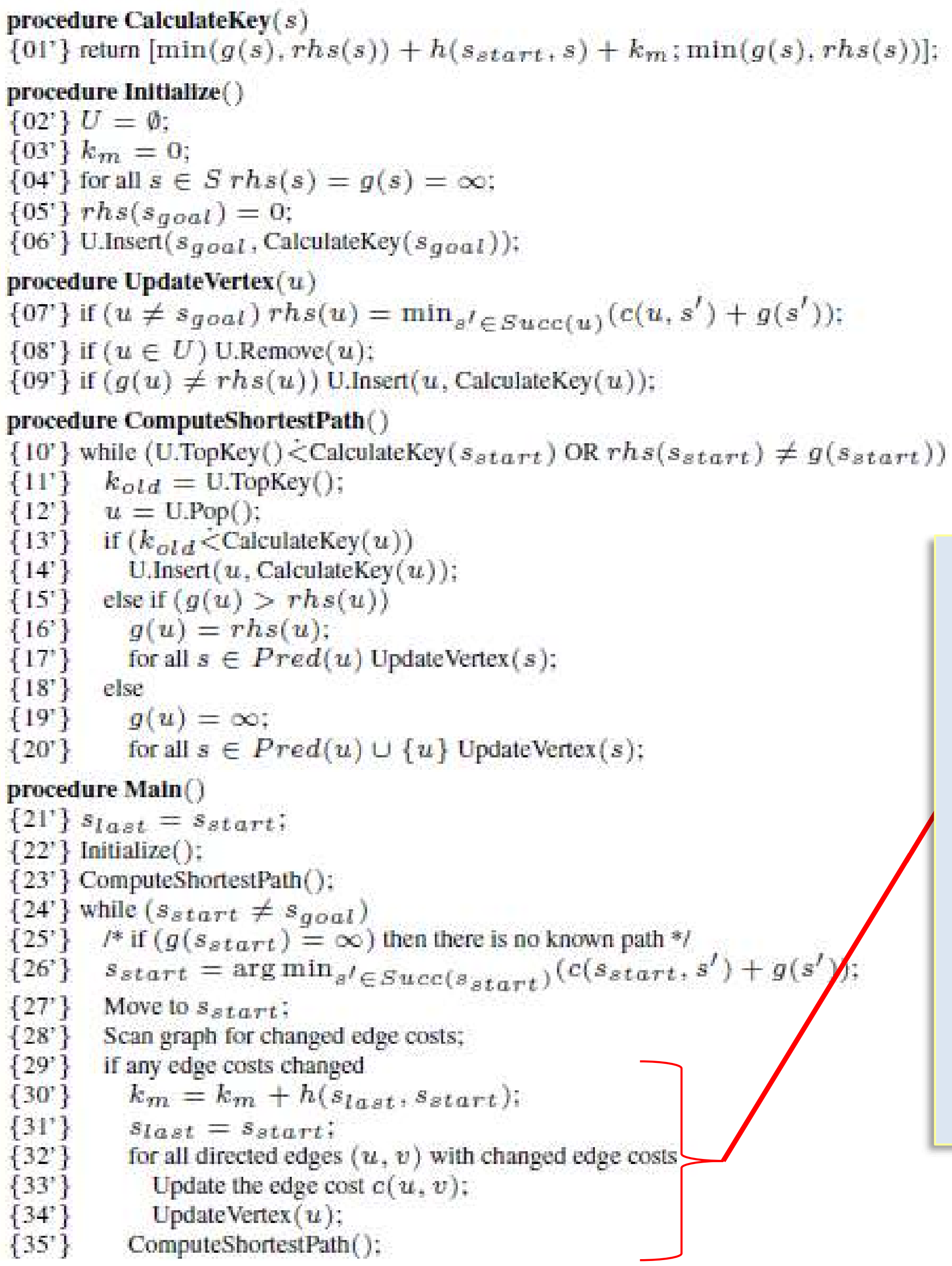
D* Lite Pseudocode (final version)



```
procedure CalculateKey($s$)
{01'} return $[\min(g(s), rhs(s)) + h(s_{start}, s) + k_m; \min(g(s), rhs(s))]$;
procedure Initialize()
{02'} $U = \emptyset$;
{03'} $k_m = 0$;
{04'} for all $s \in S$ $rhs(s) = g(s) = \infty$;
{05'} $rhs(s_{goal}) = 0$;
{06'} U.Insert($s_{goal}$, CalculateKey($s_{goal}$));
procedure UpdateVertex($u$)
{07'} if $(u \neq s_{goal})$ $rhs(u) = \min_{s' \in Succ(u)}(c(u, s') + g(s'))$;
{08'} if $(u \in U)$ U.Remove($u$);
{09'} if $(g(u) \neq rhs(u))$ U.Insert($u$, CalculateKey($u$));
procedure ComputeShortestPath()
{10'} while (U.TopKey() $\dot{<}$ CalculateKey($s_{start}$) OR $rhs(s_{start}) \neq g(s_{start})$)
{11'}     $k_{old}$ = U.TopKey();
{12'}     $u$ = U.Pop();
{13'}     if ($k_{old}$ $\dot{<}$ CalculateKey($u$))
{14'}         U.Insert($u$, CalculateKey($u$));
{15'}     else if $(g(u) > rhs(u))$
{16'}         $g(u) = rhs(u)$;
{17'}         for all $s \in Pred(u)$ UpdateVertex($s$);
{18'}     else
{19'}         $g(u) = \infty$;
{20'}         for all $s \in Pred(u) \cup \{u\}$ UpdateVertex($s$);
procedure Main()
{21'} $s_{last} = s_{start}$;
{22'} Initialize();
{23'} ComputeShortestPath();
{24'} while $(s_{start} \neq s_{goal})$
{25'}     /* if $(g(s_{start}) = \infty)$ then there is no known path */
{26'}     $s_{start} = \arg\min_{s' \in Succ(s_{start})}(c(s_{start}, s') + g(s'))$;
{27'}     Move to $s_{start}$;
{28'}     Scan graph for changed edge costs;
{29'}     if any edge costs changed
{30'}         $k_m = k_m + h(s_{last}, s_{start})$;
{31'}         $s_{last} = s_{start}$;
{32'}         for all directed edges $(u, v)$ with changed edge costs
{33'}             Update the edge cost $c(u, v)$;
{34'}             UpdateVertex($u$);
{35'}         ComputeShortestPath();
```

If some edge costs have changed:

- Update km
- Update S_{Last}
- update the rhs-values and keys of the vertices potentially affected, as well as their memberships in the priority queue, if they have become locally consistent or inconsistent.
- Recalculate shortest path (line 35)

B