edX

hw2_csps_q6_arc_consistency
Question 6: Arc Consistency

0.0/4.0 points (graded)

Consider the problem of arranging the schedule for an event. There are three time slots: 1, 2, and 3. There are three presenters: A, B, and C. The variables for the CSP will then be A, B, and C, each with domain {1, 2, 3}. The following constraints need to be satisfied:

1. A, B, and C all need to take on different values

2. $A < C$

Enforce consistency for the arc $A \rightarrow C$, and then select which values remain for each variable.

☑ A: 1 ✔

☑ A: 2 ✔

☐ A: 3

☑ B: 1 ✔

☑ B: 2 ✔

☑ B: 3 ✔

☑ C: 1 ✔

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☑ C: 3 ✔

The constraint A<C means that if A has value 3, C has no possible values, so 3 is removed from A's domain.

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ℹ   Answers are displayed within the problem

problem

0.0/4.0 points (graded)
Starting from the result of the previous step, enforce consistency for the arc $B \rightarrow A$, and then select which values remain for each variable.

☑ A: 1 ✔

☑ A: 2 ✔

☐ A: 3

☑ B: 1 ✔

☑ B: 2 ✔

☑ B: 3 ✔

☑ C: 1 ✔

☑ C: 2 ✔

☑ C: 3 ✔

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Each value for B leaves A with at least one possible value in its domain (1→{2}, 2→{1}, 3→
{1,2}), so the domains do not change

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problem

0.0/4.0 points (graded)

Starting from the result of the previous step, enforce consistency for the arc $C \rightarrow A$, and
then select which values remain for each variable.

- ☑ A: 1 ✔
- ☑ A: 2 ✔
- ☐ A: 3
- ☑ B: 1 ✔
- ☑ B: 2 ✔
- ☑ B: 3 ✔
- ☐ C: 1
- ☑ C: 2 ✔
- ☑ C: 3 ✔

The constraint A<C means that if C has value 1, A has no possible values, so 1 is removed
from C's domain

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