580 2014.03-20

Note Title 2014-03-20

Seg	length	Topics covered	10 * |Topics covered|
seg 0	10	[welcome]	10
seg 1	30	[skiing, views]	20
seg 2	50	[welcome, AI, robots]	30
seg 3	40	[graphics, dragons]	20
seg 4	50	[skiing, robots]	20

h, 50 < [welcome, skiing, robot], [ ] > (initial state)

1 1

3 2 10 50 4

50 (10) < [skiing, robot], [seg 0] > < [skiing], [seg 2] > (50) 50

30 ③   50 ③ ⑤   30 (80)   50 (100)

80 (40) $\langle$[robots], [seg0, seg1]$\rangle$ $\langle$[ ], [seg0, seg4]$\rangle$ (60)

50   50

(90) $\langle$[ ], [seg0, seg1, seg2]$\rangle$ $\langle$[ ], [seg0, seg1, seg4]$\rangle$ (90)

(b) Give a heuristic.

Let $n = \langle ToCover, Segs \rangle$

$h(n) = 10 * |ToCover|$

To show monotonicity, $h(n) - h(n') \leq cost(n, n')$

$\forall n' \in scs(n)$

You can check this on every pair of node

There are better heuristics

(a) For each topic, let $s(t)$ be the length of the smallest segment that covers topic t. Then,

$$h(\langle TC, Segs\rangle) = \max_{t \in TC} s(t) = h_1(\langle TC, Segs\rangle)$$

(b) For each segment, let the contribution of the segments be the time of the segment divided by the number of topics covered in the segment. For each topic t, let $s(t)$ be the smallest contribution over all segments that cover the topic. Then

$$h(\langle TC, Segs\rangle) = \sum_{t \in TC} s(t)$$

Topic	$s(t)$
AI	50
dragons	40
graphics	40

(used to compute h_1)

Note that using h_1 only 3 nodes are closed

robots	50
skiing	30
views	30
welcome	10

by A[illegible].