COMP90046 Constraint Programming

Peter Stuckey

Next two weeks

- Next week is
  - the International Joint Conference on Artificial Intelligence
    - one of the biggest CS conferences, here in Melbourne
- The week after is
  - International Conference on Constraint Programming
    - again here in Melbourne
- I have to attend both, so
  - Graeme Gange
  - will be taking the lectures for the next 2 weeks!

Survey 4A

- How much of assignment two have you completed.
  - A: WHAT there is another ASSIGNMENT!
  - B: seen it
  - C: thought about it
  - D: tried it
  - E: finished it.

Survey 4B

- How many lectures in Week 3 have you watched
  - A: none
  - B: 1
  - C: 2
  - D: 3
  - E: all

Survey 4C

- How much of the workshop 3 have you completed
  - A: not looked at it
  - B: attempted it
  - C: finished first part
  - D: tried it all
  - E: finished it all

Survey 4E

- Whats the maximum profit for the assignment problem

	t1	t2	t3	t4	t5
w1	7	3	3	4	2
w2	5	2	5	1	4
w3	4	3	4	2	5
w4	3	1	6	3	5

  - A: 16
  - B: 17
  - C: 18
  - D: 20
  - E: 21

Survey 4F

- What does the following constraint express

```
constraint x = NIGHT /\ x = EVE -> y =
 EVE \/ y = OFF;
```

  - A: if x is night or eve then y is eve or off
  - B: if x is eve then y is eve. x is not off
  - C: no constraint
  - D: y is night
  - E: x is not eve

```
constraint ((x = NIGHT /\ x = EVE) -> y = EVE) \/ y = OFF;
```

j

- What does the following constraint express

```
constraint x = NIGHT \/ (x = EVE -> y =
 EVE /\ y = OFF);
```

  - A: if x is night or eve then y is eve or off
  - B: if x is eve then y is eve. x is not off
  - C: x is off
  - D: y is not night
  - E: x is not eve

```
constraint x = NIGHT \/ (x = EVE -> (y = EVE /\ y = OFF));
```

SearchParty

- Given 6 searchers A,B,C,D,E,F each of which must search in a direction n,s,e,w.
- Each direction must have at least 1 searcher
- if A searches n or s then B cannot search n or s
- C and D must search in opposite directions
- if either E or F go w then no one else can search that direction
- the pairs (A,E), (B,F), (C,E) can't search the same direction
- find a solution

Retail Roster

- In a retail roster each person can take at most two shifts a day.
- The shifts are: opening, morning, lunch, afternoon, and closing, or NONE
- A person who is closing cannot be on afternoon
- A person who in on morning cant be on opening
- Each person gives preferences for each day and shift, and if they give 0 they cant be on that shift on that day

Retail Roster

- 8 or more in pm: lunch, afternoon or closing
- 8 or more in am: lunch, morning or opening
- at least 1 opening, 2 morning, 2 lunch, 3, afternoon, and 1 closing
- maximize preferences of shifts given

- Shift restrictions
  - not closing and afternoon
  - no opening and morning

- Data set rr.dzn given on LMS

EOF