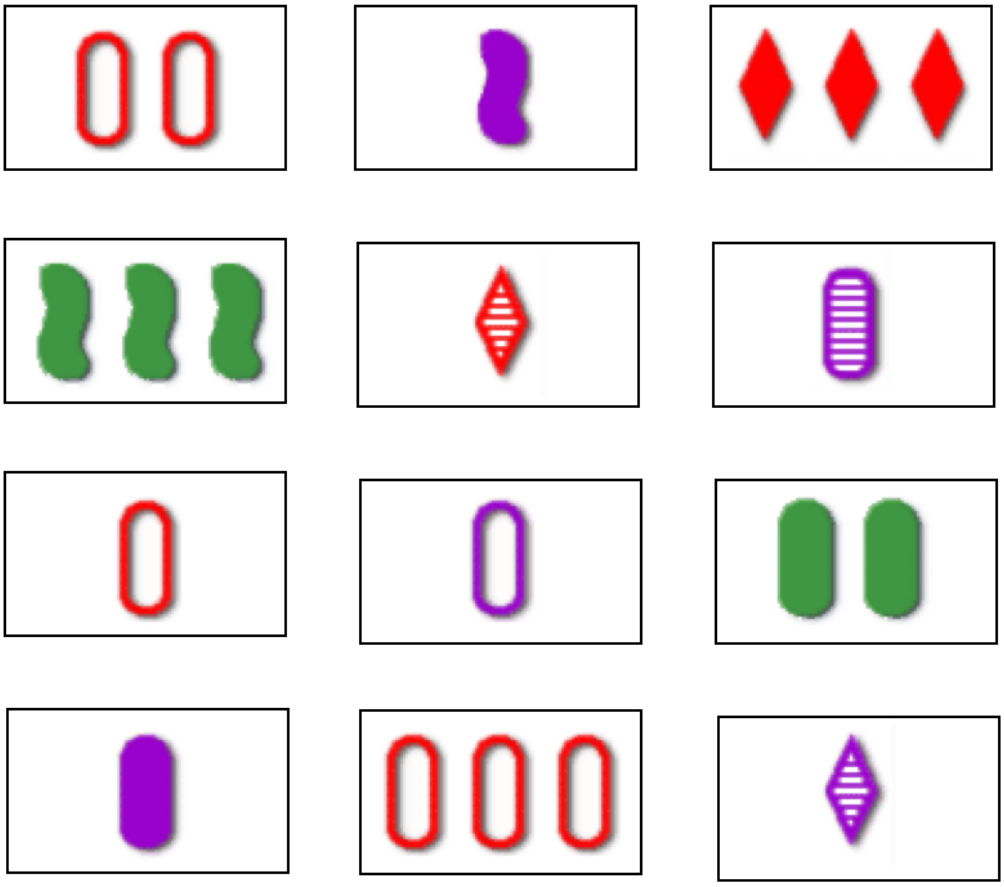
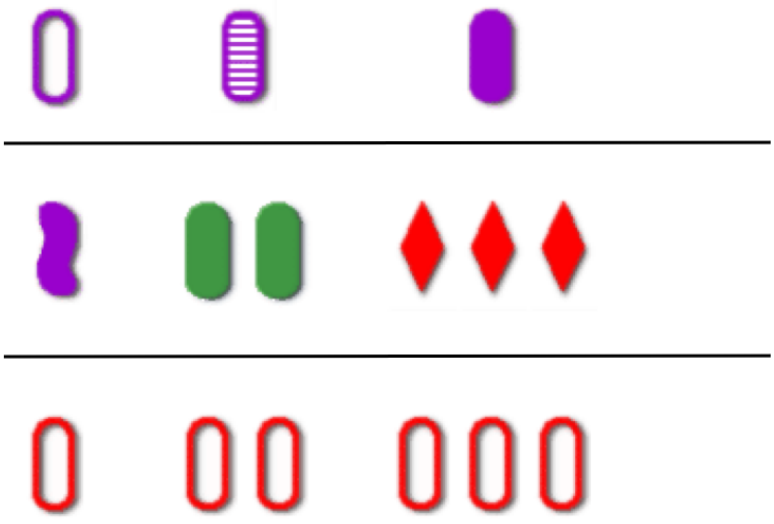
Game of Set

