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**Algorithm 1:** Cost-Vector Algorithm

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**Input:** Training sentences  $S_i$

**Output:** Sentence instances with cost-vectors for training  $S_{i,c_i}$

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1 function generateCosts( $EV_{i,v,r}$ )
2    $S_{i,c_i} = []$ 
3   forall  $s \in S, v \in EV$  do
4      $c_i = \{\}$ 
5     set region  $r = EV_{i,r}$ 
6     for  $p \leftarrow 1, properties$  do
7        $c_{i,p} := cost(kb_{r,p}, v_{i,r})$ 
8       if  $c_p > Cost_t$  then
9          $c_p := \infty$ 
10      else
11        continue
12    if  $\min(c) > APE_t$  then
13       $c_{i,no\_property} := 0$ 
14    else
15       $c_{i,no\_property} := \infty$ 
16    push ( $S_{i,c_i}, (s, c_i)$ )
17  return  $S_{i,c_i}$ 
```

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