

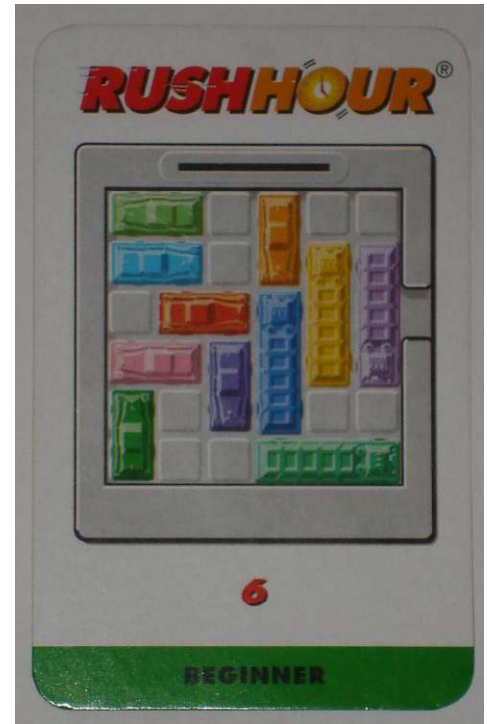
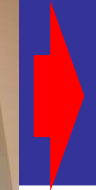
Algoritmer og Datastrukturer 1

Gerth Stølting Brodal

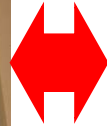
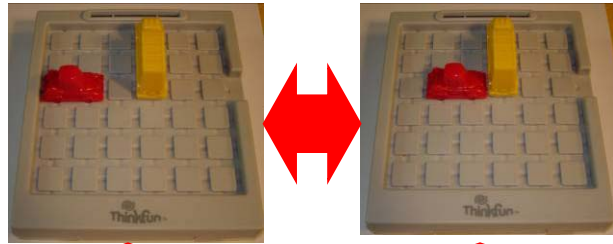
"Rush Hour"



AARHUS UNIVERSITET







14 tilstande



Løsning af RushHour

procedure RushHour(Startopstilling c)

$S = \{ c \}$

$Q = \{ c \}$

while $|Q| > 0$

$c = \text{delete}(Q)$

for alle mulige træk $c \rightarrow c'$

if c' ikke er i S **then**

if $c' \rightarrow$ rød exit **then**

 rapporter fundet en løsning

$\text{insert}(S, c')$

$\text{insert}(Q, c')$



Hvilken
rækkefølge ?

Datastrukturer

S = (balanceret) søgetræ

Q = stak eller kø

Bemærk: Hvis **Q** = kø så findes tilstandene efter stigende afstand fra starttilstanden



RUSH HOUR

1

BEGINNER

RUSH HOUR

2

BEGINNER

RUSH HOUR

3

BEGINNER

RUSH HOUR

4

BEGINNER

RUSH HOUR

5

BEGINNER

RUSH HOUR

6

BEGINNER

RUSH HOUR

7

BEGINNER

RUSH HOUR

8

BEGINNER

RUSH HOUR

9

BEGINNER

RUSH HOUR

10

BEGINNER

RUSH HOUR

11

INTERMEDIATE

RUSH HOUR

12

INTERMEDIATE

RUSH HOUR

13

INTERMEDIATE

RUSH HOUR

14

INTERMEDIATE

RUSH HOUR

15

INTERMEDIATE

RUSH HOUR

16

INTERMEDIATE

RUSH HOUR

17

INTERMEDIATE

RUSH HOUR

18

INTERMEDIATE

RUSH HOUR

19

INTERMEDIATE

RUSH HOUR

20

INTERMEDIATE

RUSH HOUR

21

ADVANCED

RUSH HOUR

22

ADVANCED

RUSH HOUR

23

ADVANCED

RUSH HOUR

24

ADVANCED

RUSH HOUR

25

ADVANCED

RUSH HOUR

26

ADVANCED

RUSH HOUR

27

ADVANCED

RUSH HOUR

28

ADVANCED

RUSH HOUR

29

ADVANCED

RUSH HOUR

30

ADVANCED

RUSH HOUR

31

EXPERT

RUSH HOUR

32

EXPERT

RUSH HOUR

33

EXPERT

RUSH HOUR

34

EXPERT

RUSH HOUR

35

EXPERT

RUSH HOUR

36

EXPERT

RUSH HOUR

37

EXPERT

RUSH HOUR

38

EXPERT

RUSH HOUR

39

EXPERT

RUSH HOUR

40

EXPERT

Eksempler på løsninger

Kort	Korteste vej	Antal tilstande	"Kø" S	"Kø" Max Q	"Stak" S	"Stak" Max Q	"Stak" Stilængde	Random Walk Stilængde min-gnst-max
1	7	1075	1057	297	1029	735	163	15-691-4443
2	7	21055	2267	769	596	499	97	58-770-3300
3	13	830	774	175	412	273	88	120-1518-7147
4	8	451	350	137	443	200	61	46-534-2650
5	8	2784	2251	556	1868	1466	385	35-831-3398
6	8	2954	1556	351	1016	773	230	31-505-2663
7	12	7273	4947	1207	1483	1184	289	74-635-3078
8	11	950	950	191	787	536	236	64-4881-24365
9	11	6759	680	191	148	109	39	26-170-683
10	16	4466	1817	252	1072	803	205	169-1387-6965
13	15	13119	8201	1270	6540	4828	1443	165-1707-6398
14	16	61712	8928	2550	5114	4255	819	262-1789-5610
15	22	540	524	56	443	284	148	256-11282-55409
32	36	690	574	37	279	189	75	546-7787-36859
33	39	4273	4066	440	2942	2233	668	4959-44873-113358
37	46	1955	1941	222	1627	1157	418	1051-5407-20537
38	47	4405	3710	254	1768	1207	402	1824-10966-40450
39	49	4533	3581	159	3310	1723	618	3701-26707-81966
40	50	3493	3024	283	2285	1273	461	2237-15823-51870

Kort 33: 100 x Random Walk