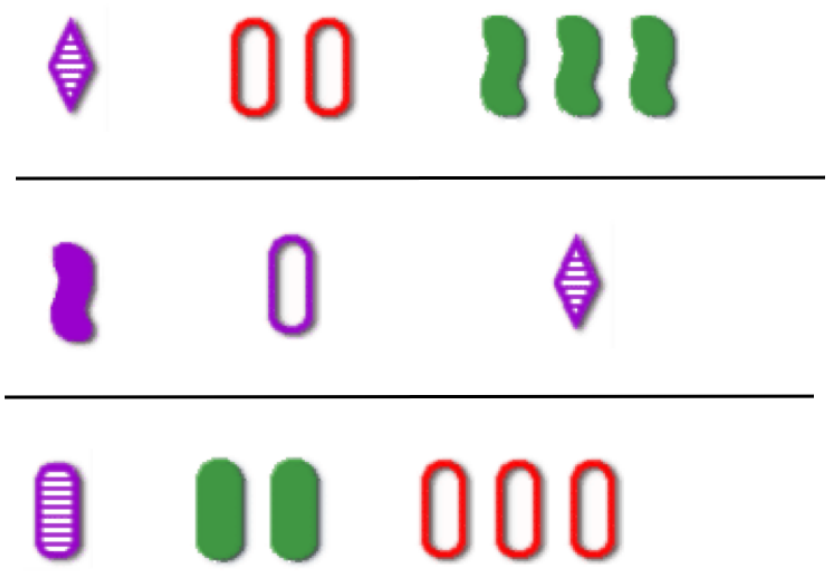
Monday, September 26, 2016 9:29 AM



Possible sets



Possible sets



CSP

Monday, September 26, 2016 9:32 AM

Constraint Satisfaction

- Find a state config that doesn't violate constraints

(non-sequential)

- State: A set of variables $X_1, X_2, Y_3, \dots Y_n$ each of which can take a different vale

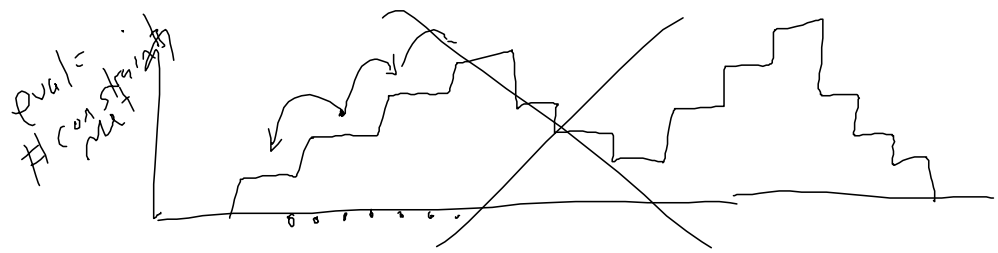
- Domain: Each variable X_i has a corresponding ~~set~~ of values it can take D_i

- Constraint: $C_1, C_2, \dots C_m$ each involving a number of variables & specifing legal values

- Solution: An assignment of values to variables

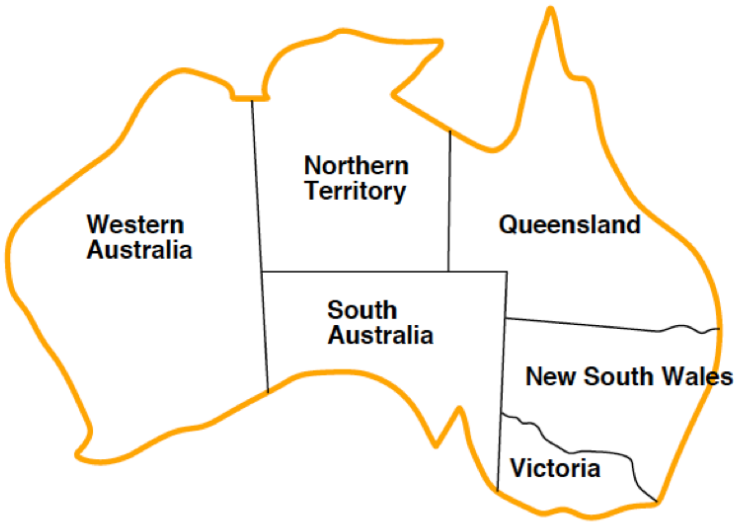
$$\{X_i = v_i \ (\in D_i), X_j = v_j, \dots\}$$

You don't know the goal → Not A* (Not sequential)
Not hill-climbing → doesn't guarantee optimal solution
You have to find the optimal solution



Map coloring

Monday, September 26, 2016 9:49 AM



Green
Red
Blue

Variables $\{WA, NT, Q, NSW, V, SA, T\}$

Domains: $D_i = \{R, G, B\}$ for all X_i

Constraints: "Adjacent territoritoris have different colors"

$(WA, NT) = \{R,G\}, \{R,B\}, \{B,G\}, \{B,R\}, \{R,G\}, \{R,B\}$

$(NT, Q) = \{$

Macros: $\neq$

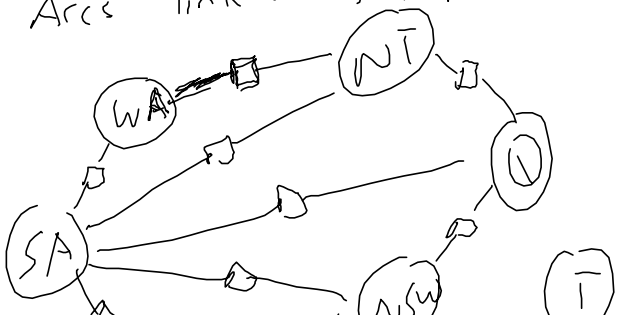
$WA \neq NT$

$NT \neq Q$

> ~~Latex~~ write a parser

* a language

- Constraint Graph - visualization strategy
  - Nodes: variables & constraints
  - Arcs: link variables to constraints



Binary Constraints: 2 variables

unary constraints: Q ≠ {R}

High-order constraints: (T=SA or T=V)