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Übungsblatt Nr. 8

(Abgabetermin 20.12.2017)

1 CSP

a)

line	assignment	A	B	C	D	E	F	G	H	I
0	init	rgb	rgb	rgb	rgb	rgb	rgb	rgb	rgb	rgb
1	A ← r	r	rgb	gb	rgb	rgb	rgb	rgb	rgb	rgb
2	B ← r	r	r	gb	gb	rgb	rgb	rgb	rgb	rgb
3	C ← g	r	r	g	b	rgb	rb	rgb	rgb	rb
4	D ← b	r	r	g	b	rg	rb	rg	rg	rb
5	E ← r	r	r	g	b	r	rb	g	rg	rb
6	F ← r	r	r	g	b	r	r	g	g	b
7	G ← g	r	r	g	b	r	r	g	g*	b
8	F ← b	r	r	g	b	r	b	g	r	r
9	G ← g	r	r	g	b	r	b	g	r	r
10	H ← r	r	r	g	b	r	b	g	r	r**
11	E ← g	r	r	g	b	g	rb	r	rg	rb
12	F ← r	r	r	g	b	g	r	r	g	b
13	G ← r	r	r	g	b	g	r	r	g	b
14	H ← g	r	r	g	b	g	r	r	g	b
15	I ← b	r	r	g	b	g	r	r	g	b

* backtracks to line 5 before r was assigned to F and now assigns the other option b.
** backtracks to line 4 before r was assigned to E and now assigns the other option g.
This final coloring of the graph is consistent with our constraints.

b)

line	assignment	A	B	C	D	E	F	G	H	I
0	init	rgb	rgb	rgb	rgb	rgb	rgb	rgb	rgb	rgb
1	A ← r	r	rgb	gb	rgb	rgb	rgb	rgb	rgb	rgb
2	B ← r	r	r	gb	gb	rgb	rgb	rgb	rgb	rgb
3	C ← g	r	r	g	b	rg	rb	rg	rg	rb
4	E ← r	r	r	g	b	r	b	g	r	b*
5	E ← g	r	r	g	b	g	rb	r	g	rb
6	F ← r	r	r	g	b	g	r	r	g	b

We do not assign D in the 4th row but skip it since it is already tested for consistency and would therefore be redundant.
* in MAC we backtrack to the line before since we already know this leads to an inconsistent constellation. When we change E to g instead of r it works. We are able to spot the inconsistency way earlier in the second example saving us much time. Therefore MAC has an advantage here.