)$ as a vector of size N

$\tau_n(x_k)- \longleftarrow$ array length N of empty dynamic arrays length n ;
$k \longleftarrow 1$;
for $i \leftarrow 1$ **to** *length of* $t_i - 1$ **do**
  if $L(t_{i+1}) \geq L(t_i)$ **then**
    repeat
      $\tau_{n+1}(x_k) \longleftarrow$ output of interpolating $L(t), V_0(t)$ at t_i, t_{i+1};
      $k \longleftarrow k + 1$;
    until $x_k > L(t_i)$;
  end
  if $L(t_{i+1}) < L(t_i)$ **then**
    repeat
      $\tau_{n+1}(x_k) \longleftarrow$ output of interpolating $L(t), V_0(t)$ at t_i, t_{i+1};
      $k := k - 1$;
    until $x_k < L(t_i)$;
  end
end
for $i \leftarrow 1$ **to** N **do**
  $\tau_{num}(x_k) \longleftarrow \tau_1(x_k)$;
  for $j \leftarrow 2$ **to** *length of* $\tau_n(x_k)$ **do**
    if j *even* **then**
      $\tau_{num}(x_k) \longleftarrow \tau_{num}(x_k) + \tau_j(x_k)$;
    else
      $\tau_{num}(x_k) \longleftarrow \tau_{num}(x_k) - \tau_j(x_k)$;
  end
end